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Directors' Remuneration and Bank Performance

Green and Ethical Banking: Demand and Supply Perspectives from Bankers, Corporations, and Heads of Households in Malaysia

Natural Environmental Risk Management: An Impact on Banking Businesses in Malaysia

Performance Efficiencies of Domestic and Foreign Islamic Banks in Malaysia

Service Quality in the Banking Sector: Structural Equation Modelling Approach



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## *Editor's Note*

This issue brings together papers that discuss different dimensions of bank performance. Two papers dwell on what is becoming a major area of concern not just in banking but more broadly in how economic decisions are made and activities implemented. This is the focus on green practices that ensure sustainability and avoid as much as possible environmental damage.

The paper by Tan, et al, looks at green and ethical banking from both demand and supply perspectives. It finds considerable potential for pursuing this. Results from interviews revealed a strong demand from both corporations as suppliers and individuals as banking clients for ethical and green banking. Recommendations to enhance public awareness and introduce products incorporating these practices flow from these findings.

The importance of green banking and environmental risk management is the subject of the paper by Mohamad Yazis et al. They argue that while banking has no direct link with the environment, bank loans have been made to projects that have. In reviewing the impact of the banking businesses on the natural environment, this study focuses on the establishment of the Equator Principles and its benefits for the banking industry in a developing country, of which Malaysia is the selected example.

Another two papers examine the factors that affect bank performance. Lee and Shaiban look at directors' remuneration as well as other characteristics of banks in Malaysia to determine the extent to which they affect bank performance. Their empirical analysis reveals striking differences in directors' remuneration and characteristics between domestic and foreign banks. While domestic banks are less profitable and liquid than foreign banks in Malaysia, their directors' remuneration is significantly higher than that of foreign-owned banks. Much better integration of performance into directors' remuneration packages is therefore suggested for Malaysian banks.

Lee et al look at the impact of service quality on bank performance, this quality being based on client perceptions. The study is able to identify the types of services that matter to clients – usage convenience, bank staff empathy, knowledge and competency of the service provided, the reliability and security of the service, and Internet banking quality. More crucially but not unexpectedly, the perceived quality of these services affects the willingness of clients to use these services. Poor service, therefore, drives away customers, existing and potential, and undermines customer loyalty. It is not sufficient to provide innovative services if measures are not simultaneously introduced to ensure service quality.

The fifth paper, by Rossazana Ab-Rahim et al, also looks at bank performance, but is focused on Islamic banking and compares Malaysian and foreign banks. Their rationale for the choice of Islamic banking is its explosive growth in Malaysia. They find that for both Malaysian and foreign Islamic banks, the main contributor to cost efficiency is that achieved through the allocation of resources. In this, as well as in technical efficiency, foreign Islamic banks are more efficient than domestic banks.

The contents of this issue highlight several areas of importance for banking in this country. First, it points to an area in which banks must increasingly focus, both respect to environmental sustainability and to enhance profitability. Second, it reveals several factors – directors' remuneration and service quality – that are or should be material to bank performance. And third, it shows Malaysian banks having some way to go in comparison with foreign banks with respect to rewarding performance and operating efficiency.

# Directors' Remuneration and Bank Performance

Lee Siew Peng<sup>1</sup>

Mohammed Shaiban<sup>2</sup>

## ABSTRACT

This study examines the relationship between bank performance and directors' remuneration in domestic-owned and foreign-owned banks in Malaysia for the period from 2001 to 2010 using panel regression. It also assesses the impact of the characteristics of banks on the performance. The descriptive analysis indicates that the bank performance, directors' remuneration and characteristics of the banks are significantly different between domestic and foreign banks. Furthermore, the analysis indicates that domestic banks are less profitable and liquid than foreign banks in Malaysia. However, the directors' remuneration of domestically owned banks is significantly higher than that of foreign-owned banks. When using Return on Average Asset (ROA) and Return on Average Equity (ROE) as dependent variables, the regression result shows that the directors' remuneration coefficients are significantly and positively linked to bank performance. This result suggests that the remuneration needs to be integrated within the directors' remuneration package to enhance performance. In addition, the findings reveal that bank performance is positively associated with the net interest margin. This implies that the banks derive a higher proportion of their income from interest, the source of which is consumer loans.

## INTRODUCTION

In recent decades, international trade in goods and financial services has become increasingly important in Malaysia. To facilitate such trade, many Malaysian banking institutions have internationalised, and Bank Negara Malaysia (BNM) has also increasingly allowed foreign bank entry into the domestic banking system. Moreover, Malaysia recognises that the competition from the presence of foreign banks will contribute to a more efficient, competitive environment and market-driven financial sector. However, there is an argument that the presence of foreign banks in a domestic financial landscape has negative implications, particularly for a developing economy. Regardless of whether it is a domestic or foreign bank, all banks seek to enhance their profitability.

Malaysian evidence on the association between directors' pay and bank performance is very limited. Only a few studies were found — Dogan and Smyth (2002); Hassan, Christopher and Evans (2003); and Syaiful, Effiezal and James (2012) — that examine the directors' remuneration with Malaysian public-listed firms' performance. However, the results reported are inconsistent. Therefore, this study attempts to fill the gap in the literature. The objective of this study is to examine the relationship between directors' remuneration and bank performance in domestic-owned and foreign-owned banks in Malaysia for the period 2001 to 2010. Further, it assesses the impact of the characteristics of banks on the performance. This study is different from much of the prior research as it examines whether directors' remuneration and bank-specific factors affect bank performance.

This paper is organised as follows. In Section II, the literature concerning executive management compensation and performance is discussed. Section III describes the sample and methodology. Section IV provides some descriptive statistics in domestic and foreign banks in Malaysia and discusses the results. Finally, Section V provides the conclusion.

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## ECONOMIC THEORY AND EXECUTIVE COMPENSATION

From the economics perspective, the issue of pay-performance usually relies on the principal-agent theory to justify a positive correlation between directors' remuneration and measures of firm performance (Murphy, 1998; and Jensen and Murphy, 1990). The owners of the company (shareholders) are the principals, while the management team (executive directors) is their agent. The agent is expected to implement actions that would maximise shareholders' (principals') value in the long run. However, the divergence in interests between the agent and shareholders creates a moral hazard in the situation where the agent does not act in the best interests of the shareholders. Hillman and Dalziel (2003) highlight that well-designed compensation contracts will help to ensure that the objectives of directors and shareholders are aligned.

Murphy (1985) finds that executive remuneration is related to U.S. firms' performance measured as shareholders' return and sales growth. Other studies such as Jensen and Murphy (1990); Aggarwal and Samwick (1999); and Sigler (2011) support Murphy's earlier finding of the pay-performance relation. Zhou (2000), Merhebi et al. (2006), and Doucouliagos, Haman, and Askary (2007) utilise non-U.S. data, and their results support the U.S. findings. However, other studies find no evidence of a linkage between executive remuneration pay and firm performance (Izan, Sidhu and Taylor, 1998; Brunello, Graziano and Parigi, 2001; and Ozkan, 2011).

In comparison to the developed markets, there are few Malaysian studies. Early studies are documented by Dogan and Smyth (2002) on Malaysian-listed firms for the period 1989 to 2000. They find that the relationship between board remuneration and firm performance is ambiguous. In another study, Abdullah (2006) finds that directors' remuneration is not related to corporate performance as measured by ROA

but is related to the firm size. Tee and Hooy (2009), whose analysis was performed on 38 Government-Linked Companies (GLCs) using 2005 data, support the earlier findings. The results suggest that GLC directors are not interested in achieving sustainable performance, and there is no evidence that directors' remuneration is aligned with the firm's performance. In contrast, Syaiful, Effiezal and James (2012) find that the directors' remuneration significantly drives board motivation to enhance performance in Malaysian family firms.

Previous studies also evaluate how various factors impact bank performance. Some studies argue that the profitability factor dominates firm size in determining the directors' remuneration. Ueng, Wells and Lilly (2000) suggest that firm size measured by total assets is a dominant pay determinant compared to other financial variables. Bliss and Rosen (2001) and Berger (2007) investigated bank size, bank performance and Chief Executive Officer's (CEO's) pay; they found that bank size is an important control variable influencing the CEO's compensation level. Athanasoglou, Brissimis and Delis (2008) reveal that there is a significant positive relation between size and profitability because cost savings can be achieved by increasing the size of the banks.

## RESEARCH METHODOLOGY

### *Data*

Information from the financial statements of domestic and foreign commercial banks was used. The data were obtained from the *BankScope* database for the period 2001 to 2010. The directors' remuneration variable was represented by annual payments in the financial years. This data was obtained from the respective banks' annual reports, which were downloaded from their bank's website or Bursa Malaysia's website. The final sample of this study consisted of eight domestic banks and 10 foreign banks (see Table 1).

**Table 1: List of commercial banks**

No.	Commercial Banks	Ownership
1.	Affin Bank Berhad	D
2.	Alliance Bank Berhad	D
3.	AmBank (M) Berhad	D
4.	CIMB Bank Berhad	D
5.	Hong Leong Bank Berhad	D
6.	Malayan Banking Berhad	D
7.	Public Bank Berhad	D
8.	RHB Bank Berhad	D
9.	Bangkok Bank Berhad	F
10.	Citibank Berhad	F
11.	Deutsche Bank (Malaysia) Berhad	F
12.	HSBC Bank Malaysia Berhad	F
13.	J.P. Morgan Chase Bank (Malaysia) Berhad	F
14.	OCBC Bank (Malaysia) Berhad	F
15.	Standard Chartered Bank Malaysia	F
16.	The Bank of Nova Scotia Berhad	F
17.	The Royal Bank of Scotland Berhad	F
18.	United Overseas Bank (Malaysia) Berhad	F

Source: Monthly Statistical Bulletin, *Bank Negara Malaysia*, July 2012. Ownership denotes if a bank is a domestically owned bank (D) or foreign-owned bank (F).

**Method**

The relationship between performance and directors' remuneration is examined using a basic model without controlling for the bank's characteristics. Separate regressions were run using ROA and ROE as the dependent variables. The equation is given as:

$$BP_{it} = \beta_0 + \beta_1 L(DR)_{it} + \beta_2 D(FB)_{it} + \beta_3 (DFB*DR)_{it} + \epsilon_{it} \quad (1)$$

Given the difference between domestic and foreign banks in earnings performance and directors' remuneration, the characteristics of the banks were added as control variables in this model. The variables in model 1 are accompanied by additional ones, and equation (1) is now:

$$BP_{it} = \beta_0 + \beta_1 L(DR)_{it} + \beta_2 D(FB)_{it} + \beta_3 (DFB*DR)_{it} + \beta_4 L(SIZE)_{it} + \beta_5 (CAR)_{it} + \beta_6 (LQ)_{it} + \beta_7 (LIQ)_{it} + \beta_8 (NIM)_{it} + \epsilon_{it} \quad (2)$$

The variables in the equation are defined as follows:

1)  $BP_{it}$ : is the performance of bank  $i$  over period  $t$ , measured by two accounting-based performance indicators — ROA and ROE.

2)  $DR_{it}$ : is the natural logarithm of total directors' remuneration including salary and fee, bonus, and other benefits.

3)  $FB_{it}$ : is a dummy variable takes a value of 1 if the bank is foreign and 0 otherwise.

4)  $DFB*DR_{it}$ : is an interaction term (DFB\*LDR) that is calculated as the product of foreign bank dummy and the directors' remuneration.

5)  $SIZE_{it}$ : is the natural logarithm of bank  $i$  size, at period  $t$ , measured using total assets.

6)  $CAR_{it}$ : the capital adequacy ratio, measured using total ordinary shareholder equity divided by total assets. It is the expected positive relationship between CAR and performance.

7)  $LQ_{it}$ : loan quality, measured using total non-performing (impaired) loans divided by total ordinary shareholder equity.

8)  $LIQ_{it}$ : liquidity ratio. High liquid assets are generally associated with low risk and lower rate of return.

9)  $NIM_{it}$ : net interest margin, which is net interest income divided by total assets.

## RESULTS

### *Descriptive analysis*

Table 2 shows that the domestic banks have a slightly lower ROA and ROE than the foreign banks in Malaysia. The domestic banks' mean ROA (ROE) is RM0.915 million (RM11.858 million), which is significantly lower than that of the foreign banks' RM1.267 million (RM14.089 million). This might suggest that the domestic banks are not that efficient compared to foreign-owned banks in utilising their assets to generate profits. On average, the remuneration of the directors of domestic banks before taking

logarithms for 2001 to 2010 is RM5.716 million and the standard deviation RM4.298 million, indicating a large deviation in directors' remuneration across the domestic banks. On the other hand, foreign banks show that average directors' remuneration is RM4.261 million and standard deviation is RM2.35 million. Table 2 Panel C reports the characteristics of banks in domestic and foreign banks. The *p*-value in the last column indicates that there are significant differences in the characteristics of banks between the domestic and foreign banks.

**Table 2: Summary of Descriptive Statistics**

This table reports the summary statistics (mean and standard deviation) of the variables for the domestic and foreign banks used in this study for 2001 to 2010. Panel A reports the two measures of bank performance: ROA and ROE. Panel B reports directors' remuneration; all remuneration figures are stated in ringgit (RM). Panel C describes the characteristics of banks in domestic and foreign banks.

	<i>Domestically owned banks</i>		<i>Foreign-owned banks</i>		<i>Test of difference</i>
	Mean	Std. Dev.	Mean	Std. Dev.	<i>p</i> -value
<b>Panel A: Dependent Variable</b>					
ROA	0.915	0.714	1.246	0.595	0.000***
ROE	11.858	10.007	14.088	9.237	0.091*
<b>Panel B: Independent variables</b>					
Director remuneration	5,715,910	4,298,263	4,260,827	2,350,896	0.000***
Log of director remuneration	15.215	1.018	14.633	0.850	0.005***
<b>Panel C: Characteristic of banks</b>					
Log of bank size	25.357	0.513	23.447	1.162	0.000***
Capital adequacy ratio	7.736	1.658	11.873	7.571	0.000***
Loan quality	60.842	7.566	41.384	24.892	0.000***
Liquidity ratio	72.574	10.652	52.740	33.004	0.000***
Net interest margin	3.178	0.511	3.365	2.043	0.000***

Note: Std. Dev. refers to standard deviation. The *p*-value is to test the difference in means between domestically owned and foreign-owned banks. \*\*\*, \*\* and \* refers to significant at the 1%, 5% and 10% levels respectively.

### *Correlation Analysis*

Kennedy (2008) states that multicollinearity is a problem when the correlation is above 0.80, which is not the case here. Table 3 presents the correlation coefficient between the ROA/ROE and the independent variables used in the

regression analysis. The matrix shows that in general, the degree of correlation for each pair of variables is not strong, suggesting that the multicollinearity problem is not severe or non-existent.

**Table 3: Correlation Matrix**

This table presents the correlation coefficients among the sample variables in this study. The sample consists of domestic-owned and foreign-owned banks in Malaysia for the period 2001 to 2010. LSIZE is the natural logarithm of total assets. CAR is the capital adequacy ratio. LDR is the natural logarithm of total directors' remuneration. LIQ is the liquidity ratio. LQ is the loan quality. NIM is the net interest margin. DFB\*DR is the interaction variable product of foreign bank dummy and directors' remuneration. ROA is the return on average assets. ROE is the return on average equity.

	1	2	3	4	5	6	7	8	9
1. LSIZE	1.000								
2. CAR	0.543	1.000							
3. LDR	0.447	-0.411	1.000						
4. LIQ	0.737	-0.529	0.197	1.000					
5. LQ	0.719	-0.554	0.240	0.744	1.000				
6. NIM	0.344	0.202	0.167	0.258	0.251	1.000			
7. DFB*DR	-0.642	-0.055	-0.146	-0.403	-0.413	-0.395	1.000		
8. ROA	-0.047	0.209	0.191	-0.131	-0.137	0.462	0.190	1.000	
9. ROE	0.292	0.553	0.417	0.211	0.231	0.170	0.317	0.591	1.000

**Hausman Test Results**

Table 4 provides a summary of the Hausman test results for Model 1 and Model 2. Panel A reports the findings of the Hausman test on the null hypotheses for the cross-section random effects against the alternative hypotheses of the fixed effects models. Panel B shows the

Hausman test for the null hypotheses for the period random effects. Based on the probability value in Table 4, there is insufficient statistical evidence to reject the two random effects models. This leads to the conclusion that a random effects specification is preferred for this model.

**Table 4: Summary of Results for the Hausman Test for the Model Selection for Panel Regression**

	Chi-Sq. Stat	Probability	Chi-Sq. Stat	Probability
	<i>Model 1</i>		<i>Model 2</i>	
<b>Panel A: Test cross-section random effect</b>				
Bank performance measure using ROA	1.056	0.589	12.774	0.119
Bank performance measure using ROE	1.331	0.513	9.812	0.278
<b>Panel B: Test period random effect</b>				
Bank performance measure using ROA	3.261	0.353	9.890	0.359
Bank performance measure using ROE	2.771	0.428	17.331	0.043**

Note: Probability refers to the *p*-values. \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% levels respectively.

### Regression analyses

Table 5 reports the results of regressing the bank performance on factors that may impact performance. As with all regressions that explain the performance of banks, the explanatory power, adjusted R-squared value of the regression, is considered to be acceptable; the *F*-statistic for the equation is positive and significant.

### ROA results

In Model 1, bank performance is estimated as a function of directors' remuneration including a dummy variable to identify if the bank is foreign-owned, and an interaction variable between the dummy of a foreign-owned bank and log of directors' remuneration. The dummy variable interacts with the log of directors' remuneration variable to capture the moderating effect of directors' remuneration of the foreign-owned bank on performance. When ROA is the dependent variable, it is observed in Table 5 that the impact of directors'

remuneration on bank profitability is positive and is statistically significant in regression Models 1 and 2. This suggests that banks with better performance correlate significantly with directors' remuneration. This finding is consistent with Doucouliagos et al. (2007), who investigated the directors' remuneration and performance in the Australian banking industry.

The results in Model 1 indicate that the coefficient of the dummy variable for the foreign-owned banks is positive and significant. This suggests that foreign-owned banks are more profitable, which is consistent with the previous analysis in Table 2. Furthermore, the coefficient of DFB\*DR in Model 1 regression is positive and significant. These results indicate that an increase in directors' remuneration for a foreign-owned bank improves the bank performance significantly and the results remain significant after controlling for the characteristics of the bank (see Model 2 regression results).

**Table 5: Estimates from ROA Panel Regressions**

This table contains the panel model with random effects regression results that examine directors' remuneration and the impact of bank characteristics on bank performance. The sample consists of domestically owned and foreign-owned banks in Malaysia for the period of 2001–2010. The dependent variable is ROA.

Variable	<i>Model 1</i>		<i>Model 2</i>	
	Coefficient	Prob.	Coefficient	Prob.
Intercept	7.223***	0.000	6.060***	0.007
Log of directors remuneration	0.528***	0.000	0.261***	0.000
Dummy =1 if bank is foreign-owned	8.331***	0.000	4.191***	0.003
Interaction variable = dummy * log directors remuneration	0.515***	0.001	0.244***	0.008
Log of bank size			0.086	0.323
Capital adequacy ratio			0.016	0.332
Loan quality			-0.033	0.176
Bank liquidity			-0.024	0.218
Net interest margin			0.348***	0.000
Adjusted R-squared	0.266		0.517	
F-statistic	13.896		8.702	
P-value	0.000		0.000	

Notes: Model 1:  $ROA_{it} = \beta_0 + \beta_2 L(DR)_{it} + \beta_1 D(FB)_{it} + \beta_3 (DFB*DR)_{it} + \epsilon_{it}$

Model 2:  $ROA_{it} = \beta_0 + \beta_1 L(DR)_{it} + \beta_2 D(FB)_{it} + \beta_3 (DFB*DR)_{it} + \beta_4 L(SIZE)_{it} + \beta_5 (CAR)_{it} + \beta_6 (LQ)_{it} + \beta_7 (LIQ)_{it} + \beta_8 (NIM)_{it} + \epsilon_{it}$

\*\*\*, \*\* and \* denote significant at the 1%, 5% and 10% levels respectively.

Model 2 in Table 5 focuses on the relation between bank performance, directors' remuneration and the explanatory variables. The estimated coefficient of net interest margin exhibits a positive sign and is statistically significant. This indicates that an increase in the bank net interest margin tends to enhance a

bank's profitability. With regard to log of bank size and bank capital adequacy ratio, both are positively associated with bank performance whereas a negative relationship is found between bank performance and loan quality, or bank liquidity; however, it is insignificant at the 10% significance level.

These findings are consistent with Sufian (2011), who focuses on the profitability of the Korean banking sector, controlling for a wide array of bank specific and macroeconomic determinants. His results show that bank size, capital ratio, and loan quality are not significantly associated with bank profitability; however, bank liquidity significantly affects the bank performance. The evidence of Korean banks suggests that lower liquidity levels tend to have higher profitability.

### ROE results

Using the same set of variables, the regression using the alternate performance measure of ROE is re-estimated. The results in Table 6 are, by and large, similar to Table 5. As shown in Model 1, the results support a pay-performance association with the bank director. The estimated coefficient on log directors' remuneration, dummy variable of foreign-owned banks and interaction variable are all positive and significantly related to bank performance. As shown in Model 2, when the characteristics of the bank variables are considered together, the estimated coefficient of the log of bank size indicates a significant and positive correlation with bank performance.

This suggests that larger banks tend to earn higher profit and experience economies of scale. Hauner (2005) proposes two explanations for which bank size could have a positive impact on bank performance. First, in relation to the market power, large banks would pay less for their inputs. Second, there may be increasing returns to scale through the allocation of fixed costs (i.e. research or risk management) over a large volume of service or transactions.

Another finding in Model 2 is that capital adequacy is significantly positive. This means that more shareholder equity will lead to higher capital to allow for bank loans and higher bank profitability. Pasiouras and Kosmidou (2007), and Kosmidou (2008) state that well capitalised banks face lower costs of going bankrupt, therefore reducing their cost of funding. Based on the estimated coefficient, the relationship between net interest margin and bank performance is positive and significant. This implies that when a bank has high levels of profitability, performance on average will be better. In Model 2, there is no significant relationship between loan quality or bank liquidity on bank performance.

**Table 6: Estimates from ROE Panel Regressions**

This table contains the Panel model with random effects regression results that examine directors' remuneration and the impact of bank characteristics on bank performance. The sample consists of domestically owned and foreign-owned banks in Malaysia for the period of 2001–2010. The dependent variable is ROE.

Variable	<i>Model 1</i>		<i>Model 2</i>	
	Coefficient	Prob.	Coefficient	Prob.
Variable				
Intercept	2.185*	0.086	8.758***	0.001
Log of directors remuneration	0.024*	0.070	0.212***	0.010
Dummy =1 if bank is foreign-owned	4.987***	0.006	4.182***	0.009
Interaction variable = dummy * log directors remuneration	0.346***	0.004	0.225**	0.034
Log of bank size			0.323***	0.002
Capital adequacy ratio			0.053***	0.010
Loan quality			-0.022	0.440
Bank liquidity			0.012	0.606
Net interest margin			0.242***	0.001
Adjusted R-squared	0.138		0.620	
F-statistic	6.146		13.253	
P-value	0.001		0.000	

Notes: Model 1:  $ROE_{it} = \beta_0 + \beta_1 L(DR)_{it} + \beta_2 D(FB)_{it} + \beta_3 (DFB*DR)_{it} + \epsilon_{it}$   
 Model 2:  $ROE_{it} = \beta_0 + \beta_1 L(DR)_{it} + \beta_2 D(FB)_{it} + \beta_3 (DFB*DR)_{it} + \beta_4 L(SIZE)_{it} + \beta_5 (CAR)_{it} + \beta_6 (LQ)_{it} + \beta_7 (LIQ)_{it} + \beta_8 (NIM)_{it} + \epsilon_{it}$   
 \*\*\*, \*\* and \* denote significant at the 1%, 5% and 10% levels respectively.

## CONCLUSION

The aim of this study is to examine the relationship between director's remuneration and bank performance in Malaysia. The evidence in this paper is consistent with international findings. In particular, the association between directors' pay and bank performance is positive and statistically significant. This suggests that directors' remuneration is an important factor in determining bank performance. Further, it seems to suggest that a better remuneration package will motivate directors to work harder in order to keep long-term success or enhance performance. If the banks are looking for factors that may help to improve performance, this paper's results suggest that directors' remuneration should be considered. However, caution needs to be made as there are other factors that contribute to performance and not just directors' remuneration. Concerning the directors' remuneration, it is observed that directors in domestically owned banks have higher pay compared to foreign-owned banks. Domestically owned banks have a larger board size compared to foreign-owned banks. This may increase the total board remuneration in the year.

Based on the ROA and ROE regression results, it is concluded that foreign banks are more profitable, not exposed to greater liquidity and provide less money for consumer loans. Overall, it is observed that the variables representing the characteristics of banks have a significant impact on bank performance. Among other bank characteristics, the net interest margin plays an important role on bank profitability. It is also found that the log of bank size and bank capital adequacy ratio are significant and positively related to bank performance. This might suggest that larger bank size is closely related to the capital adequacy of a bank. As large banks tend to raise capital in a more efficient way such as less expensive capital, this translates to higher profit to the bank. However, the loan quality and liquidity characteristic do not significantly influence the performance of domestic and foreign banks in Malaysia.

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# Green and Ethical Banking: Demand and Supply Perspectives from Bankers, Corporations, and Heads of Households in Malaysia

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## ABSTRACT

Banks in their role as financiers and business advisors can strongly impact the economy and the environment. From a *triple bottom line* perspective, profits and financial success alone are insufficient. Banks are increasingly being evaluated on ethical and sustainability performance, and avoidance of environmental damage. This article details our research on the business potential of ethical banking, green banking and green loan initiatives, incorporating both the demand and supply perspectives.

Participants were senior bankers and stakeholders (Study 1), managers of 169 corporations (Study 2), and 203 heads of households (Study 3). Qualitative and quantitative methods were utilised. In-depth interviews with senior bankers and stakeholders revealed primary motivations, drivers of sustainability, conceptualisation of green and ethical banking, and the challenges faced.

Over 60% of individuals' and corporate respondents' banking decisions were influenced by ethical and green banking. Additionally, two in five corporations reported a positive intention to apply for green loans, particularly larger enterprises, Multinational Companies (MNCs), and organisations with existing sustainable practices or policies. For heads of households, the following green banking initiatives were important: online banking, the availability of green car loan packages, and banks' support of local environmental initiatives and human development projects.

The results revealed a strong demand from both corporations and individuals for ethical banking, green banking, and initiatives such as green loans. Banks can thus create greater public awareness regarding their ethical practices, introduce and promote green banking initiatives, and provide leadership in the area of sustainability. Recommendations are provided on how banks can enhance green loan schemes.

## INTRODUCTION

Ethical issues relating to banking institutions such as those leading to the collapse of Lehman Brothers in 2008 have received widespread public concern. More recently, financial scandals at JP Morgan Chase, Standard Chartered Bank and HSBC pointed to a "failure to integrate issues of compliance, ethics, deterrence, accountability and risk" (O'Brien & Dixon, 2013).

Among the wide range of ethical issues relating to this industry, the state of the natural environment has been the primary focus in ethical banks and in many conventional banks with ethical commitments. Sustainable development, closely linked with good administration, is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations Environment Programme Finance Initiative, 2011). CEOs of international banks and financial institutions recognise the importance of both ethics and sustainability, and have identified the urgent need to rebuild public trust and strengthen banks’ reputations (UN Global Compact – Accenture, 2011; Bahl, 2012).

Our starting point in this article is to examine how ethical and green banking are perceived and valued among key stakeholders. In particular, we need to investigate the *demand* from corporations and individuals, and perceptions of bankers and stakeholders with regard to *supply*. This paper reports key findings from a multi-pronged research exercise funded by the Institute of Bankers Malaysia in 2012.

### ***The triple bottom line goalpost***

To remain competitive in the local and international context, financial institutions can embrace a *triple bottom line* approach (Elkington, 1997). Corporations’ performances are no longer evaluated solely on financial success or profits. Equally important are banks’ ethics, conforming to local expectations, the degree to which banks avoid adverse environmental harm, and promote sustainability (Carroll, 1979; Branco & Rodrigues, 2006).

### ***Ethical and green issues: A concern for banks in Malaysia?***

Banking sector liberalisation in recent years has opened Malaysian owned banks to stiffer market competition not only amongst peer banks but amongst foreign entrants as well (Bank Negara Malaysia, 2009). International banks such as the Sumitomo Mitsui Banking Corporation of Japan, HSBC, Standard

Chartered and even Maybank are among the early pioneers of green financing and green initiatives in Malaysia (Chua & Oh, 2011). To stay competitive in the domestic market, banks in Malaysia need to continuously innovate, such as by introducing green banking, ethical banking alternatives and green financing initiatives.

At the Green Technology Financing Bankers’ Conference held in November 2012, key advantages of responsible lending were identified. They included gaining a competitive edge, incurring less energy and carbon related costs, seeking opportunities for innovations and to build social engagements, enhancing reputations, and brand development (Institute of Bankers Malaysia, 2013). The introduction of the Green Technology Financing Scheme and the reduction of tariffs for hybrid and electric cars are positive government efforts in the still long journey towards being an environmentally sustainable nation.

### ***Green banking initiatives: Benefits to corporations, individuals and banks***

Initiatives of green banking can be expressed in many forms such as through long term investments in green projects funded with green loans, and increased business efficiency through environmentally friendly practices, such as energy savings (Ginovsky, 2009). Green corporate loans are offered by banks with lower interest rates to promote environmentally friendly activities, projects and development. Initiatives of ethical banking, meanwhile, can be explained through themes of integrity, responsibility and affinity (Cowton, 2002).

Green and ethical banking initiatives map clearly onto a *triple bottom line* strategy. The Economic advantage of green car loans is that an untapped market is captured through an innovative and attractive product. Also, green car loans are ethical. Thirdly, having more electric and hybrid cars on the roads with zero or lower emissions can reduce pollution levels. Moving forward, banks and corporations would first need to evaluate their sustainability goals, weighing both the benefits and the costs of embracing this agenda given potential financing risks and necessary infrastructure investment.

### *Contributions of this study*

Our research explores the current Malaysian situation in overall ethical and green banking practices and initiatives from four key groups: the banks themselves, business corporations, individuals, and other stakeholders.

Through this research, we: 1) contribute to previous knowledge on the conceptualisation and potential of delivering ethical and green banking in Malaysia, both from the bankers' and borrowers' perspectives, 2) explore the business potential of green and ethical banking in Malaysia, 3) determine the demand from corporate borrowers and individual heads of households for green and ethical banking and banking initiatives, and 4) identify the factors that predict corporate borrowers' and individuals' willingness in taking up green loans.

### **METHODOLOGY**

Three empirical studies were conducted to assess the supply and demand perspectives for ethical banking and green banking. In Study 1, in-depth interviews were conducted with nine senior bankers from Malaysian and international banks, and four industry stakeholders. Study 2 involved 169 business corporations across different sectors from MNCs to Small and Medium Enterprises (SMEs), to obtain corporate views on the demand for green and ethical banking. And in Study 3, over 200 heads of households were surveyed on their views and demand for green and ethical banking initiatives. Further information regarding participants is within the Results section. The development of the interview protocol and surveys were guided by the literature, and integrated input from the funding organisation. Data was analysed using Nvivo9 and the statistical software IBM SPSS.

## **RESULTS**

### **Study 1**

#### *Defining green banking and ethical banking*

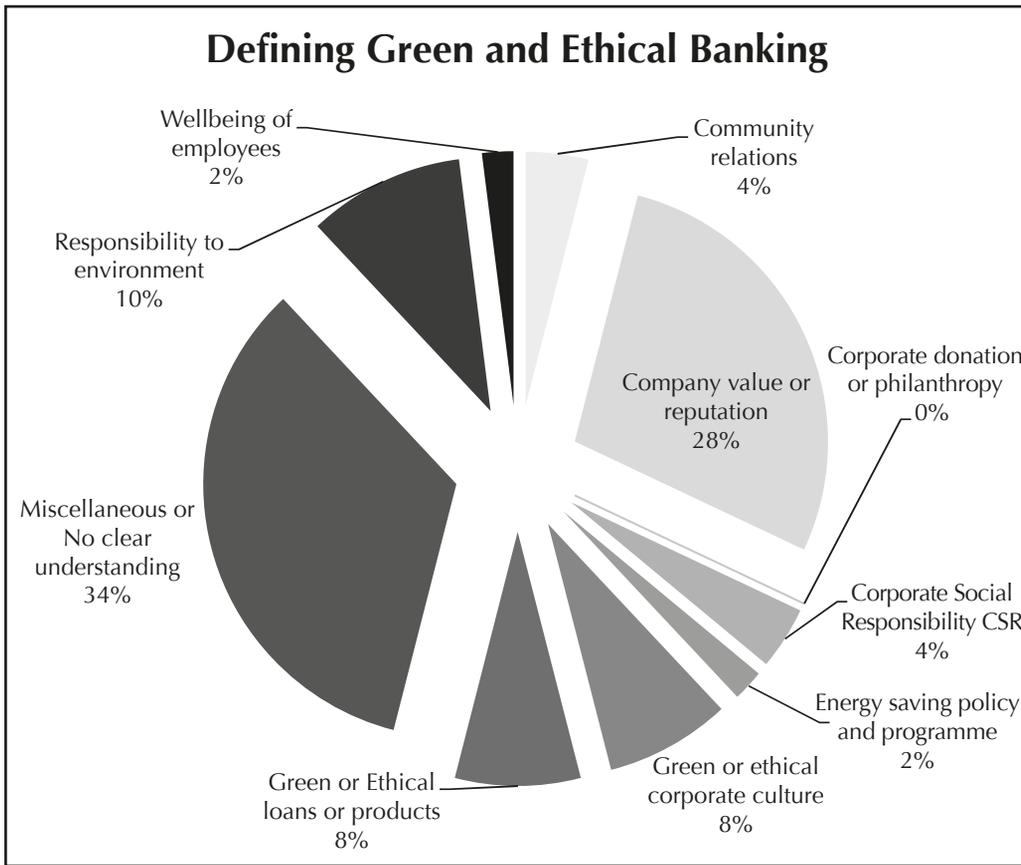
The terms green banking and ethical banking appear to be new within the banking community, and there are various views on how these are defined. Generally, people within the banking spectrum in Malaysia believe that green banking is different from ethical banking. Specifically, *green* is about the environment, and *ethical banking* refers to honesty and integrity. The latter is closely linked to corporate reputation and value.

When asked to conceptualise ethical and green banking, a company's reputation or value was highlighted by 28% of respondents, in that it is important to project a positive image and trust with regards to responsibility to the environment (Berube, 2002). Some interviewees responded that the term green banking was unfamiliar to them, with 34% of respondents indicating no clear understanding or miscellaneous views.

According to the respondents, ethical banking is related to business ethics that require one to refrain from misusing power and position in discharging banking duties. For example, one has to refrain from receiving gifts from clients which may lead to compromising judgment or integrity. While some understanding of the term is confined to keeping to certain guidelines and codes of conduct issued by internal and external regulatory bodies, others relate the term to something spiritual or religious like Islamic banking, for example, where emphasis is given to concepts like equality, fairness and justice. Figure 1 summarises findings from Study 1 with regards to how bankers and stakeholders define or perceive green and ethical banking in the context of their organisations.

Figure 1

*Green and Ethical Banking from the Perspective of Bankers and Stakeholders*



**Motivations for banks to engage in green and ethical banking**

Study 1 also shed light on the primary motivators for banks to be engaged in ethical and green banking. Business opportunity was cited by 28% of respondents. Organisation centric reasons played a predominant role, namely to protect banks' reputations or values (14%), and for cost reductions or business sustainability (10%). Only 14% of respondents cited responsibility to protect the environment as a primary motivator. Another 10% of respondents discussed the influence of internal corporate culture relating to ethical/green values or Islamic principles. Banks and stakeholders also noted two related factors which were considered to be important, namely, a lack of financial protection from the government, and banks' responsibility to investors. These took precedence over actively funding green projects or environmental protection concerns.

**Evaluating ethical and green banking performance**

A green banking performance system refers to assessing reputational risk, social and environmental risk and the application of specific policies. Information gathered from respondents shows there is currently a general lack of evaluation or assessment systems. Specifically, 37% of banks and stakeholders interviewed stated that they did not utilise any specific assessment index. In fact, none of the respondents discussed the application of the ISO 26000 index which pertains to the green agenda. Another 27% of respondents had no specific system and relied mostly on existing monitoring systems that indirectly helped in green management.

Banks are often guided by their audit reports on business mechanisms, such as application appraisals, approvals, payments, viability of projects their completion, etc. Fittingly, 9%

of respondents cited internal audit as the assessment tool. On a positive note, the Equator Principles and the Global Reporting Initiative (GRI) were benchmarks cited by stakeholders such as IBBM and Sime Darby Group's Sustainability Department. Finally, the media's role in exposing mismanagement and issues affecting the environment may be an alternate measurement tool as to how ethical and green banks are.

## Study 2

Following the Ministry of International Trade and Industry's business sector classification, we

included 169 business corporations across various sectors and industries: manufacturing (24.5%), manufacturing-related services (18%), services (43%), ICT (9.5%), agro-based industries (2%), and primary agriculture (3%) (see Table 1). These comprised 44% SMEs and 56% Large Enterprises (LEs, with sales turnover > RM 25 million or full time employees above 150); with 31.5% non-multinational companies, and 68.5% MNCs. Companies were primarily based in the Klang Valley, with a minority operating from Penang, Malacca and Sarawak. The 200 representatives interviewed held managerial positions, had sufficient knowledge of the companies' business strategies and some business decision-making influence.

**Table 1**

***Business Corporations by Sector and Industry in Study 2***

Sectors of Business	Corporate Managers Interviewed	Percentage
Manufacturing	49	24.5
Manufacturing – related services	36	18
Services	86	43
Information and communication technology	19	9.5
Primary agriculture	6	3
Agro-based industries	4	2
Total	200	100%

### ***Importance of green banking and ethical banking***

A large majority, specifically 91.5%, of business corporations interviewed indicated they were likely and very likely to transact business operations with banks which are ethical and green principled. Management representatives from organisations were also asked questions pertaining to three facets of ethical and green business to understand their importance in influencing corporations' business investment decisions. A high percentage of respondents stated that ethical banking (70%) and green business practices (62%) were an important consideration or a central factor in their banking decisions. Furthermore, 51% of the respondents saw the availability of green loans as an

important or central consideration; this reveals favourable potential growth for this financing option.

### ***Business organisations' willingness to accept green loans***

Our findings indicate that 40% of business corporations intend to apply for green loans in the near future. However, at present, only a negligible percentage, namely 3 out of 169 organisations have previously applied for a green loan. Of these three firms, two had their green loan approved within the last 5 years. Companies cited several reasons for unsuccessfully acquiring green loan funding or for not having previously applied for a green loan. These factors were:

- a) rejections from the banks due to weak green project proposals,
- b) companies lacked in green business practices,
- c) companies were ignorant of the availability of green loans in the banking sector,
- d) companies were self-sufficient in terms of funds for green projects, and
- e) companies practiced a zero loan policy.

Binary logistic regression was employed to examine determinants of business corporations' willingness to accept green loans. Regression results showed that significant determinants were:

- LEs
- MNCs
- Organisations with ISO 26000 (Social Responsibility) certification,
- Having a written policy on reducing paper in the company, and
- Business organisations that practise energy efficiency.

### Study 3

We surveyed 203 heads of households in the Klang Valley. Respondents' average age was 38.5 years (SD 10.9) and 47 % were male. A majority, 42%, indicated they had a Bachelor's degree. In terms of ethnic background, 31% were Malay, 53% Chinese, 13% Indian, and 2% Others. Ninety one percent held full-time jobs, and the mean total household income was between RM 6001 and RM 7000 monthly.

#### ***Importance of green banking and ethical banking***

In Study 3, we asked heads of households the extent to which ethical banking, green banking, and green loans influenced their personal banking and investment decisions. Findings indicate that in terms of importance:

Ethical banking > Green banking > Green loans

With regard to ethical banking, 79% of respondents indicated it was an important or central consideration. Sixty three percent of individuals surveyed reported that the availability of green banking was an important or central factor in banking decisions. And with regard to green loans, 55% indicated it was either an important or central consideration. Heads of households and corporations therefore shared similar views, specifically, high expectations and robust demand for ethical and green banking, and financing initiatives such as green loans.

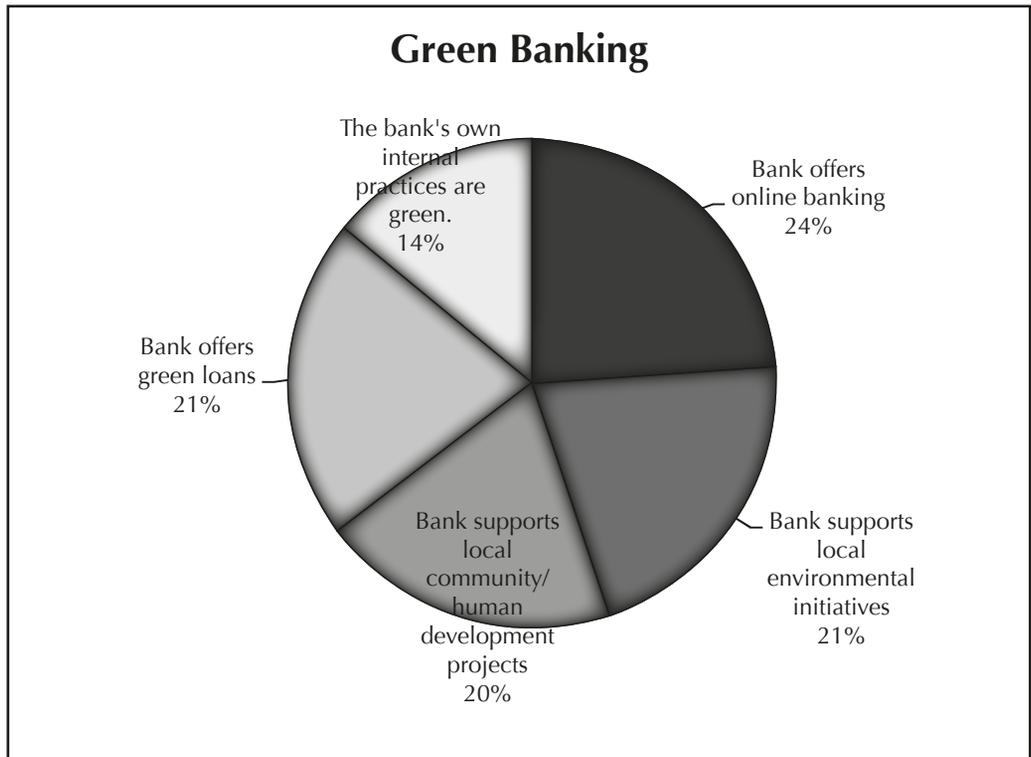
#### ***Definitions and demand for green banking***

There are presently variations in how 'green banking' is perceived and defined, both in a local and in the international context. In Study 3, five aspects of green banking were presented, and respondents were asked to identify the three most important aspects.

In the Malaysian context, individuals most closely linked green banking to online banking facilities offered by banks (62% of respondents). The availability of green loans offered by banks was also considered an important component of green banking (55% of respondents), followed closely by banks' *support of local environmental initiatives* (54% of respondents), and banks' support of local community and human development projects (51%). That the bank's own internal practices were 'green' was highlighted by only 37% of respondents. The slightly lower emphasis on this fifth aspect is likely linked to unscrupulous organisations getting away with 'green washing' or having outward support and programmes supporting the environment while their internal business operations are causing pollution and environmental degradation. In Figure 2, we summarise individuals' responses based on total scores in all the five above mentioned areas (100%), where larger segments indicate more individuals rating them as important.

Figure 2

*Key Aspects of Green Banking for Heads of Households*



***Demand for green car loans***

A majority of respondents we surveyed drive cars. Over 92% of heads of households indicated they were keen to take up a green car loan, namely auto financing with a lower interest rate when purchasing a hybrid car, electric car, or a car with lower emissions and/or better fuel consumption.

Some pertinent information regarding car ownership and car loan status of respondents would thus be helpful here. Forty percent of respondents currently have a car loan, 24% have finished paying up their car loan, while another 24% drive a family member's car but do not presently have a car loan in their name. Twelve percent of the sample currently do not drive.

***Characteristics of individuals willing to take up green loans***

Using both correlational analysis and step-wise regression, we examined factors related to individuals' openness to take green loans for an environmentally friendly car or house. Four demographic factors were examined: Gender, age, education level, and income level. The strongest predictor was education, where respondents with *higher education* qualifications

were significantly more likely to take up green loans. Both gender and income levels were not predictive. Our data shows there is a slight positive relationship with age, whereby older respondents reported some interest in green loans; however, the strength of this relationship was not significant.

Importantly, results showed individuals who are willing to taking up green loans are more 'green conscious' when it comes to banking. Two significant predictors were: they are *more likely to use a bank that practises green banking*, and *green loans* are important when making their business and investment decisions.

Individuals' green behaviours at home and at the workplace were examined. Although there was a positive association between *higher recycling scores and support for environmental organisations* with willingness to take up green loans, these associations were not significant after taking into account demographic predictors. Finally, individuals who extended green practices to their workplace, such as using recycling bins at work, participating in Corporate Social Responsibility (CSR) environmental activities and car-pooling were more likely to take up green loans.

## RECOMMENDATIONS

Both banks and the government can create greater awareness of the availability of green and ethical banking. Banks each have their own ideal green financing guidelines. A conservative or risk averse approach may view newer innovations such as green loan initiatives with caution, particularly when gaps exist in evaluating the feasibility of green technology projects. Even the Green Technology Financing Scheme recently introduced by the government has seen only 19 approved applications amounting to RM 518 million as at April 2010, and only 125 applicants nationwide as of September 2011 (Chua & Oh, 2011; Asia Pulse, 2011). This reflects a general lack of awareness and low initial participation.

### *Steps to enhance banks' green loan schemes*

Representatives from business corporations supplied several recommendations on ways to improve green loan schemes to allow more companies to qualify in their applications. From the supply perspective, banks are encouraged to have:-

- (i) Clearer application procedures
- (ii) Easier and faster approval of green loans
- (iii) Reduction in documentation required
- (iv) Lower and more favourable interest rates for loans
- (v) A database of green companies
- (vi) More marketing to promote green banking, especially green loans.

Banks have the capacity to drive the sustainability agenda, as shown by Banco do Brasil's water conservation leadership in Brazil, Triodos Bank in Europe and others (de Clerk, 2009; IBBM, 2013; UN Global Compact & UNEP, 2012). Green banking initiatives in the form of green car loans include the *Go Green Auto Loan* from National Institutes of Health Federal Credit Union in the United States, and the *Green Star Car Loan* from MCU Australia.

With banks and key institutions promoting green loans and other green initiatives, corporations in Malaysia can ultimately move towards greener activities and sustainable project finances through savings in loan interest costs. As seen through findings from this study, there is strong demand from both corporations and individual heads of households for a variety of green loans.

## *Generalisability of research findings*

A note on study limitations. Findings in Study 1, while providing important insights into banks' perspectives on green and ethical banking, may not be generalisable across the entire population of international and local banks operating in Malaysia. Due to organisation-related reasons, several banks and corporations initially targeted for Study 1 and Study 2 were unwilling to participate in this research. This was addressed by generating a secondary list of organisations, from which we achieved the final sample comprising organisations from SMEs, LEs and MNCs, therefore fulfilling original research aims. Heads of households surveyed in Study 3 were primarily concentrated in the Klang Valley region of Malaysia. Caution should be taken therefore in generalising findings from Study 3 to the entire household population throughout West and East Malaysia.

## CONCLUSION

Banks and bankers as financiers, investors, and heads of supply chains, risk assessors, traders, and business advisors can strongly impact the environment (United Nations Environment Programme Finance Initiative, 2011), and increase levels of awareness by leading and innovating through the introduction of green banking initiatives. In the Malaysian context, strategic decisions can include opting not to finance or cutting back on financing projects that degrade and damage the environment. Frequently, these actions are consistent with the banks' own values, the Equator Principles and/or *Syariah* law (Scholtens & Dam, 2007; Haniffa & Hudaib, 2007). Leading banks have recognised that to remain competitive both locally and internationally, a *triple bottom line* approach, with focused action steps is necessary. Banks must therefore embrace a holistic ethical and green framework in line with broader corporate responsibility, and move beyond compliance with laws and regulations. This includes fulfilling a commitment to various stakeholders like shareholders, customers, and employees with regard to ethical banking and green banking.

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# Natural Environmental Risk Management: An Impact on Banking Businesses in Malaysia

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## ABSTRACT

Bank businesses play a crucial role in economic development in every country. Banks act as the largest and most important provider of funds in an economic system. Most literature discuss the relationship of banking businesses with economic development, efficiency, customer satisfaction and profitability. Thus, there are few studies that discuss the relationship between banking businesses and their impact on the natural environment. This may be due to bank activities that do not have a direct effect on the natural environment. However, banks are indirectly linked to activities that contribute to huge damage to the natural environment. Therefore in this paper, the impact of the banking businesses on the natural environment is discussed. The study also aims to discuss the relationship between the banking businesses and the natural environment. The study focuses on the establishment of the Equator Principles as a manifestation of the banking industry's perspective of the natural environment and the impact of the Equator Principles on the banking industry in a developing country, which in this case is Malaysia.

## INTRODUCTION

At first glance, the banks' activities and those of corporations do not have any effect on the environment. They do not produce hazardous chemicals or pollution in the air, on land or in water. However, through their lending activities, the banks are indirectly linked to activities that contribute huge damage to the natural environment (Cowton and Thompson, 2000). In addition, environmental risk can pose a dual threat to their loan portfolio. For example, environmental regulations can impact a company's cash flow by affecting the markets of its products. Moreover, the banks often take land as security for their loans, and its value can be significantly reduced where it is found to have been contaminated because of polluting activities. The Fleet Factor case in the United States of America (U.S.A.) illustrates this. An environmental issue not only reduced the value of the collateral but also made the bank liable for clean-up costs at a site owned by a defaulting client, since it was adjudged to have been in a position to influence the company's business decisions (Cowton and Thompson, 2000).

Hill (2007) has also pointed out that the financial sector has been heavily criticised in recent years due to extensive environmental and social degradation linked to the funding of development projects. However, the banks can try to avoid lending in ways that expose them to environmental risk. In a more proactive vein, the banks can, through their business relationships, make a positive contribution to the environment by influencing their borrowers not to do business with companies involved in activities known to harm the environment, and turn down new applications and terminate existing relationships because of environmental concerns.

Coulson (2009) and Watchman et al. (2007) discussed the attitude of the financial institutions and non-governmental organisations (NGOs) towards environmental management. The financial institutions take a moderate approach that tries to mitigate the harm done to the environment through their lending activities. The Equator Principles (EPs) were introduced to deal with this mitigation process. The EPs are a manifestation of the financial industry's response to pressure from the government, stakeholders and NGOs to accept responsibility for assessing and monitoring the environment of financing projects. As a self-regulation policy, the EPs serve as an internal control over banking activities by providing guidelines on how banks should conduct natural environmental management.

However, NGOs such as Friends of the Earth (FoE) contend that banks should avoid projects that create a risk of causing harm to the environment. This is reflected in the Collevocchio Declaration that was released in 2003. The Collevocchio Declaration has been endorsed by 200 civil society groups worldwide. According to this Declaration, an appropriate goal of the financial institutions should be the advancement of environmental protection and social justice rather than solely maximisation of economy and growth. To achieve this goal, the financial institution should embrace six principles: (1) commitment to sustainability; (2) commitment to “Do No Harm”; (3) commitment to responsibility; (4) commitment to accountability; (5) commitment to transparency; and (6) commitment to sustainable markets and governance. Thus, natural environmental management is actually very important in banking businesses, and the banks can contribute to better natural environmental management.

Beside the above development, as at to date, none of the Malaysian banks (local banks) are signatories to any international natural environmental programmes, for instance, the EPs. It is an interesting issue to be explored since there are many questions to answer on the non-participation of the local banks in such activities. In order to explore the issues, the paper is organised as follows. The next section will discuss the framework of natural environmental management in the banking industry. It follows with a discussion of the EPs which is important as the guidelines are from the banking industry and their objective is to produce more responsible financing towards the social and natural environment. The issues are further explored in terms of implementation of EPs and issues for implementation in Malaysia.

#### **FRAMEWORK FOR NATURAL ENVIRONMENTAL MANAGEMENT IN THE BANKING INDUSTRY**

According to Hill (2007), the World Bank led the way for the incorporation of environmental and social policies within lending decisions in the late 1980s, when it reformed its lending policies and began focusing on increasing transparency and accountability. In 1997, the World Bank announced an innovative set of guidelines aimed at responsible lending and sensitivity towards environmental and social welfare. These guidelines required borrowers to attend consultations, conduct monitoring and report

on their progress in meeting these requirements. This development was further strengthened in 1998 when the International Financial Corporation (IFC) formally adopted these policies and as a result, they became the foundation for the IFC's work in environmental and social areas and for the assessment of IFC compliance and accountability. The change in the attitude of the World Bank and IFC had a dramatic influence on private sector lending. The guidelines used by the IFC are used by several commercial banks, and have led to the introduction of the EPs in project financing implementation (Hill, 2007).

Government laws for social and environmental protection are provided by each country but such laws have different standards and variable implementation qualities. For example, a developing country has less stringent implementation rates than a developed country. Blackman (2008) reported that policy-makers in developing countries face an array of barriers in enforcing mandatory regulations including weak institutions, incomplete legal foundations and limited will. Therefore, a proactive policy towards natural environmental management by the private sector is very important and will play a crucial role in better natural environmental management.

Sinclair (1997) and Stoeckl (2004) argued that the attraction for self-regulation results from a natural tendency amongst individuals and organisations to prefer to act on their own initiatives rather than be forced into a particular course of action. Also, firms facing a choice between self-regulation and government-imposed regulation may choose self-regulation because government regulations are more costly and inflexible (Lenox and Nash, 2003).

In Coulson's (2009) study of European banks, the participants felt that the international standards were hard to enact in practice. In their view, different legislative environments obstructed consistent global standards and led to the banks' global policies being implemented differently in each operating country. The banks were arguably being forced to act in unison to find solutions to the problem of environmental governance, and defend their market practice.

In 1992 at the Rio Earth Summit, some 30 global banks signed a code of conduct called *A Statement by Banks on Environmental and Sustainable Development*. The Statement was prepared at the instigation of the United Nations' Environment Programme (UNEP),

and is a code of conduct containing principles that banks should follow if they are to take cognisance of environmental issues in the running of their business.

Presently, over 200 banks are signatories to the Statement, including banks from developed, transitional and third world economies. Richardson (2005) has described the UNEP as a catalyst for bringing environmental issues to the attention of the global financial market. According to Cowton and Thompson (2000, p. 168):

*“The Statement publicly recognised that sustainable development must rank amongst the highest priorities of banks, that banks are an important contribution towards its achievement and therefore that the signatories will endeavour to ensure that their policies and business actions promote it. The Statement commits signatories to pursue common principles of environmental protection by using best practices of environmental management in their internal operations and integrating environmental risk into the normal checklist for risk assessment and management.”*

Carrier and West (2009) believe that the Summit gave rise to the idea of integrating conservation with development projects, and this involves bringing the surroundings and the development projects harmoniously together. Since financial institutions finance projects, how this can be achieved without harming the environment is of primary importance.

## EPs

The EPs were originally announced on 4 June 2003. The EPs comprise a set of guidelines for managing social and environmental issues related to the financing of projects. They consist of a common and coherent set of environmental and social policies and guidelines that can be applied globally and across all industrial sectors.

The EPs are the financial industry’s response to external and internal pressures from governments, governmental agencies, socially responsible investment funds, international advocacy groups and NGOs to fulfil its Corporate Social Responsibility (CSR) obligation by accepting responsibility for assessing and monitoring the environmental and social impacts of financing major projects. The pressure exerted on financial institutions by stakeholders for sustainable and responsible banking has been led by several prominent socially responsible investors such as F&C

Asset Management, Insight Management and the Calvert Group of Funds. NGOs which have exerted pressure include organisations like *Banktrack*, the World Wildlife Fund for Nature (WWF) and FoE.

The EPs comprise a voluntary set of guidelines for promoting social and environmental responsibility in project financing. That is to say, the Principles specifically address the negative effects of project financing. Wright and Rwambizambuga (2006); Richardson (2005); and Scholtens and Dam (2007) classified the EPs as a third party code of conduct. Therefore, the banks adopt and implement these Principles voluntarily and independently.

The EPs provide a framework, based on the IFC’s safeguard policies, which commit each of the Equator Banks to develop its own individual policies, practices and procedures to ensure proper assessment and evaluation of social and environmental issues in project financing. The banks pledge to apply the EPs’ framework to all projects with a capital cost above USD10 million, in all industries globally, and commit not to provide loans directly to projects where the borrowers are unable to comply with the EPs’ environmental and social policies.

## THE EQUATOR PRINCIPLES CATEGORIES

For the first step, banks will categorise a project into one of three groups: A (high), B (medium) or C (low) in environmental or social risk as a precondition for financing. The customer is required to supply an Environmental Impact Assessment (hereinafter EIA) if the project is category A or B, taking into account issues such as pollution prevention, sustainable development, involuntary resettlement and socioeconomic impact.

For categories A and B, the customer is also required to prepare an Action Plan (AP) and implement an Environment Management System (EMS). The AP may range from a brief description of routine mitigation measures to a series of documents such as a resettlement action plan, indigenous people plan, emergency preparedness and response plan or a decommissioning plan. The EMS will incorporate social and environmental assessment, a management programme, organising capacity, training, community engagement, monitoring and reporting. There will be compulsory expert reviews of the EIA, AP and EMS in order to assess compliance with the EPs.

## ADVANTAGES AND DISADVANTAGES OF THE EPs FOR SIGNATORIES AND AFFECTED THIRD PARTIES

Richardson (2005) categorised the advantages of voluntary codes of conduct based on three perspectives: (1) the regulatory perspective; (2) the government perspective; and (3) the industry perspective. Codes of conduct create incentives and procedures that induce entities to act in certain ways and engage in internal reflection about what form that behaviour should take. They promote reflection and learning within subject organisations and thereby a positive cultural change in management and organisational business. Priest (1998) added that codes of voluntary conduct can be quickly and easily adjusted to meet changing circumstances, in contrast to the relatively slow and ponderous legislative process of government.

For governments, the EPs are useful for reducing regulatory loads as implementation and monitoring costs become more internalised in the participating business. Banks that initiate the EPs have a greater knowledge of management practices and innovative possibilities within their area than other parties such as the government and NGOs. Additionally, voluntary codes of conduct such as the EPs are cost-saving because they are based on negotiation rather than litigation. Codes of conduct that are developed by the industry may also lead to higher levels of compliance.

From the industry perspective, Richardson (2005) referred to three advantages. First, the adoption of the EPs leads to access to technical assistance, financial aid and professional certification. For example, Wright and Rwambizambuga (2006) showed that adoption of the EPs allows more checks of project assessment and also brings consistency and standardisation to bank procedures in project financing. Second, implementing the EPs will reduce the banks' exposure to costly environmental liabilities and lead to enhanced relationships with the stakeholders. Third, the adoption of the EPs' implementation allows the banks to improve their profile among customers, financial sponsors and various stakeholders. For example, Nedbank was the first African bank to adopt the EPs on 10 November 2005 and because of this adoption Nedbank has become the partner bank of choice for other Equator Banks in African deals (Wright and Rwambizambuga, 2006).

Adoption of codes of conduct such as the EPs may be used to reduce public, governmental and NGOs' criticisms of project financing. The banks' adoption of the EPs suggests they have a strong commitment to avoiding social and environmental risk. However, Priest (1998) stated that industry members might seek self-regulation to avoid more stringent forms of direct regulation. They may use the self-regulatory structure to hide the reality of their lack of regulatory enthusiasm and protection of their own interests.

Priest (1998) pointed out that self-regulation differs from government regulation. Government laws are subject to a number of accountability regimes such as ministerial responsibility, judicial review, oversight by an ombudsman, and the transparency of decision-making necessitates access to relevant information. In contrast, voluntary codes of conduct such as the EPs are carried out without those activities, and there is reliance on industry members who have other business interests to monitor compliance with them. The disciplinary committees and those individuals who are responsible for setting the direction for organisations tend to be volunteer members from the same industry. There is no central arbitral body capable of investigating complaints or punishing offenders (banks which break the rules), in the form of fines.

Lawrence and Thomas (2004), and Hill (2007) indicated that transparency, accountability and the methods by which projects are implemented and monitored according to the EPs are criticised because the signatories cannot be held accountable for failing to comply. There is nevertheless, a legal redress and dispute resolution mechanism for dissatisfied third parties. Lawrence and Thomas (2004) also argued that while the environmental assessment addresses various environmental and social criteria, it is based only on members' satisfaction. As regards transparency, the banks are obliged to refrain from disclosing information about their clients and the fiscal details of the funded projects. Such lack of transparency is still a major concern, and the signatories fail to publish reports as per the NGOs' requirements.

Hill (2007) argued that there is no governance structure in place to monitor the compliance of Equator Banks. *BankTrack* in their report in 2006 stated that the EPs have failed to provide a definitive means for affirming that all endorsing

banks meet and implement the same minimum standards described in the EPs' framework. Such framework also fails to address internal governance issues and improve coordination among institutions endorsing the EPs.

Howard et al. (2000), and King and Lenox (2000) found self-regulation subject to adverse selection. It attracts lower-quality firms to participate. Lenox and Nash (2003) explained that self-regulation without a mechanism for measuring and enforcing compliance with programme objectives will attract poor-performing firms to join in order to gain the signalling and insurance benefits of membership without putting forth the required effort. King and Lenox (2000) argued that industry self-regulation will fail without sanctions. Lenox and Nash (2003) also suggested that negligent members must willingly accept punishment since those in violation may simply leave the programme, and the only explicit sanction available is expulsion. Therefore, for self-regulatory codes of conduct such as the EPs to work effectively, structures must be established to monitor individual firm compliance with the programme objectives and procedures put in place for the removal of negligent firms from the programme.

The EPs also lack mechanisms to ensure that endorsing banks properly integrate their requirements into their operational systems; incentives are lacking for adoption of the principles, and there is no oversight or consistency in how policies and systems are implemented from bank to bank. Many banks and other observers have expressed their concern that the approach allows some banks to free-ride (Chan-Fishel, 2005).

Scholten and Dam (2007) stated that the EPs might produce two types of free-riding as indicated by Gunningham and Sinclair (1999). First, while all parties agree to the terms and conditions of the EPs, some parties do not comply with them whereas others maintain high standards. Firms that do not comply are able to reap the reputational benefits of being an adopter of the code and conduct without incurring the compliance cost. Second, free-riding occurs when some firms in the industry refuse to adopt the self-regulation, and this practice may jeopardise the effectiveness of the initiative. Therefore, to overcome these free-riding problems, monitoring, transparency and formal control over actual performance of the signatories to the EPs are required in order to increase the EPs' effectiveness, and enhance public acceptance.

## ISSUES OF EPs

The dominant approach of Western theories such as "One size fits all", that a good manager in the United Kingdom (U.K.) will also be a good manager in other countries, and that effective U.K. management practices will be effective anywhere, appears to apply to social and environmental management such as the EPs. However, it is questionable whether these Principles can suit developing countries like Malaysia.

Blackman (2008) gave several reasons for doubting that voluntary codes of conduct can be effective in developing countries: (1) because of weak regulatory pressure, voluntary regulatory instruments are unlikely to perform well in countries where mandatory regulation is weak; (2) because many of the non-regulatory factors, which reputedly motivate firms to participate in and comply with voluntary regulation, such as pressure from customers and NGOs, are lacking; and (3) pressures are relatively anaemic in developing countries.

Additionally, the implementation of standardised international environmental management such as the EPs without considering the cultural and value differences may affect the effectiveness of policy implementation because of the participants' resistance due to different nations and organisations having different values and norms. Moreover, there needs to be a comprehensive model of natural environmental risk management which integrates organisational attributes, stakeholders' attributes and social attributes. Attention should also be paid to the nature of the interactions and relationships between these attributes.

Given the above doubts of voluntary codes of conduct being effective in developing countries, it is advisable if different alternative perspectives can be looked at to deal with natural environmental management issues in the banking industry. For example, exploring natural environmental management from the religious and cultural perspectives may be considered.

Codes of conduct such as the EPs may, nevertheless, create favouritism in the project financing industry. The main adopters of the EPs are major banks that have strong capital and resources. They are also from developed countries as confirmed by Priest (1998) that are dominated by longer or long-established firms. Such circumstances may have negative

consequences for developing countries. For example, major banks in project financing may be unwilling to allow small banks from developing countries a greater role in the industry due to their non-adoption of the EPs. Thus, this code of voluntary conduct may act as an anti-competitive device by limiting entry.

The EPs serve as an internal control over banking activities by providing guidelines on how banks should conduct natural environmental management. The EPs were initiated by major players in the banking industry from developed countries such as the U.K. and U.S.A. The question therefore arises: are the EPs useful in developing countries such as Malaysia?

## CONCLUSION

From the above discussion, it shows that the natural environmental issues are not new in the banking and financial industry. Globally, it was initiated by the World Bank and United Nations. The World Bank has introduced guidelines and procedures for financing policies involving the social and natural environment in 1997. The United Nations in 1992 has introduced the UNEP statement as a code of conduct containing principles that the banks should follow if they are to take cognisance of environmental issues in the running of their business. Furthermore, the banking industry takes a proactive step to reintroduce the EPs as the basis of code of conduct for EGS projects.

This is the challenge for the Malaysian banking industry as to date; none of the local banks are signatories to the UNEP Statement and participate as a member in the EPs. This question is open for future research in order to explore why there is no participation from Malaysian local banks. It is advisable for local banks to participate in the UNEP Statement and EPs as doing so will assist them in developing and improving their natural environmental risk management practices.

Additionally, legal factors are also very important in the implementation of natural environmental management since the banking sector operates under strict legal requirements and standards set by the government. Thus, the government has an important role to play in better implementation of natural environmental management in the banking sector in Malaysia. The government through the Central Bank of Malaysia should establish comprehensive natural environmental management guidelines

and policies for the banking sector in order to stimulate the implementation of natural environmental management practices in the country. The government should also play a proactive role in better natural environmental management in the banking sector. A recent government policy that provides a special fund known as the Green Technology Financing Scheme is one example of how the government can contribute to better environmental management in Malaysia.

Since the paper is only based on a conceptual attempt to discuss the topic, it is advisable in the future, to explore the issues of non-participation of Malaysian local banks on natural environmental issues based on questionnaires and interviews. By these, it will identify the reason behind non-participation, and improve the implementation of international codes and conduct within the natural environment such as the EPs.

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# Performance Efficiencies of Domestic and Foreign Islamic Banks in Malaysia

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## ABSTRACT

This study examines the performance efficiencies of full-fledged Islamic banks in Malaysia for the period from 2006 to 2011. The Malaysian Islamic banking industry has grown tremendously in terms of assets, deposits and total financing over the study period. Data Envelopment Analysis (DEA) is employed in this study to measure the cost efficiency as well as the technical efficiency and its decompositions. The results show that, on average the main contributor of cost efficiency for Islamic domestic and foreign banks in Malaysia is allocative efficiency. In addition, the results find that foreign Islamic banks are more efficient than domestic banks with respect to pure technical efficiency and allocative efficiency.

## INTRODUCTION

Islamic banking has been one of the fastest-growing sectors across the global banking industry. The global Islamic banking assets and assets under management have reached USD750 bn and are expected to hit USD1 trillion in 2010 (McKinsey, 2007). However, the International Monetary Fund (IMF) postulates that with total assets of Islamic banking at USD250 bn, they will reach USD1 trillion by 2016 (Bloomberg, 2009). There are over 300 Islamic financial institutions worldwide across 75 countries and the world's 100 largest Islamic banks target an annual asset growth rate of 26.7% while the global Islamic finance industry is experiencing an average growth of 15-20% annually (McKinsey, 2007). Ernst and Young (2011) in a report entitled 'World Islamic Banking Competitiveness Report 2011-2012' outlined that the global Islamic banking assets will reach USD1.1 trillion by 2012, an increase of 33% from USD826 bn in 2010. They added that Malaysia will contribute about 13% (USD38 bn) towards the Islamic banking asset growth worldwide. This phenomenon has been the result of Malaysia's long track record of over 30 years to build successful domestic Islamic banking. As at December 2011, Malaysia's total Islamic banking assets had reached RM335 bn with an average growth rate of 16.07% over the period from 2002 to 2011 (Bank Negara Malaysia, 2012).

The establishment of the first Islamic bank, the Dubai Islamic Bank, in 1975 was initiated by a group of Muslim businessmen under a special law that allowed it to engage in business while accepting deposits. Since then, most of the formations of Islamic banks worldwide were private initiated. However, the establishment of Islamic banking in Malaysia was different from Islamic banking in the Gulf and the rest of the world (Samad, Gardner and Cook, 2005). This was because the first Islamic bank in Malaysia, Bank Islam Malaysia Berhad (BIMB) was government initiated. The establishment of BIMB in July 1983 under the Islamic Banking Act 1983 marked a new era in Malaysian Islamic banking. A decade later, the government introduced the 'Interest-Free Banking Scheme'. The scheme made Malaysia among the first nations in the world to allow a full-fledged Islamic banking institution (Islamic bank) to operate side-by-side with the conventional banks. The conventional banks are allowed to offer Islamic banking products or services to customers under a scheme known as the Islamic window.

The scheme was introduced to promote Islamic banking to be a more efficient and effective mode in increasing the number of institutions offering Islamic banking services at the lowest cost in the shortest time (Bank Negara Malaysia, 1994). The growing interest to offer Islamic products is due to the banks' desire to offer Islamic services to the large Muslim population and the banks were also motivated to tap the increasing interest of international investors who were attracted to *Shariah*-compliant products (Sole, 2007). In March 1993, 21 Islamic financial products were offered by three banks. However in July 1993, the scheme was extended to all conventional banks. In October 1999, the second full-fledged Islamic bank, Bank Muamalat Malaysia Berhad (BMMB) was established.

With the facilities and incentives extended by Bank Negara Malaysia to the full-fledged Islamic banks, Islamic windows and conventional banks, curiosity has been created as to whether the Islamic banks have performed well. In recent years, studies on Malaysia Islamic banking have started to grow (Omar et al., 2005; Sufian, 2006; Mohd Zamil, 2007; Ahmad Mokhtar, et al., 2007; Kamaruddin, Safa and Mohammad, 2008; Mohamad, Noor and Ahmad, 2011). Several studies were undertaken to look at the association between conventional banks and efficiency but empirical works on Malaysian Islamic banking are still in their infancy. Several attempts were undertaken to compare the performance of domestic and foreign banks in the Malaysian banking system (Detragiache and Gupta, 2004; Matthews and Ismail, 2005; Sufian and Abdul Majid, 2008; Mohd Tahir, Abu Bakar and Haron, 2010; and Ong, Lim and Teh, 2011). However, there appears to be a limited number of studies to assess the performance efficiencies of Malaysian Islamic banks with respect to domestic and foreign Islamic banks. This study contributes to the existing studies on Malaysian Islamic banking by measuring the performance efficiencies of Islamic banks (full-fledged and Islamic windows) with respect to technical and allocative efficiency. The next section presents the discussions in existing literature on the Malaysian Islamic banking industry.

## LITERATURE REVIEW

Generally, a stream of existing studies on Malaysian Islamic banks focused on comparing the performance of Islamic and conventional banks in the Malaysian banking industry. Studies such as by Ho, Osman and Abdul Rahim (2011) compared the performance of Islamic and conventional banks by utilising financial ratios information, namely Returns on Equity (ROE) and Returns on Assets (ROA). The authors found that, over the period from 1996 to 2009, the performance of ROA and ROE were dominated by foreign banks while further investigation revealed that the relationship between size and performance of Islamic and conventional banks was insignificant. Haron and Wan Azmi (2008) investigated the impact of selected economic variables such as rates of profit of Islamic banks, rates of interest on deposits of conventional banks, base lending rates, the Kuala Lumpur composite index, consumer price index, money supply and gross domestic products on deposit levels in Islamic and conventional banks. The findings ruled out

the impact of most of the variables on the deposit levels in Islamic banks. The authors suggested that religious beliefs played an important role in banking decisions among Muslim customers.

Samad and Hassan (1999) evaluated the interbank performance of the first Malaysian Islamic bank, BIMB in terms of profitability, liquidity, risk and solvency, and community involvement for the period from 1984 to 1997 by employing the financial ratios method. The authors revealed that BIMB was relatively more liquid and less risky compared to a group of eight conventional banks. An earlier study by Abdul Majid, Md Nor and Said (2005) compared the relative cost efficiency of Islamic and conventional banks in Malaysia during the period from 1993 to 2000. The results showed that Islamic banks were marginally more efficient than conventional banks. This contention was further supported by Kamaruddin, Safa and Mohammad (2008). Their study suggested that Islamic banking operators were relatively more efficient at controlling costs than their foreign counterparts. On the contrary, Mohd Zamil (2007) found that the managerial efficiencies of conventional commercial banks were higher than those of Islamic commercial banks during the study period from 2000 to 2004.

Another stream of studies on Malaysian Islamic banking focused on measuring the performance efficiencies of Islamic banks and extended these studies to compare the performance of domestic and foreign Islamic banks. Nevertheless, the literature on this appears to be limited. Ahmad Mokhtar, Abdullah and Alhabshi (2007) examined the technical and cost efficiency of 20 Islamic window banks, two full-fledged Islamic banks and 20 conventional banks over a period from 1997 to 2003. The result of from DEA suggested that the full-fledged Islamic banks were more efficient than banks that offered Islamic windows. Nevertheless, the Islamic banks were still considered as underperformers relative to conventional banks. The authors added that foreign Islamic banks were more efficient than domestic Islamic banks.

Aik and Tan (2012) investigated the cost and profit efficiency of full-fledged Islamic banks and Islamic window operations of domestic and foreign banks in Malaysia. Employing DEA, the study covered the period from 2002 to 2008. Their study confirmed the findings of Ahmad Mokhtar, Abdullah and Alhabshi (2007) and

Batchelor and Wadud (2004) that full-fledged Islamic banks were more efficient than Islamic window banks. Their results also suggested that domestic Islamic banks (full-fledged and Islamic windows) were more efficient than foreign Islamic banks. These results are in line with Sufian (2007), who highlighted that over the period from 2001 to 2004, the domestic Islamic banks were more efficient than the foreign Islamic bank albeit marginally.

Employing a generalised Malmquist productivity index, Abdul Majid (2010) focused on the productivity of foreign-owned Islamic banks and Islamic banking subsidiaries for the period from 2000 to 2008. The results found that foreign full-fledged Islamic banks showed negative productivity changes due to negative scale change effects and negative technical changes. The author suggested that domestic Islamic banks had the potential to improve their productivity as they experienced considerable rates of technical changes and efficiency growth.

The results of previous studies on measuring and comparing the performance of full-fledged banks and Islamic window banks as well as the performance of Islamic domestic and foreign banks are far from reaching a consensus. On the one hand, few studies supported the view that Islamic domestic banks are more efficient than their foreign counterparts. On the other hand, several studies suggested that the performance efficiencies was higher among foreign Islamic banks compared to domestic banks. Therefore, this study tends to fill the gap in the literature by covering a recent study period from 2006 to 2011 and the sample contains all full-fledged Islamic banks, relatively to previous studies. The next section discusses in detail the methods used to measure the relative efficiency of banks and compares the results of Islamic domestic banks and foreign banks.

## **Data and Methodology**

### ***Input and Output Variables***

For the empirical analysis, this study incorporates all full-fledged Islamic banks. The full-fledged domestic Islamic banks are Bank Islam, Bank Muamalat, Affin Islamic Bank,

Alliance Islamic Bank, AmIslamic Bank, CIMB Islamic Bank, Hong Leong Islamic Bank, Maybank Islamic Bank, Public Islamic Bank, and RHB Islamic Bank, while the foreign Islamic banks consist of Al-Rajhi Banking Corporation, Asian Finance Bank, Kuwait Finance House, HSBC Al-Amanah Bank, OCBC Al-Amin Bank and Standard Chartered Saadiq Bank. The study period from 2006 to 2011 is chosen as most of the Islamic banks (except Bank Islam and Bank Muamalat) were given full-fledged Islamic bank status from 2005 onwards. The input and output variables are obtained from the Bankscope database package produced by Bureau van Dijk electronic publishing (BVDep), supplemented with the published balance sheets and income statements as reported in the annual reports of the domestic banks. All data is in millions of Ringgit Malaysia (RM).

As the purpose of this study is to evaluate the efficiency of banks overall, this study employs the intermediation approach like many studies on banking efficiency. The intermediation approach is the most consistent with the concept of Islamic banking as it focuses on a bank's role in intermediating savers and investors of funds. Moreover, this approach is in line with the Islamic banking function that relies on profit-sharing contracts, which involve an equity participation principle with depositors. Hence, banks can be seen as intermediating savers and investors by transforming deposits into earning assets, rather than as producers of services and loans (Abdul Majid et al., 2009).

This study follows the inputs and outputs by Isik and Hassan (2002); Hassan (2006), and Shamsher *et al.* (2008). The input variables chosen in this study are personnel expenses, fixed assets, deposits and short term funding (deposits) whereas the output variables are represented by total loans, total securities and off-balance sheet items. Input prices employed are calculated as the price of labour (total expenditure on employees such as salaries, employee benefits and reserves for retirement pay, divided by total assets), the price of capital (the ratio of non-interest expenses to the book value of premises and fixed assets) and the price of deposits (total interest expenses divided by total deposits and short-term funding).

## Methodology

This study measures the cost efficiency of the Malaysian banking sector and its decompositions - technical efficiency and allocative efficiency. Apart from that, the sources of technical efficiency, namely pure technical efficiency and scale efficiency are also determined. Two models, namely the DEA constant returns to scale and variable returns to scale models are employed. First, this study assumes that there are  $n$  DMUs to be evaluated with varying amounts of  $K$  different inputs to produce  $M$  different outputs. Both DEA models seek to determine which of the  $n$  DMUs will establish an envelopment surface. This model assumes a constant return to scale mode of operation. It measures efficiency in terms of overall technical efficiency. The DEA efficiency score is obtained by taking the maximum ratio of weighted outputs to weighted inputs. This measurement allows multiple outputs and inputs to be reduced to a single 'virtual' input ( $x_i$ ) and a single 'virtual' output ( $y_i$ ) by optimal weights.

$$\begin{aligned} \max_{u,v} & (u'y_i/v'x_i) \\ \text{s.t.} & u'y_j/v'x_j \leq 1, \quad j=1, 2, \dots, N \\ & u, v \geq 0, \end{aligned} \quad (1)$$

The vectors  $x_i$  and  $y_i$  indicate the  $K \times N$  input matrix and  $K \times M$  output matrix for  $i$ th DMUs respectively. The  $K \times N$  input matrix,  $X$ , and the  $K \times M$  output matrix,  $Y$ , represent the data for all  $N$  DMUs. The efficiency for the  $i$ th DMU is maximised by finding values for  $u$  and  $v$ , to avoid the problem of an infinite number of solutions, a constant constraint ( $\rho'x_i = 1$ ) is imposed on the equation (1).

$$\begin{aligned} \max_{\mu,\rho} & (\mu'y_i) \\ \text{s.t.} & \rho'x_i = 1, \\ & \mu'y_j - \rho'x_j \leq 0, \quad j=1, 2, \dots, n \\ & \mu, \rho \geq 0, \end{aligned} \quad (2)$$

The notations  $\mu$  and  $\rho$  indicate the transformation of  $u$  and  $v$ . The envelopment form of the linear programming problem is shown below:

$$\begin{aligned} \min_{\theta,\lambda} & \theta, \\ \text{s.t.} & y_i + Y\lambda \geq 0, \\ & \theta x_i - X\lambda \geq 0, \\ & \lambda \geq 0, \end{aligned} \quad (3)$$

where  $\theta$  is a scalar and  $\lambda$  is an  $N \times 1$  vector of constants. The value of  $\theta$  is the efficiency score for the  $i$ th DMU; it should be solved  $N$  times, once for each DMU.

To account for the variable returns to scale assumption, the convexity constraint,  $NI'\lambda = 1$ , is applied to Equation (2).

$$\begin{aligned} \min_{\theta,\lambda} & \theta, \\ \text{s.t.} & -y_i + Y\lambda \geq 0, \\ & \theta x_i - X\lambda \geq 0, \\ & NI'\lambda = 1, \\ & \lambda \geq 0, \end{aligned} \quad (4)$$

where the elements in the vector  $\theta$  are less than or equal to 1, and  $NI$  is an  $N \times 1$  vector of ones.

To account for allocative efficiency, the vector of input prices  $w_i$  is inserted in Equation (4), and shown as follows:

$$\begin{aligned} \min_{\lambda,x_i^*} & w_i'x_i^*, \\ \text{s.t.} & -y_i + Y\lambda \geq 0, \\ & x_i^* - X\lambda \geq 0, \\ & NI'\lambda = 1, \\ & \lambda \geq 0, \end{aligned} \quad (5)$$

where  $x_i^*$  is the cost minimising vector of input quantities for the  $i$ th DMU, given the input prices  $w_i$  and the output levels  $y_i$ . The total cost efficiency or overall efficiency of the  $i$ th DMU is calculated as:

$$CE = \frac{w_i'x_i^*}{w_i'x_i} \quad (6)$$

## Results and Discussion

Generally, two approaches are normally taken in determining what constitutes bank inputs and outputs. With respect to the intermediation approach, bank assets measure outputs and liabilities measure inputs while inputs in the production approach are physical entities such as labour and capital. This study employs the intermediation approach in the selection of three inputs and three outputs. Input variables consist of Personnel Expenses (PE) as a proxy for labour, Fixed Assets (FA) represent capital, and total deposits and short term funding (hereafter denoted as DEP). Total loans and advances (LN), securities portfolio (SEC) and Off-balance Sheet items (OBS) are the chosen output variables. The OBS variable is selected to reflect the increasing contribution of non-traditional activities towards a bank's total income. Table 1 provides descriptive statistics of the variables employed. The variables are based on the nominal value and reported in millions of Ringgit Malaysia (RM). The total number of observations is 84, for the period from 2006 to 2011.

**Table 1 Descriptive statistics of variables (RM million)**

<i>Variable</i>	<i>Mean</i>	<i>Std. deviation</i>	<i>Minimum</i>	<i>Maximum</i>
PE	54.98	74.30	0.60	423.95
FA	24.08	40.27	0.20	199.06
DEP	10,985	9,906	41.86	54,356
LN	7,045	7,779	2.40	458,44
SEC	1,981	2,361	23.34	12,684
OBS	3,978	5,632	10.00	39,872
TA	12,507	11,498	153.00	65,927

Note: PE = personnel expenses; FA = fixed assets; DEP = total deposits; LN = total loans; SEC = securities portfolio; and OBS = off-balance sheet items.

This study covers the period from 2006 to 2011. The starting period was the year that all Islamic banks, domestic and foreign, started their full-fledged Islamic banks except for five banks. The five banks are Alliance Islamic Bank, HSBC Al-Amanah Bank, Maybank Islamic Bank, OCBC Al-Amin Bank and Standard Chartered Saadiq Bank which began their Islamic banking activities in 2008. Table 1 shows the wide

differences among variables employed. For instance, total assets which represent the size of banks show that the total assets of the smallest banks are RM153 million while the total assets of the largest size of banks are RM65 bn. The difference between both sizes of banks is recorded at RM65 bn. Next, Table 2 shows the market shares of Islamic banks with respect to ownership.

**Table 2 Market structure of Islamic banking industry (RM million)**

<i>Bank</i>	<i>Input</i>			<i>Output</i>			<i>TA</i>
	<i>PE</i>	<i>FA</i>	<i>DEP</i>	<i>LN</i>	<i>SEC</i>	<i>OBS</i>	
Domestic (n=10)	66.16	25.87	14,736	9,397	2,762	5,155	15,223
Foreign (n=6)	34.68	20.88	4,234	2,812	576	1,859	7,617

Note: PE = personnel expenses; FA = fixed assets; DEP = total deposits; LN = total loans; SEC = securities portfolio; and OBS = off-balance sheet items.

Table 2 shows that domestic banks dominate Islamic banking with respect to all input and output variables chosen. For instance, the average of total assets of domestic Islamic banks is recorded at RM15 million compared to RM7 million for foreign Islamic banks. However, there is not much difference between the property and equipment categories for both types of banks. The fixed assets for domestic Islamic bank are RM25 million while for foreign banks they are RM20 million. The market share of foreign Islamic banks is around 23% only for the total financing of Islamic banking. Next, the DEA results are reported in Table 3. There are three models of DEA employed in this study, namely a constant returns to scale model, a variable returns to scale model and a cost minimisation model. There are five types of efficiency generated and these are technical efficiency and its decompositions, pure

technical efficiency and scale efficiency, allocative efficiency and cost efficiency.

Table 3 shows that, with respect to pure technical efficiency, the average of scores between 2006 and 2011 is 81%. This shows that Islamic banks could have produced the same amount of outputs with approximately 19% less inputs than the amount of resources they actually used. The average of technical efficiency scores throughout the study period is 73%. It was found that the major source of technical inefficiency is contributed by pure technical efficiency (81%) which is less efficient than scale efficiency scores (90%). Next, Table 4 reports the average efficiency scores of individual banks from 2006 to 2011. The results could offer an insight to the relative performance efficiencies of foreign and domestic Islamic banks.

**Table 3: Summary of efficiency scores (2006-2011)**

<i>Bank/ Efficiency Score</i>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>Mean</b>
<b>TE:</b>							
ALL	0.63	0.62	0.75	0.74	0.79	0.75	0.73
Domestic	0.64	0.64	0.82	0.80	0.81	0.77	0.76
Foreign	0.57	0.64	0.64	0.64	0.77	0.71	0.67
<b>PTE:</b>							
ALL	0.80	0.75	0.85	0.81	0.83	0.79	0.81
Domestic	0.73	0.71	0.86	0.83	0.83	0.80	0.80
Foreign	0.86	0.84	0.76	0.76	0.85	0.78	0.83
<b>SE:</b>							
ALL	0.82	0.85	0.89	0.91	0.95	0.95	0.90
Domestic	0.90	0.91	0.97	0.96	0.97	0.96	0.95
Foreign	0.71	0.77	0.84	0.84	0.91	0.93	0.82
<b>CE:</b>							
ALL	0.56	0.54	0.63	0.63	0.66	0.63	0.62
Domestic	0.58	0.54	0.68	0.66	0.64	0.62	0.63
Foreign	0.53	0.54	0.59	0.59	0.69	0.64	0.60
<b>AE:</b>							
ALL	0.88	0.85	0.83	0.86	0.84	0.85	0.85
Domestic	0.90	0.83	0.82	0.83	0.80	0.81	0.83
Foreign	0.91	0.84	0.93	0.93	0.90	0.91	0.89

Note: TE = technical efficiency; PTE = pure technical efficiency; SE = scale efficiency; CE = cost efficiency; and AE = allocative efficiency.

**Table 4: Average efficiency scores of individual banks (2006-2011)**

<i>Bank/ Efficiency Score</i>	<b>TE</b>	<b>PTE</b>	<b>SE</b>	<b>CE</b>	<b>AE</b>
Domestic					
Affin	0.54	0.70	0.80	0.38	0.72
Alliance	0.89	0.90	0.99	0.83	0.93
AMBank	0.85	0.86	0.99	0.81	0.95
CIMB	0.78	0.80	0.97	0.58	0.76
Hong Leong	0.67	0.68	0.99	0.53	0.79
Maybank	0.65	0.78	0.85	0.52	0.80
Public	0.85	0.85	0.99	0.63	0.75
RHB	0.96	1.00	0.96	0.85	0.89
Bank Islam	0.72	0.75	0.97	0.67	0.92
Muamalat	0.76	0.77	0.99	0.65	0.86
Foreign:					
Al-Rajhi	0.75	0.77	0.98	0.74	0.99
Asian Finance	0.34	0.89	0.39	0.29	0.87
Al-Amanah	0.76	0.78	0.97	0.72	0.96
Kuwait	0.75	0.80	0.94	0.67	0.90
Al-Amin	0.92	0.93	0.99	0.70	0.76
Sadiq	0.59	0.81	0.75	0.50	0.83

## CONCLUSION

This study investigates the performance efficiencies of 16 foreign and domestic Islamic banks for the period from 2006 to 2011 by using DEA. It measures the cost efficiency of the Malaysian banking sector and its decompositions - technical efficiency and allocative efficiency. In achieving this goal some significant results with regard to the Malaysian banking sector are found. The results show that, on average the main contributor of cost efficiency for Islamic domestic and foreign banks in Malaysia is allocative efficiency. In addition, the results show that foreign Islamic banks are more efficient than domestic banks with respect to pure technical efficiency and allocative efficiency.

The results of this study have considerable policy relevance. The pattern of performance efficiencies of Malaysian Islamic banks suggests that foreign full-fledged Islamic banks perform better than domestic Islamic banks in terms of product innovation and advancement of banking technology. Thus, domestic full-fledged Islamic banks should focus on incorporating advanced information technology solutions in Islamic financial tools such as *Murabahah*, *Ijarah* and *Musharakah*. Islamic banks in particular the domestic Islamic banks should respond fast to market changes with innovations in their customer service and product offerings in order to compete with foreign banks. The Financial Master Plan (2001-2010) has outlined strategies such as to establish an Islamic Financial Services Board, for Malaysia to become the Islamic financial hub and to liberalise domestic Islamic finance. To become the Islamic financial hub, Islamic banks in particular domestic banks need to attain dynamic products and services to meet the ever-changing customer needs and expectations. The involvement of foreign Islamic banks is beneficial to the industry, in view of the increasing competition due to the more liberalised Islamic banking sector. Bank managements and the authorities should make continuous efforts to achieve the optimal capacities of Islamic banking products and services by utilising the resources available.

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# Service Quality in the Banking Sector: Structural Equation Modelling Approach

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Aik Nai Cheik\*

## ABSTRACT

This study investigates whether the perceived service quality by bank customers affects loyalty in the banking sector in Malaysia. Structural Equation Modelling (SEM) has been used to analyse the primary data collected from 537 customers of major banks operating in Kuala Lumpur and Selangor. First, the results show that customers perceive that convenience to use, empathy concerning the extent to which the bank service is provided, knowledge and competency of bank staff, reliability and security of bank service and Internet banking quality affect their level of satisfaction with the bank service. Second, it is found that customer satisfaction determines their attention to use the bank service. Path analysis also shows that attention to use is significantly correlated to bank customer loyalty. The results suggest that bank loyalty is a function of service quality. Therefore, banks should focus on customer satisfaction and loyalty to make a profitable long-term relationship with customers, as loyal customers will stay with their bank and are likely to avail themselves of new bank services, and thus generate income for the bank.

## INTRODUCTION

For the service sector, a whole range of activities has become an essential part to generate income that focuses on the customer. Therefore, it is necessary for banks to understand and identify the key success factors in the banking industry in terms of service quality and customer satisfaction, which might help them to develop a loyal customer base (Sharp and Sharp, 1997). In a recent study, Liang et al. (2009) examined the relationship between customer perspectives and financial performance of merchant banks in the Taiwanese banking industry. They used customer behaviour loyalty as a proxy for the financial performance of the service provider. They found that customer perspectives in customer satisfaction and loyalty positively affect financial performance.

The recognition of service quality as a competitive strategy is a relatively recent phenomenon in the Malaysian banking sector. Prior to bank mergers and deregulation the banking sector in Malaysia was dominated by national banks and operated in a protected environment. At that time, the banks did not pay much attention to service quality issues or assigning priority to identification and satisfaction of customer needs. Nowadays, service quality is one of the critical success factors that influence the competitiveness of a bank, and is an efficiency driver. A bank can distinguish itself from competitors by providing a high quality service (Brown and Swarts, 1989).

In the local context, a limited number of attempts has been made to study the service quality of commercial banks. For example, Shafie et al. (2004) conducted a case study on Bank Islam Malaysia Berhad (BIMB) to examine the service quality of an Islamic bank. Ndubisi (2006) studied the

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antecedents of relationship quality and customer satisfaction from the marketing point of view on retail banks. In a recent study, Suleiman et al. (2012) investigated customer loyalty determinants in e-banking. The objective of this study is to analyse the relations of customer service quality, overall service quality, and satisfaction with loyalty in the Malaysian banking industry.

This paper is structured as follows. Section II discusses the literature review and Section III is the research model and hypotheses development. Section IV describes the research method and data in this study. Section V contains a summary of the results and discussion, and Section VI presents the conclusion.

## LITERATURE REVIEW

### *Service Quality*

Parasuraman et al. (1988) view service quality as an overall assessment of the difference between perception and expectation of service delivery. They developed five dimensions of service quality that customers rely on to form their judgments of perceived service quality, namely:

- (i) assurance – employees' knowledge and courtesy and their ability to convey trust and confidence;
- (ii) empathy – caring, individualised attention given to customers;
- (iii) reliability – ability to perform the promised service dependably and accurately;
- (iv) responsiveness – willingness to help customers and provide prompt service; and
- (v) tangibles – appearance of physical facilities, equipment, personnel and written materials.

Shafie et al. (2004) examined the service quality in the Islamic banking industry through a case study conducted on BIMB in Malaysia. They suggested that an additional dimension should be added to the service quality method, as the Islamic banking industry operates under different principles and cultures compared to other service industries. In addition to the existing five dimensions, Shafie et al. incorporated an extra dimension "Compliance with Islamic Law". They found that it is important for Islamic banks to consider cultural differences when adopting service quality.

Further, customer satisfaction is significantly linked with the service quality for effective operation of Islamic banks.

With the growth of the Internet, Internet banking has become a new way of doing banking business. Many banks use the Internet as a new market channel and offer their customers a variety of services 24 hours a day, and, furthermore, Internet access is available anywhere. In this scenario, it is obvious that Internet banking can become one of the important constructs to determine the banking service qualities that influence the customer perception of service quality. The literature indicates that there are several advantages for a bank to offer Internet banking such as cost savings (Downes and Mui, 1998), increasing customer base (Read, 1998) and the development of the bank's non-core business (Marshall, 1998).

### *Customer Satisfaction*

Jamal and Naser (2003) define customer satisfaction as a feeling or evaluation by customers towards products or services after they have used them. In today's highly competitive banking industry, customer satisfaction is considered as the essence of success (Siddiqi, 2011). By satisfying the customer, the customer is more likely to concentrate their banking transactions with one bank or recommend their bank to others. This will reduce the bank's cost of providing services because there will be less complaints to deal with (Reichheld, 1993). Studies such as Szymanski and Henard (2001) and Bloemer et al. (2002) acknowledge the importance of customer satisfaction and service quality perceptions as predictors of customer loyalty.

### *Customer Loyalty*

Customer loyalty is a special kind of customer behaviour towards the organisation. Uncles, Dowling and Hammond (2003) define customer loyalty as two broad categories: the behaviour and the attitude. Customer loyalty-based behaviour focuses on the measure or proportion of purchase of a brand, and repeat purchase probability. The customer's attitudinal aspect of loyalty represents notions like purchase of additional products or services, and willingness to recommend the organisation to others or to pay a price premium for products and services (Cronin and Taylor, 1992; and Zeithaml et al., 1996).

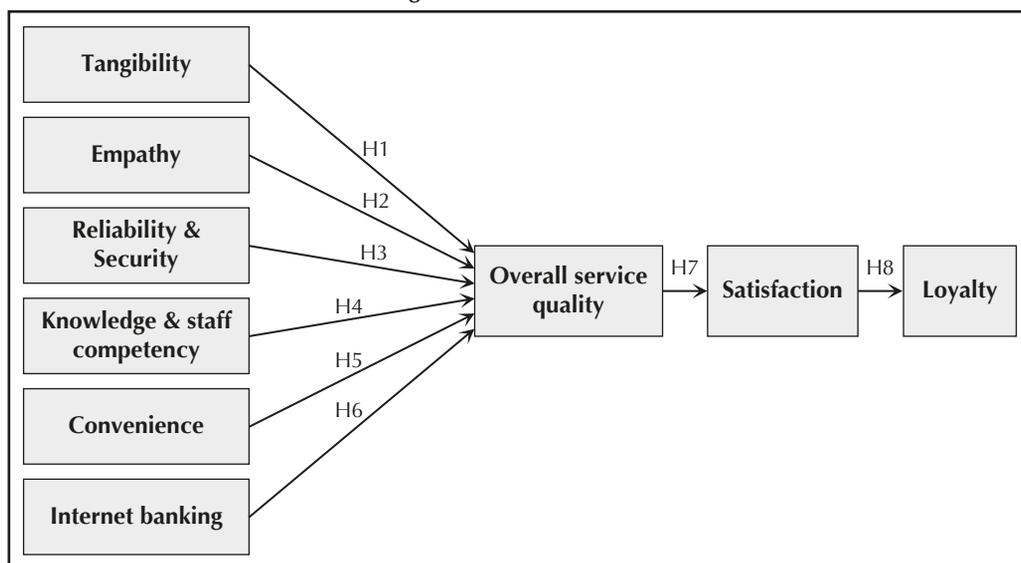
A loyal customer to a bank is one who will stay with the same service provider, is likely to take new products with the bank and is likely to recommend the bank's services to others (Fisher, 2001). This makes customer loyalty essential for bank management because customers can or do change their bank if their expectations are not met by their existing bank (Szymigin and Carrigan, 2001). Ehigie (2006) examines how customer expectation, perceived service quality and satisfaction predict loyalty among bank customers in Nigeria. The

hierarchical regression analysis result shows that perceptions of service quality and satisfaction are significant predictors of customer loyalty.

## THE RESEARCH MODEL AND HYPOTHESIS DEVELOPMENT

Figure 1 shows the research model of the study — additional dimensions have been added to the SERVQUAL method.

Figure 1: Research Model



From the research model in Figure 1, the following hypotheses are proposed:

- H1: There is a positive association between tangibles and overall service quality.*
- H2: There is a positive association between empathy and overall service quality.*
- H3: There is a positive association between reliability and security, and overall service quality.*
- H4: There is a positive association between knowledge and staff competency, and overall service quality.*
- H5: There is a positive association between convenience and overall service quality.*
- H6: There is a positive association between Internet banking and overall service quality.*
- H7: There is a positive association between overall service quality and customer satisfaction.*
- H8: There is a positive association between customer satisfaction and customer loyalty.*

## RESEARCH METHOD

### Measurement Instrument

The survey instrument was developed based on the literature review. The variables included in the study have been adapted from existing literature to suit the bank research, and a few other items have been introduced in order to have an adequate measure of the dimension of interest. The respondents (customers) were asked to indicate the extent of agreement or disagreement with each of the six dimensions of service quality, overall service quality, customer satisfaction and loyalty. All items were measured on a seven-point Likert scale. SEM is used to validate the research model. This approach was chosen because of its ability to test the causal relationship between constructs and multiple measurement items.

## Sampling and Data Collection

The target population was those respondents (customers) aged 18 or above who had a bank account opened at the bank. Data were collected by using the convenience sampling method.

Customers were surveyed in shopping malls, at their workplace such as universities and enterprises, and in front of bank branches in Kuala Lumpur and Selangor in Malaysia. A total of 1,300 survey questionnaires were distributed, of which 600 were completed and returned, representing a 46.2% response rate. Out of this, 537 were usable while 67 were void because of incomplete data.

## DATA ANALYSIS AND RESULTS

### Reliability test

As shown in Table 1, the results of the internal consistency and reliability of measures reveal that Cronbach's alpha values for all constructs are between 0.802 and 0.929. The acceptable value for Cronbach's alpha is 0.70 or above (Hair et al., 2006). Therefore, all these results indicate that all constructs provide adequate coverage of the concepts, all items are understandable and clear, and that the questionnaire is a reliable measurement tool, hence suggesting adequate internal consistency and reliability of the scale measurement.

**Table 1: Internal Consistency and Reliability**

Measurement items	Items	Cronbach's' Alpha
Tangibility	6	0.802
Empathy	7	0.832
Convenience	7	0.817
Knowledge and competency of bank staff	6	0.879
Reliability and security	8	0.894
Internet banking service	6	0.929
Loyalty	6	0.912
Perceived overall service quality	6	0.915
Satisfaction	6	0.883

### Structural Model and Testing Hypothesis

SEM is a multivariate technique that combines aspects of multiple regressions, and is able to estimate a series of inter-related dependent relationships simultaneously (Hair et al., 2006; and Byrne, 2009). Hair et al. (2006) suggest that Confirmatory Factor Analysis (CFA) can be used to assess the measurement model for all constructs, and to explain how measured variables logically and systematically represent constructs in the model. Table 2 presents the

results of the measurement model of this study. The overall fit measures in Table 2 indicate that the measurement model in the calibration sample shows a good fit with the data collected. The chi-square value of 1642.62 is significant. The two fit indices for CFI and TLI are greater than the 0.90 threshold for acceptability. The probability-value and Root Mean Square Error of Approximation (RMSEA) are 0.058, which is a measure of the concept of non-centrality of the sample.

**Table 2: Fit Indices for Final Measurement Model**

Chi-Square	Probability	$\chi^2/df$	TLI	CFI	RMSEA	GFI	AGFI
1642.62	0.000	2.789	0.920	0.929	0.058	0.849	0.820

The correlations and composite reliability analysis were conducted on all variables to explore the relationship between the variables. The results show that (refer to Table 3) the composite reliability for all the constructs is greater than 0.80 (from 0.81 to 0.93), and that the output of Average Variance Extracted is higher than 0.5 (ranging from 0.7 to 0.8). Thus, the results support the reliability of this study.

The estimated parameters are all statistically significant and higher than 0.7 between the latent and measured variables. Thus, the results prove the convergent validity in this study. As shown in Table 3 the square root of average variance extracted is higher than the inter-item correlation for all constructs, which supports the discriminant validity of the constructs.

**Table 3: Correlations and Composite Reliability**

Variables	AVE	CR	1	2	3	4	5	6	7	8	9
1. Knowledge	.750	.886	<b>.866</b>								
2. Convenience	.782	.867	.405**	<b>.884</b>							
3. Empathy	.811	.854	.583**	.307**	<b>.900</b>						
4. Internet banking	.863	.936	.460**	.089*	.534**	<b>.928</b>					
5. Loyalty	.876	.930	.461**	.020	.517**	.604**	<b>.931</b>				
6. Reliability	.806	.883	.439**	.056	.587**	.650**	.624**	<b>.890</b>			
7. Tangibility	.772	.818	.526**	.258**	.531**	.527**	.480**	.503**	<b>.878</b>		
8. Satisfaction	.802	.878	.550**	.159**	.479**	.566**	.654**	.481**	.532**	<b>.895</b>	
9. Overall service quality	.794	.911	.551**	.104*	.586**	.652**	.714**	.615**	.569**	.781**	<b>.891</b>

Note: values on diagonal are square root of AVE; CR= Composite reliability; \*: p< .05; \*\*: p< .01.

### Structural Model

This study uses the results obtained from the measurement model to build the relationships and specify the structural model based on the research model. The same set of fit indices assessments was chosen to assess the measurement model and evaluate the full structural model. The results of the fit indices show that most of the fit indices are above the recommended value of 0.90 — the Chi-square value ( $\chi^2$ ) of 1809.4, the Comparative Fit Index

(CFI) with a value of 0.924, and RMSEA with a value of 0.05, are all within the acceptable level. Once the structural model achieves the structural model fit and validity, the testing of the hypotheses can be performed. Table 4 shows the important decision results — the regression weights for the structural model and hypotheses. Considering the pattern of significance of the parameter estimate in Table 4, all the paths are found to be significant in the hypothesized directions.

**Table 4: Standardised Regression Weights for Structural Model and Hypotheses**

Hypotheses	$\beta$	S.E.	C.R.	P
H1 Tangibility $\longrightarrow$ Overall Service Quality	.239	.071	4.592	***
H2 Empathy $\longrightarrow$ Overall Service Quality	.126	.075	2.260	.020**
H3 Reliability and Security $\longrightarrow$ Overall Service Quality	.108	.053	2.023	.043**
H4 Knowledge and Staff Competency $\longrightarrow$ Overall Service Quality	.279	.063	5.264	***
H5 Convenience $\longrightarrow$ Overall Service Quality	.179	.026	4.466	***
H6 Internet Banking $\longrightarrow$ Overall Service Quality	.298	.051	5.966	***
H7 Overall Service Quality $\longrightarrow$ Satisfaction	.930	.041	19.856	***
H8 Satisfaction $\longrightarrow$ Loyalty	.827	.046	18.744	***

Note:  $\beta$ : Standardised Regression Weight; S.E.: Standardied Error; C.R.: Critical Ratio; \*\*p< 0.01; \*\*\*p< 0.001

In this study the influence of tangibility, empathy, reliability and security, knowledge and competency of bank staff, convenience, and Internet banking on perceived overall service quality were tested. The influence of service quality on bank customer satisfaction and satisfaction on customer bank loyalty was measured. The results reveal that all hypothesized paths related to the relationship between independent variables (tangibility,

empathy, reliability and security, knowledge and competency of bank staff, convenience and Internet banking) and perceived overall service quality are significant, which supports the above-mentioned hypotheses H1, H2, H3, H4, H5, and H6. Taken together these six determinants explain 68.7% of the variance associated with overall customer service quality (see Figure 2).

Figure 2: Model Testing Results

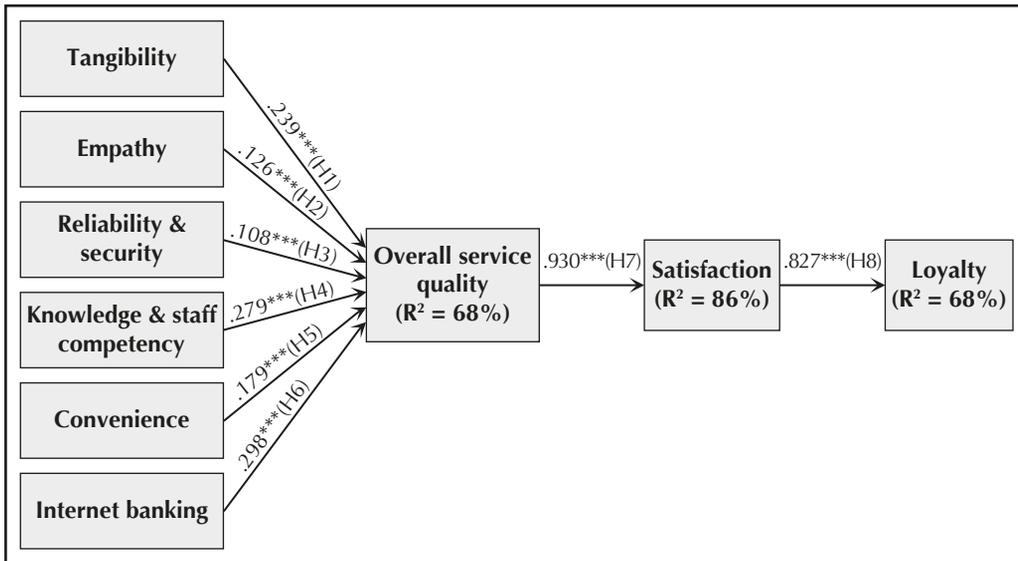


Figure 2 indicates that Internet banking is the strongest determinant of overall service quality followed by knowledge and competency of bank staff, tangibility, convenience, reliability and security. The relationship between overall service quality and satisfaction is positive and significant, thus supporting H7. Further, the effect of customer satisfaction on customer loyalty is strong and significant, therefore supporting H8. Overall, the results support the importance of the various theorised factors in affecting the formation of customer overall service quality and satisfaction. Finally, these results provide support for the effects of customer satisfaction on customer loyalty. This implies that the more satisfied a bank customer is with the bank's service, the more likely the customer will be loyal.

**CONCLUSION**

In the banking industry, the generation of revenue is from customers. Thus, it is important for bank management to identify the key

success factors, in terms of service quality and customer satisfaction on customer loyalty, to gain the competitiveness, market size and revenue. Based on the data furnished by bank customers in Malaysia and in the subsequent SEM analysis of the data, some important findings were made. The results of this study confirm that service quality has many dimensions and that there is no consensus concerning the exact nature of these dimensions. The results indicate that all six dimensions of service quality are good predictors of customer satisfaction and customer loyalty. These dimensions of service quality play an important role in adding value to the overall service quality experience.

The results also indicate that there are various fields which the banks can focus on. Owing to the high usage of technology by the bank customers in today's world, the role of Internet banking has become more important. Internet banking is the strongest determinant of overall service quality. For this reason it will be fundamental for the banks to make a great

effort to provide customers with financial services or products over the Internet. Banks need to distinguish their bank products and timely introduction in the marketplace to attract new customers and enhance customer satisfaction. Internet banking, which is available whenever and wherever the customer needs it, saves time and is a convenient tool.

The conduct of bank staff has an impact on customer satisfaction after the Internet banking factor. Therefore, when selecting and training the contact personnel in banks, the banks need to monitor their staff's level of knowledge and attitude towards customers. Furthermore the tangibility, convenience, reliability and security cannot be neglected at any time, as it is also of great importance in determining customer satisfaction. Lastly, the banks should ensure that they provide quality service because it influences customer satisfaction and loyalty. The customers' evaluations of bank service relationship affect their decision to continue or cease their relationship with the bank. Thus, customer satisfaction and loyalty are important for a bank's performance in the long run.

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