KEY FACTORS INFLUENCING CREDIT RISK OF ISLAMIC BANK: A MALAYSIAN CASE

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Abstract

This paper examines the factors affecting credit risk, being the main risk faced by banking institutions and systematically identifies the key factors influencing credit risk formation in Islamic banking operations in Malaysia. A comparison of these factors between Islamic and conventional banking operations is highlighted. Several policy implications are addressed to promote risk management culture in Islamic banking industry. The findings show that management efficiency, risk-weighted assets and size of total assets have significant influence on credit risk of Islamic banking, while conventional banking credit risk are significantly affected by loan exposure to risky sectors, regulatory capital, loan loss provision and risk-weighted assets. While both systems observe similar effects of leverage, funding cost, risk-weighted on credit risk, Islamic banks experience different impact of management efficiency, regulatory capital and loan loss provisions on their credit risk as compared to that of conventional banks.

Keywords: banking institutions, credit risk, Islamic banking.

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INTRODUCTION

The rapid and dynamic changes in the global financial landscape pose various risks to banking institutions. Operating side by side with conventional banks, Islamic banks are not spared but equally vulnerable to risks. The exception is that the nature of risks facing Islamic banking is unique. This uniqueness arises from the composition of its assets and liabilities.

On the asset side, investments, whose funds are Shari'ah based, can be undertaken in the form of profit sharing modes of financing (Mudarabah and Musharakah), fixed-income modes of financing such as Murabahah (cost-plus or mark-up sale), installment sale (medium/long term murabahah), Istisna /salam (object deferred sale or prepaid sale) and Ijarah (leasing). In contrast, on the liability side, its deposits can either be kept in the form of current accounts or in investment accounts. Current account depositors get their deposits on demand whilst investment depositors in Islamic bank are rewarded with the opportunity to share with the bank the profit and business risks (or losses) of the investment activity. The different nature of its asset and liability composition and the profit and loss sharing basis change the nature of risks that Islamic banks face (Khan and Ahmed, 2001: 22).

Past studies have covered extensively on risk and factors contributing to risks of financial institutions in the conventional banking system (Khan and Ahmed, 2001; Hassan, 1993, 1994; Berger and DeYoung, 1997; Angbazo et al., 1998; Ahmad, 2003). Despite their importance to achieving good risk management in Islamic banking, these factors have not been widely investigated and documented. Previous attempts to study Islamic banking mainly evolve on conceptual issues underlying interest free system (Hassan and Bashir, 2002). The issue of the viability of Islamic banks in terms of risk management has not received great attention. Hence, given the unique nature of Islamic banking and the dynamic changes in the global financial markets (which pose numerous risks to banks), there is a need to identify empirically, key factors influencing risk formation in Islamic banks - an area that has not been widely studied.

Credit risk is one of the main risks that seriously affects banks' viability as evident from the 1997 Asian financial crisis. To this extent, Sarker (1999) found that the amount of bad debt in Islamic banking is growing. Further, Khan and Ahmed (2001: 65) find that bankers of the view that there is a

lack of understanding of risks involved in Islamic banking. This gap justifies new efforts to examine as to why Islamic banks experience increasing bad loans and high credit risk. This entails an investigation on the factors influencing Islamic banks' credit risk. To ensure that the viability and sustainable growth of Islamic banking is maintained, it is important that these factors be identified early to ensure that necessary precautions and preventions are taken. Hence, it is a modest attempt in this paper to (i) investigate the factors influencing credit risk of Islamic banking and (ii) identify whether there exists any difference between credit risk determinants of Islamic and conventional banks in Malaysia.

By examining closely the relationship between bank specific factors and credit risk of Islamic and conventional banks, this paper aims to contribute to the existing literature in several ways. First, the paper provides descriptive statistics about Islamic and selected conventional banks risk characteristics. Second, it uses regression analysis to determine the underlying factors influencing risk of Islamic banks and that of the major six anchor banks on interest-based banking system. This is done by carefully identifying and examining for each year, each risk predictor of Bank Islam Malaysia (BIMB) and the Islamic windows of 6 anchor banks (for *Islamic banking*) as well as risk predictors of the 6 anchor banks from their conventional banking performance (for *conventional banking*). The analysis provides empirical evidence as to what factors critical to credit risk formation in Islamic banks in Malaysia. The identification of these factors provides information that the bank management and regulators should pay attention to the key credit risk determinants, in order to improve credit risk management in Islamic banking. Third, the paper contributes to the current literature, new information on the similarities and differences between credit risk predictors of Islamic banking and conventional banking.

This paper is organized as follows. Section 2 outlines the performance of dual banking systems in Malaysia. Section 3 entails review of related literature. Section 4 describes the methodology followed by analysis of results in Section 5. Section 6 concludes the paper with contribution of the study and policy implications.

PERFORMANCE OF ISLAMIC BANKING SYSTEMS IN MALAYSIA

In 1984, the Islamic banking was introduced in Malaysia with the establishment of Bank Islam Malaysia Berhad. The revival of Islam worldwide has paved the way for Islamic banking growth as more people consciously seek to lead their lives in accordance with the *Syari'ah*. In tandem with the global trend, Islamic banking in Malaysia has achieved a rapid expansionary performance since its inception in 1984. Its commendable performance and its presence as an alternative banking with good growth potential have in fact, been the hallmark for Islamic banking among many Muslim countries.

The sudden impetus to the growth was attributed by the innovative measure taken by Bank Negara Malaysia to allow conventional banks, finance companies and merchant banks to offer Islamic banking services or Islamic windows through the creation of Interest-free Banking Schemes. This scheme introduced in 1993 was later improved to be the present *Skim Perbankan Islam (SPI)*. As at end 1999, there are 46 SPI windows. The number of banks has increased since then, with the current policy of permitting foreign banks to offer Islamic banking products and services. The total deposits and financing of Islamic banking grew from RM2.2 billion and RM1.1billion in 1993 to RM47.1billion and RM 43.7billion by December 2003. Its market share (represented by the percentage of loans over the total loans of the banking system) increased from 0.3% in 1984 to 9.7% in 2003. With a greater number of players and the incorporation of a second Islamic bank; Bank Muamalat Berhad in 1999, the Islamic banking in Malaysia is poised for further growth and is competing aggressively with the conventional banking, particularly in extending financing to customers. These funds are extended to different sectors of the economy.

In the case of conventional banks, the funds are extended to customers as loan, advances or financing. These products are interest-based and credit risk is borne entirely by a conventional bank. But for Islamic banking, the financing extended to customers is mostly in the form of credit sale (al-murabahah and ijara wa iqtina) in which an Islamic bank will purchase goods on a cash basis and sell to customers on credit terms. This financing (known as cost-plus or mark-up sale) accounts for more than 90 percent of its total

assets (Rosly and Abu Bakar, 2003) in Malaysia. The second largest financing mode is on profit sharing (Mudarabah and Musharakah). Unlike conventional banks, the depositors of an Islamic bank through the profit and loss sharing basis absorb the credit risk.

The recent development in Islamic banking in Malaysia is the establishment of the Islamic Financial Services Board (IFSB). IFSB has the important mandate of developing prudential standards to cater to the unique features of Islamic banking operations. One of the focus areas in Islamic banking is on instituting robust risk management practices and system.

LITERATURE REVIEW

Credit risk in banking is commonly defined as the probability of a borrower defaulting his loan commitments. Credit risk in an Islamic bank is in the form of settlement/payment risk arising when one party to a business transaction pays money (for example Salam or Istina contract) or deliver assets (Murabahah contract) before receiving its own assets or cash, thereby exposing it to potential loss. (Khan and Ahmed, 2001: 51)

A research conducted on Islamic financial institutions in 28 countries by Khan and Ahmed (2001) find that credit risk is highest in Musharakah (3.69 from a score of 5) followed by Mudarabah (3.25). Their findings highlights that the bankers perceive profit-and – loss sharing (PLS) modes to have higher credit risk. Mark-up risk is found highest in product - deferred contracts of Istisna (3.57). Sundararajan and Errico (2002) opine that while PLS modes may shift the direct credit risk of Islamic banks to their investment depositors, they may also increase the overall degree of risk of the asset side of banks' balance sheet since the assets under this mode are uncollaterised. Their deductive intuition is that in principles, the ratio of riskier assets to total assets should typically be higher in an Islamic bank than in a conventional bank.

Samad and Hasan (1999) study on Malaysian Islamic banking reveals that Bank Islam performance of risk from 1984-1997 is risky since its debt-equity ratio (DER), debt to total Assets (DTAR) and Earning Multiplier (EM) increased over the years. The researchers find that DER and EM are significantly related to profitability. In comparison with two conventional banks; Bank Pertanian and Perwira Affin Bank, Bank Islam risk indicators are

lower. The reason for low risk of the Islamic bank is that its investment in government securities is much larger than the conventional banks.

In a study over 1984-1994 period, Makiyan (2003) find that in the Iranian Islamic banking system, the supply of loan is significantly dependant on the changes in total deposits, the changes in the rate of inflation and the changes the time lags of the variables but it is not related to the changes in the expected rate of return on loans assigned to various economic sectors. As for conventional banks, Brewer, Jackson and Mondschean (1996) find that loan sectors are associated with risk. Fixed-rate mortgage loans, investment in service corporations and real estate loans are found to be significant but negatively related to risk. Non-fixed rate mortgage loan is however, significant and positively related to risk.

Berger and DeYoung (1997) find lagged risk-weighted asset (RWA) is significantly and positively related to credit risk measured by NPL to total loans. They rationalized that a relatively risky loan portfolio will result in higher NPLs. Lagged Capital measured by equity capital to total assets shows mixed results. For thinly capitalized banks, lagged Capital coefficient estimate is significantly but negatively related to risk. This finding supports the moral hazard hypothesis, and suggests that, on an average, thinly capitalized banks take more risky loans, which potentially could lead to higher NPLs

LLP (loan loss provision to average loans outstanding) has been identified in banking literature as a proxy for credit risk (Rose, 1996: 196). Ahmed (1998) find LLP to be positive and is significantly associated with NPL. Hence, a higher LLP indicates an increase in risk and deterioration in loan quality. Fisher, Gueyie and Ortiz (2000) find similar results where LOANQUAL (LLP to total loans) is positively related to risk. They also find Size, (LOGTA), is negative and is significantly related to risk.

METHODOLOGY

Data

The data comprises Islamic banking data and conventional banking data. The Islamic banking data is extracted from the audited annual reports of Bank Islam Malaysia and the audited financial statements of SPI from 6 anchor banks – AmBank Berhad, Maybank Berhad, Eon Bank Berhad, Public Bank

Berhad, Affin Bank Berhad and RHB Berhad. The conventional banking data is compiled from the income statements and balance sheets of the 6 anchor banks: AmBank Berhad, Bumipura-Commerce Bank Berhad, Maybank Berhad, Eon Bank Berhad, Public Bank Berhad, Affin Bank Berhad and RHB Berhad. The data is from 1996 to 2002.

Modeling Credit Risk Determinants

Based on a survey of related literature on risk determinants (Ahmad, 2003; Hassan, 1992, 1993; Hassan *et al.*, 1994; Shrieves and Dahl, 1997; Angbazo et al, 1998), several variables have been identified to form the regression model. NPL to total loans is taken as a proxy for credit risk (Rose, 1996; Berger and DeYoung, 1997; Corsetti, Pesenti and Roubini, 1998). The estimated predictors consist of seven variables: management efficiency (MGT), leverage (LEV), risky sector loan exposure (RSEC), regulatory capital (REGCAP), loan loss provision (LLP), funding cost (FCOST), Risk-weighted assets (RWA), natural log of total assets (LNTA) and proportion of loan to deposit (LD).

It is expected that credit risk (CR) has a negative relationship with MGT, LNTA and REGCAP. Lower efficiency in managing earning assts would probably lead to higher credit risk' On the other hand, size and capital are risk- related as smaller capitalized bank tend to have lower capacity to absorb losses. On the other hand, LLP, FCOST, RSEC, LEV, RWA and LD are expected to have positive relationship with CR. A bigger loan loss provision is required if a bank anticipates its credit risk to be higher. Costs related to funding the operations such as loan monitoring, rescheduling and recovery efforts are expected to increase in the event of high problem loans. Similarly, a bank with a greater exposure to risky sectors and has a larger proportion of risk-weighted assets tend to have higher probability of credit risk.

The Model

The equation for the model used in this study is:

$$CR_{it} = \lambda_0 + \lambda_1 lnMGT_{it} + \lambda_2 lnLEV_{it} + \lambda_3 lnRSEC_{it} + \lambda_4 lnREGCAP_{it} + \lambda_5 lnLLP_{it} + \lambda_6 lnFCOST_{it} + \lambda_7 lnRWA_{it} + \lambda_8 LNTA_{it} + \lambda_9 lnLD_{it} + \varepsilon_{j,t}$$

Where:

CR_{it} = non-performing loan for the current year to total loan of bank i in year t
MGT_{it} = earning assets to total assets of bank i in year t
LEV_{it} = tier 2 capital to tier 1 capital of bank i in year t
$RSEC_{it}$ = risky sector loans (RSEC) to total loans bank i in year t
RSECT = *property loans* (residential properties loans + non-residential property loans + real estate loans + construction loans) + *purchase of securities loans* + *consumption credit loans*
$REGCAP_{it}$ = tier 1 capital to total assets of bank i in year t
LLP_{it} = loan loss provisions to total loans of bank i in year t
$FCOST_{it}$ = funding costs to total assets of bank i in year t
RWA_{it} = risk-weighted assets to total assets of bank i in year t
$LNTA_{it}$ = natural log of total assets of bank i in year t
LD_{it} = total loans to total deposits of bank i in year t

All the variables are transformed using log transformation to correct for non-linearity and to reduce multi-collinearity. White (1980) procedure is used to correct for heteroskedasticity.

EMPIRICAL RESULTS

This section presents and analyses the descriptive statistics, independent t-test of means of Islamic and conventional banking independent variables and regression results. Table 1 and Figure 1 show that the credit risk of Islamic banking followed closely the trend of the industry and that of the conventional banking. Its credit risk is higher than the industry since 1998 but recorded an improvement in 2002. This trend shows high credit risk borne by Islamic banking, is similar to the findings of Samad and Hassan (1999).

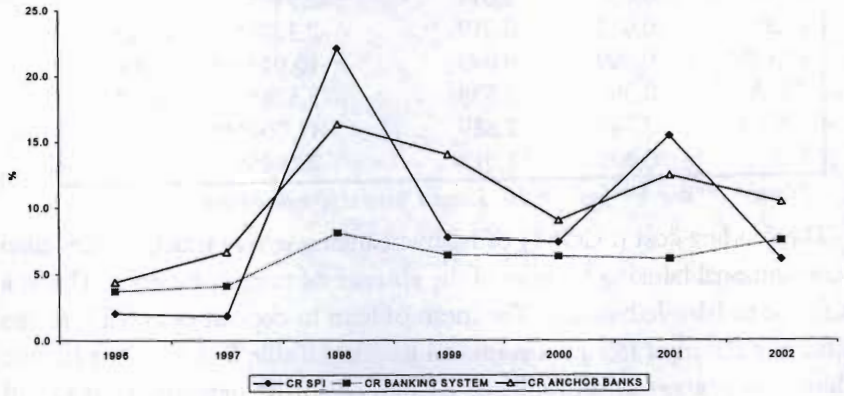
Table 1: Credit Risk (CR) of Malaysian Financial Institutions

	1996	1997	1998	1999	2000	2001	2002
Islamic banks(%)	2.0	1.9	22.1	7.7	7.4	15.4	6.1
Industry(%)	3.7	4.1	8.1	6.4	6.3	6.1	7.5
Anchor banks(%)	4.4	6.7	16.3	14.0	9.0	12.4	10.4

Source: BNM Monthly Bulletin and respective banks Annual Reports.

Figure 1 shows the trend in credit risk of Islamic banking and conventional banking over the test period 1996-2002 relative to the overall industry.

Figure1: Credit Risk (CR) of Banking Institutions



Source: BNM Monthly Bulletin and respective banks Annual Reports.

To see the difference between credit risk predictors of Islamic banking and conventional banking, independent t-test was conducted. Table 2 highlights the statistical means of each predictor and the test of equality. The analysis show that means of seven (7) Islamic banking risk predictors are significantly different from their conventional counterparts. The two predictors that are not significantly different from those of conventional banking are management efficiency (MGT) and loans to risky sector (RSEC). The latter statistic suggests that the composition of Islamic banking loan portfolio in risky sectors mirrors the loan sectoral exposure of the anchor banks. This partly explains why credit risk means of the two groups are not significantly different from one another.

Table 2: Results of Independent T-test

	Islamic	Conventional		
Variable	mean	mean	t-test	p-value
MGT	0.668	0.651	0.833	0.408
LEV	0.225	0.390	-2.051**	0.044
RSEC	0.397	0.375	0.761	0.450
REGCAP	0.052	0.074	-2.946**	0.004
LLP	0.012	0.019	-2.322**	0.023
FCOST	0.009	0.049	-10.947***	0.000
RWA	0.307	0.538	-3.528***	0.001
LNTA	2.743	2.889	-11.004***	0.000
LD	0.809	1.013	-2.144**	0.036

Notes:,**and *** indicate 10, 5 and 1 percent significant level.*

The funding cost (FCOST) of Islamic banking is very much smaller than the conventional banking because of the absence of interest expense. This is a plus factor to Islamic banking. The mean of loan to deposit ratio (LD) is also significantly different from conventional banking. Table 2 shows that Islamic banking, on average had mobilised 81 percent of its deposits to give out financing to customers. This is a lower ratio compared to conventional banks, which had extended loans whose amounts was 1.013 times more than its deposits. This suggests a high probability of liquidity risk in the event of high default rate.

Table 3: Results of Determinants of Credit Risk

	Islamic Banking			Conventional Banking		
Variable	Coefficient	t- stats.	Prob.	Coefficient	t- stats.	Prob.
MGT	0.659	2.304**	0.029	-0.075	-1.338	0.189
LEV	0.136	1.492	0.148	0.002	0.145	0.885
RSEC	0.065	0.473	0.640	0.122	2.721***	0.009
REGCAP	0.346	0.602	0.553	-0.840	-2.447**	0.019
LLP	-2.076	-1.209	0.238	2.247	6.441***	0.000
FCOST	-0.176	-0.148	0.883	-0.143	-0.257	0.798
RWA	0.092	3.446***	0.002	0.133	2.215**	0.033
LNTA	-0.987	-2.320**	0.029	-0.161	-1.296	0.203
LD	-0.003	-0.103	0.919	-0.027	-1.478	0.147
R-squared	*0.34*			*0.756*		
DW	*1.81*			*1.8*		
N	*35*			*49*		

Notes: *, ** and *** indicate 10, 5 and 1 percent significant level respectively

Table 3 shows the regression results of the factors influencing credit risk of Islamic banking (represented by BIMB and Islamic windows) and conventional banking (represented by 6 anchor banks). For Islamic banking, three variables i.e. MGT, RWA and LNTA are significantly related to its credit risk. For conventional banking, 4 variables i.e. RSEC, REGCAP, LLP and RWA are significantly influencing its credit risk. The higher R-square of 75.6 percent in conventional banking compared to 34 percent in Islamic banking suggests that these variables collectively have a stronger influence on the credit risk of conventional banks than on the credit risk of Islamic banking.

We highlight here the similarities and differences in the credit risk determinants of Islamic and conventional banking based on the regression results.

Similarities

The coefficient for LEV is positive but LEV is not a significant predictor of credit risk in both the Islamic and conventional banking. This finding is consistent with Berger and DeYoung (1997) and finance theory, where a firm with a larger debt tends to have higher credit risk from a higher probability of default rate.

The coefficients for FCOST in both Islamic and conventional banks are negative and are not significantly related to credit risk. The negative signs are not as predicted but these results indicate that the conventional and Islamic banking institutions might have incurred high funding costs (overhead expenses plus interest expense in case of conventional banks) in monitoring and controlling functions to ensure credit risk and problem loans are reduced.

The regression results also show that RWA is significantly related to credit risk. The positive signs of the coefficients in both cases are consistent with Berger and DeYoung (1997) and Ahmad (2003). This result shows that a higher proportion of risky assets to total assets tends to lead to higher credit risk. Interestingly, the effect appears more pronounced in Islamic banks than its counterparts judging from its t-value of 3.446 ($p=0.002$) compared to t-value of 2.215 ($p=0.032$) of conventional banks. This finding confirms the intuitive insight of Sundararajan and Errico (2002).

Both banking systems have positive signs for RSEC coefficients. This indicates that a higher loan or financing extended to risky sectors tend to have higher credit risk. For example, the highest NPL is found in property-related and share financing loans. The difference here is that RSEC is a very significant factor influencing credit risk of conventional banks but not for Islamic banking. This may to a large extent due to a larger exposure of conventional banks to property-related sectors, construction, share financing and credit consumptions compared to Islamic banking.

Differences

Three factors: MGT, REGCAP and LLP are found statistically different as credit risk predictors of Islamic and conventional banks.

MGT (management efficiency) coefficient of Islamic bank is positive and significant at 5 percent level. On the other hand, MGT is negatively related to credit risk in the case of conventional banks. This result supports past findings (Ahmad, 2003; Angbazo et al, 1998). The positive sign of the coefficient in Islamic banks suggests that a higher proportion of earning assets to total assets, if not properly managed, would result in higher credit risk where an increase by 0.659 point in management efficiency would lead to a one percent increase in credit risk. For the conventional banks, the negative sign denotes that a lower efficiency in managing its earning assets would lead to a higher credit risk. A possible answer for the opposite signs probably lies in the nature of the earning assets where they are all interest based in conventional banking and loan default is immediately recognized after 3 months of arrears in interests. In Islamic banking, the earning assets are largely on murabahah and mudaraba mode of financing, where the credit risk is transferred to its investment depositors and the loan defaults are not recognized immediately (on the part of the agent-entrepreneur such as in the case of mudaraba mode of financing) until PLS contract expires (see Sundararajan and Errico, 2002).

Table 3 shows regulatory capital (REGCAP) is negative and significantly related to credit risk of conventional banks. This is consistent with moral hazard theory postulated in Berger and DeYoung (1997) where smaller capitalized banks assume higher risk. The result in Islamic banking shows a contrast where REGCAP coefficient is positive and is not significant in its

association with credit risk. A possible explanation for the insignificant relation is that Islamic banks do not in dire need to have a big capital base to cushion against losses since investment depositors or equity holders absorb the risks and losses are shared between entrepreneur and bank.

The coefficient estimate of LLP is positive and is a significant predictor of credit risk in conventional banks. Consistent to past findings (Ahmed, 1998; Ahmad, 2003), the result suggest that a larger loan loss provision is required to cover higher non-performing loans and this indicates a deterioration in loan quality as credit risk increases. In contrast, LLP coefficient in Islamic banking is negative but not significantly related to credit risk.

CONCLUSION

This paper attempts to fill the gap in Islamic banking literature by examining the factors affecting credit risk of Islamic banks in Malaysia. The unique nature of Islamic banking operations provides an insightful intuition that the risk determinants of Islamic banks ought to be different from those determinants affecting conventional banks. The findings from this study support the intuition with empirical evidence that there are significant differences between the means credit risk predictors of Islamic and conventional banks. The results of this study empirically identify the key factors affecting credit risk of Islamic banks in Malaysia over the study period. Further, the analysis on conventional banks' credit risk determinants permits us to highlight the similarities and differences between the two banking systems. The findings show that management efficiency, risk-weighted assets and size of total assets have significant influence on credit risk of Islamic banking, while conventional banking credit risk are significantly affected by loan exposure to risky sectors, regulatory capital, loan loss provision and risk-weighted assets. While both systems observe similar effects of leverage, funding cost, risk-weighted on credit risk, Islamic banks experience different impact of management efficiency, regulatory capital and loan loss provisions on their credit risk as compared to that of conventional banks.

The findings suggest several policy implications: First, considering that credit risk of Islamic banks in Malaysia remain relatively high (which is contrary to the general understanding), it is appropriate that serious attention should be given to risk management in Islamic banking especially on those

factors identified as having significant impact on its credit risk. Second, although Islamic banks have to comply to the same regulatory framework as conventional banks (Banking And Financial Institutions Act 1989) and the Syari'ah Council, corporate disclosure on financing in financial reports is not as comprehensive as in conventional banking reporting. Hence, there should be greater and adequate disclosure of information on concentrations of financing assets of Islamic banks. This would help the analysts and investors to analyse and understand better of the extent of the risks involved. Third, since credit risk of Islamic banks is influenced by different set of factors compared to its conventional counterparts, managing credit risk in Islamic banking requires a different approach that caters for its unique banking operations. The establishment of Islamic Financial Services Board is timely to address risk management problems. In addition, as inferred by the findings of this study, the efficiency in managing the risky assets is crucial to reduce credit risk. Since hedging is not possible in Islamic banking operations, reducing adverse selection problems and strengthening internal controls are suggested as measures to increase efficiency in mitigating credit risk in Islamic banks.

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ADOPTING AND MEASURING CUSTOMER SERVICE QUALITY IN ISLAMIC BANKS: A CASE STUDY

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Abstract

This study measures the perceptions of Islamic bank's retail customers in Malaysia using CARTER, a new model to measure service quality. The findings of this study show significant validity for all CARTER's 35 items and six dimensions in terms of their importance in both weight s and percentages. Amongst all six dimensions included in the model, the compliance dimension was reported to be most important by BIMB's customers and a strong link between service quality and customer satisfaction does exist. Thus, this study shows the importance for Islamic banks to place cultural difference in front when adopting service quality.

Keywords: Service Quality, Islamic Banking, Customer Satisfaction, CARTER

INTRODUCTION

The banking industry has become increasingly integrated in recent years. Liberalisation and deregulation of the financial sector, coupled with rapid technological advancement and improved communication systems, have contributed to the integration process. As a result, banks are now facing very high and intense competition. Studies by Parasuraman et. al (1985), and Zeithmal et. al (1990) noted that the key strategy for the success and survival of any business institution is the deliverance of quality services to customers. Accordingly, Newman and Cowling (1996) believes that excellent service quality is vital to business profitability and survival. In this sense, Islamic banks are of no exception.

Although Islamic banks' principal activities are based on Islamic law (Shariah), their banking businesses are no different from other banks or financial institutions. Thus, Islamic banks face competition not only from conventional banks, but from new market entrants as well. One of the means for Islamic banks to cope with such strong competition is by improving the ways products and services are offered to their customers. It is for this reason that Othman and Owen (2001a) concluded that there exists a need for Islamic banks to adopt service quality program. They further argued that service quality can be a differentiating factor for Islamic banks to boost up their market shares and profit position.

The importance of service quality and its role as the key factor in differentiating service products and gaining competitive advantage have been documented in a number of studies (see for example studies by Parasuraman et. al, 1985; Bolton and Drew, 1991; and Cronin and Taylor, 1992). Even though there is an abundant of research investigating service quality in the service industries, studies on this issue as related to Islamic banks are scant. This study adds to the existing literature by examining the performance of service quality in the Islamic banking industry through a case study conducted on Bank Islam Malaysia Berhad (BIMB). The objective of this paper is twofold. Firstly, to measure the level of service quality provided by BIMB. Secondly, to measure customer's perceptions on quality of services provided by BIMB.

This paper is organised into 5 sections. Section 2 contains a review of the literature on service quality. Section 3 describes the research methods used.

Findings and statistical inferences are given in Section 4. Finally, Section 5 concludes the paper. Recommendations for further research and limitations to this study are also being highlighted in this section.

LITERATURE REVIEW

Service quality has been viewed as a significant issue in the banking industry by Stafford (1994). Since financial services are generally undifferentiated products, it becomes imperative for banks to strive for improved service quality if they want to distinguish themselves from the competition. Roth and van der Velde (1991) and Bennet (1992) found the positive relationship between high levels of service quality and improved financial performance. Similarly, Bowen and Hedges (1993) documented that improvement in quality of service is related to expansion of market share.

In the current marketing literature, much attention on the issue of service quality as related to customers' attitudes towards services has focused on the relationship between customer expectations of a service and their perceptions of the quality of provision. This relationship known as perceived service quality and was first introduced by Gronroos (1982). Gronroos suggested that the perceived quality of a given service is the result of an evaluation process since consumer makes comparison between the services they expect with perceptions of the services they receive. Hence, he concluded that the quality of service is dependent on two variables: expected service and perceived service. Parasuraman et. al (1985) considered that a customer's assessment of overall service quality depends on the gap between the expected and perceived service. Thus, the key to managing perceived service quality is to minimize this gap. Zeithaml (1988) defined perceived service quality as the customers' assessment of the overall excellence of the service. Bolton and Drew (1991) described service quality as a form of attitude that results from the comparison of expectations with performance. Berry et. al (1990) pointed out that since customers are the "sole judge of service quality", an organisation can build strong reputation for quality service when it can constantly meet customer service expectations.

Approaches to the measurement of service quality have typically been either a simple comparison of mean scores, extensive and detailed statistical model or more recently market research questionnaire. The current

measurement of perceived service quality using the latter approach can be traced to the research of Parasuraman et. al (1985). Based on an exploratory research on four types of service firms, they identified 10 determinants of service quality, which have been consistently ranked by customers to be the most important for service quality. The findings served as the foundation for these authors to develop an instrument of measuring customers' perceptions of service quality called SERVQUAL in 1988, which was later refined in 1991.

In developing SERVQUAL, Parasuraman et. al (1988) recast the 10 determinants into five principal dimensions: tangibles, reliability, responsiveness, assurance and empathy. Following their works, other researchers have adopted this model for measuring service quality in various service industries. Amongst them is Blanchard (1994), Donnelly et. al (1995), Angur (1999), Lassar (2000), Brysland and Curry (2001), Wisniewski (2001) and Kang et. al (2002). Application of this model to measure the quality of service in the banking industry was conducted by Newman (2001).

According to Othman and Owen (2001a), SERVQUAL has proven to be the most popular instrument for measuring service quality because it affords technology techniques for measuring and managing service quality. However, since the Islamic banking industry operates under different principles and cultures as compared to other service industries, they argued that an additional dimension should be added to the SERVQUAL method. They developed an instrument called CARTER to measure service quality in Islamic banking. In addition to the existing five dimensions in SERVQUAL, CARTER incorporates an extra dimension, which is "Compliance with Islamic Law". This dimension includes such items as run on Islamic law and principles, no interest neither paid nor taken on savings and loans, provision of Islamic products and services, provision of free interest loans and provision of profit-sharing products (Othman and Owen, 2001a).

In a study conducted on Kuwait Finance House (KFH), Othman and Owen (2001b) applied this model to measure the importance of service quality in the Islamic banking industry. They found a positive link between quality, satisfaction and service encounter. The finding proved the validity of this model for measuring quality of services in Islamic banks. Furthermore, all of CARTER's six dimensions were rated highly by KFH customers.

RESEARCH METHODS

As discussed in the previous section, perceived quality is the result of customer's comparison of expected service with the service received. Amongst the most popular assessments tool of service quality is SERVQUAL. The model identifies 22 items with which to measure customers' expectations and perceptions of the five dimensions proposed by Parasuraman et. al (1988). A factor analysis of the 22-item scale was used as a basis for identifying these five dimensions. The basic assumption underlying the SERVQUAL scale is that performance below (obtaining a negative score) leads to a perception of low service quality, while exceeding expectations (obtaining a positive score) leads to a perception of high service quality.

Bearing in mind that there exists cultural differences between countries, regions, religions or ethnic groups, it is imperative to build additional dimensions for service quality especially in the Islamic banking industry. Both cultural and religious influences are not defined by the SERVQUAL model. Taking this into consideration when adopting service quality, Othman and Owen (2001a) developed an instrument called CARTER, which is based on 35 items. This is the first approach to add and mix customers' religious beliefs and cultural values with other quality dimensions.

CARTER's six dimensions were conceptualised as a proposed framework for measuring quality of services in Islamic banks by Othman and Owen (2001a). The authors defined the six dimensions as follows:

D1: Compliance, which means the ability to comply with Islamic law and operate under the principles of Islamic banking and economy.

D2: Assurance is the knowledge and courtesy of employees and their ability to convey trust and confidence. It also includes verbal and written communication between bank staff and customers

D3: Reliability is the ability to perform the promised service, dependability and accuracy.

D4: Tangibles means the appearance of physical facilities, equipment, personnel, and communication materials.

D5: Empathy is caring, individualised attention which the Islamic bank provides for its customers.

D6: Responsiveness is the willingness to help customers and provide prompt service.

The CARTER model used in this study is a replication of an earlier study by Othman and Owen (2001a). A questionnaire was chosen as the method by which the survey was conducted. Sums of 200 questionnaires were distributed to BIMB's customers with 100% respond rate. Customers were contacted in the offices of the selected BIMB's branches in the northern region. Respondents were asked to rank the CARTER dimensions by rating the importance of each 35 items and their satisfaction and dissatisfaction with overall services and quality. Results were graded using the five point Likert scale starting from 1 – not important, 2 – somewhat not important, 3 – neutral, 4 – somewhat important and 5 – very important. The reliability of all 35 items as well as the six dimensions in the model was measured by obtaining their respective coefficient alpha.

FINDINGS

Coefficient alpha, as suggested by Peters (1999), was calculated to measure the reliability of the survey. Avkiran (1994) noted that a low value of coefficient alpha indicates that either "the test is too short or the items tested have very little in common". As shown in Table 1, the alpha values in this study showed very high reliability for both the model (0.9178) and each of the CARTER's six dimensions: Compliance (0.7594), Assurance (0.7720), Reliability (0.7416), Tangible (0.7548), Empathy (0.8093) and Responsiveness (0.8146). These results support the reliability of these instruments. Hence, all 35 items listed in the model were incorporated into the survey. These findings prove that the CARTER model is a valid instrument to measure service quality in the Islamic banking industry.

The survey results conducted on BIMB's customers on the importance of proposed quality items model based on the CARTER six dimensions are presented in Table 1, which gives the dimensions and their item's average importance rank. Respondents were particularly consistent in their assessment because they clearly judged Compliance, Assurance and Reliability as most important, while Responsiveness, Empathy and Tangible were the least important. Of the three dimensions deemed to be important, emphasis was placed on Compliance (4.46 average scale). Amongst the 35 items listed, the item 'dealing with products that are accepted by Islamic law' was given the highest ranking. About 95 percent of the respondents believed that it is

important for BIMB to deal with products that are accepted by Islamic law. The item 'runs in Islamic principles' was ranked as the second most important item (94.5 percent), while 94 percent of the respondents perceived BIMB as an opportunity to get free interest loans. The item 'no interest neither paid nor taken on savings and loans' also showed a high importance percentage (91.5 percent). The provision that it is the only Bank in the country that provides Islamic banking products was rated to be important by 88.5 percent of the respondents whereas 'profit sharing investments' was rated the least important of the Compliance dimension. Although Tangible dimension received the lowest average important mean (4.15), it still remains on the important scale.

Table 1: Survey results on the importance of quality items based on CARTER model

Dimensions	Items	Average Important	Per-centages	Items rank	Dimension rank
Compliance	Runs in Islamic principles	4.48	94.5	2	A=0.7594 M=4.46
	No interest neither paid nor taken on savings and loans	4.54	91.5	8	Ra=1
	It is the only Bank in the country that provides Islamic Banking products	88.5	14	4.38	
	To deal with products that are accepted by Islamic Law	4.51	95.0	1	
	Opportunity to get accepted by Islamic Law	4.51	94.0	3	
	Profit sharing investments	4.35	87.0	19	

Assurance	Friendliness of Bank personnel	4.30	87.0	20	A=0.7720 M=4.31
	Financial counselling provided	4.20	84.0	25	Ra=3
	Interior comfort in BIMB	4.24	82.5	29	
	BIMB has a wide and easy to access network	4.35	92.0	10	
	Knowledgeable and experienced manage-ment team	4.46	93.5	4	
Reliability	Convenience (short time for service anywhere)	4.32	90.0	12	A=0.7416 M=4.37 Ra=2
	Integrated value-added services used	4.32	88.0	16	
	A wide range of services provided	4.32	86.9	22	
	Security of Transaction	4.47	93.0	5	
	Many counters open at peak hours	4.41	85.5	24	
Tangible	External appearance of BIMB Quick service and	4.17	80.3	31	A=0.7548 M=4.15 Ra=6
	Speed of t'sactions	4.33	87.0	21	
	Hours of operations	4.35	87.4	18	
	Counter partitions in BIMB	4.04	75.5	34	
	Overdraft	3.86	66.3	35	
Empathy	Bank location	4.15	79.4	32	A=0.8093
	Bank's familiarity, reputation and image	4.27	86.5	23	M=4.25 Ra=5

	The size of Bank (in terms of asset and capital)	4.12	80.5	30	
	Available parking space nearby	4.22	83.5	27	
	Confidentiality Bank	4.39	90.9	11	
	Confidence in Bank's management	4.37	92.0	7	
	Better profit compared with the interest in traditional Bank	4.29	88.0	17	
	Lower service charge	4.23	83.5	28	
Responsive-ness	Knowledgeable about your business	4.04	77.4	33	A=0.8121 M=4.36
	Able to fulfil indivi-dual/personal needs	4.37	89.4	13	Ra=4
	Courteous counter services	4.30	88.4	15	
	Availability of credit on favourable terms	4.41	91.5	9	
	The number of branches available	4.26	83.9	26	
	Fast and efficient counter services	4.45	91.0	10	

A : Alpha

M : Average dimension mean

Ra: Dimension rank based on importance percentage

In order to achieve objective 2, i.e. to measure the customer's perceptions on quality of services provided by BIMB, the relative importance

weights were calculated for all 35 items and six dimensions based on five-point Likert scale. The results of both item's and dimension's weighted average are presented in Table 2 and Table 3. From Table 2, it is shown that BIMB's customers considered all items as important. Even though overdraft has the minimum weight (76.9), it is judged to be important because the value is still above 50. This result confirms to the findings in Table 1 where 66.3 percent of the customers deemed overdraft to be an important item.

The last column in Table 2 shows whether CARTER's items represent process or outcome issues. The identification of these items follows Othman and Owen (2001a). This clearly shows that the model includes percent "Processes" and percent "Outcomes" which illustrates that customers assign greater significance to the process elements of the bank, rather than to the outcomes, when judging quality.

Table 2: Item and Weight

No	Item	Dimension	Weight	Process/ Outcome
1	No interest neither paid nor taken on saving and on loans	Compliance	90.7	P
2	To deal with products that are accepted by Islamic law	Compliance	90.3	P/O
3	Opportunity to get free interest loans	Compliance	89.7	P
4	Runs in Islamic principles	Compliance	89.6	P
5	Knowledgeable and experienced management team	Assurance	89.1	O
6	Security of Transaction	Reliability	89.0	P
7	Fast and efficient counter services	Responsiveness	88.5	P
8	Many counters open at peak hours	Reliability	88.2	P
9	Availability of credit on favourable terms	Responsiveness	87.8	P
10	It is the only Bank in the country that provides Islamic banking products	Compliance	87.5	P/O

11	Confidence in Bank's management	Empathy	87.4	O
12	Profit sharing investments	Compliance	87.0	P/O
13	BIMB has a wide and easy to use network	Assurance	87.0	P
14	Able to fulfil individual/personal needs	Responsiveness	87.0	P
15	Quick service and Speed of t'sactions	Tangible	86.6	P
16	Hours of operations	Tangible	86.5	P
17	Confidentiality Bank	Empathy	86.5	O
18	Convenience (short time for service anywhere)	Reliability	86.4	P
19	Integrated value-added services used	Reliability	86.4	P
20	A wide range of services provided	Reliability	86.0	O
21	Friendliness of Bank personnel	Assurance	85.9	P
22	Better profit comparing with the interest in traditional bank	Empathy	85.8	P/O
23	Courteous counter services	Responsiveness	85.6	O
24	Bank's familiarity, reputation and image	Empathy	85.4	O
25	Interior comfort in BIMB	Assurance	84.7	P/O
26	The number of branches available	Responsiveness	84.7	P/O
27	Lower service charge	Empathy	84.6	P/O
28	Available parking space nearby	Empathy	84.5	P/O
29	Financial counselling provided	Assurance	83.9	P
30	External appearance of BIMB	Tangible	82.6	O
31	Bank location	Empathy	82.5	P/O
32	The size of Bank (in terms of asset and capital)	Empathy	82.4	O
33	Counter partitions in BIMB	Tangible	80.8	O
34	Knowledgeable about your business	Responsiveness	80.3	P/O
35	Overdraft	Tangible	76.9	P

The results of the relative weight of each six dimensions are presented in Table 3. The value of the weights calculated corresponds to the level of

importance. The weights calculated for all dimensions were significant. Hence, this study supports the works by Othman and Owen (2001a, 2001b) and validates that the CARTER model is an appropriate instrument to measure service quality in the Islamic banking industry.

Table 3: Ranking of Service Quality Dimension by BIMB Customers

SQ Dimension	**Relative weight based on Compliance av. 4.46**	**Relative weight based on the highest scale point**
Compliance	100	89.20
Reliability	97.93	87.36
Assurance	96.54	86.12
Responsiveness	96.50	86.08
Empathy	95.39	85.10
Tangible	93.03	82.99

Table 4 reports the average important mean of BIMB's customer satisfaction on the services provided, personal contacts with the staffs and the quality of service, which are 4.09, 4.13 and 4.00 respectively. The results indicate that BIMB is doing well in satisfying its customers. However, BIMB should build quality culture by adapting a quality system in its managerial and operational sides if it is to maintain this competitive edge.

Table 4: BIMB Customer's Satisfaction

Satisfaction Question	**Average Important**	**Important Percentage**
The overall satisfaction with BIMB services	4.09	83.4
I am very satisfied with my personal contact with BIMB staff	4.13	85.4
The Quality of Service	4.00	76.9

CONCLUSION AND RECOMMENDATIONS

The operations of Islamic banks are based on Islamic law, which is different in terms of spirit, cultural background and practice from conventional banks. However, both conventional and Islamic banks operate in a globally integrated banking industry, which is characterised by strong competition and rapid changes in technology. Since the products and services provided by both banks are generally undifferentiated, Islamic banks will have to compete on the basis of high quality of products and services offered to its customers if they want to gain a competitive edge against their rivals.

This study suggests a new model to measure service quality called CARTER, which is an extension of the SERVQUAL model. The findings of this study showed significant validity for all CARTER's 35 items and six dimensions in terms of their importance in both weights and percentages. Amongst all six dimensions included in the model, the compliance dimension was reported to be most important by BIMB's customers. This clearly shows the importance for Islamic banks to place cultural difference in front when adopting service quality. Also, the strong link between service quality and customer satisfaction has been discussed and the study defined it as a system of CARTER-items processes inputs and overall satisfaction outputs. Hence, the results of this study support the works of Othman and Owen (2001a, 2001b).

The major insight gained from the study suggests the adoption of service quality by Islamic banks. Islamic banks' managers can use the CARTER model and the information included in this paper to identify those areas where improvement could be made and resources could be allocated. For instance, by knowing the level of service quality in their banks, managers can use such information to make bank-wide improvement in quality performance. It can also be used as a benchmark to compare the performances of other banks that adopt quality programme.

Since the CARTER model is found to be a valid instrument to measure service quality, the model can be further exploited to investigate other matters such as issues pertaining to Islamic banks' performance, environment and culture. It is recommended that further research be carried out to ascertain

how quality relates to the Islamic banking industry and who should be responsible for implementing service quality in Islamic banks - the Board of Director, General Manager, mid management or all of them.

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