

Re-Examining the Bank Patronize Behavior in Malaysia: A Logistic Regression Approach

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Abstract: This study is aimed at investigating individual as well as bank specific factors affecting bank customers' decision prior to patronizing a bank. As many as 394 customers from Islamic and conventional banks are involved in the survey and the data collected are analyzed using logistic regression. The results show that working environment, ease of obtaining financing, return on deposits, extensive branch network, professional advice and asset size are the most significant factors influencing their bank patronize decision. Bank management could utilize the findings by re-think the methods to maintain existing customers, attract new customers and eventually to obtain more profit.

Key words: Patronize behavior • Islamic banks • Logistic regression • Malaysia

INTRODUCTION

The past thirty years have seen increasingly rapid advances of Islamic banking and finance. From the formation of the first commercial bank in 1975 in Dubai, there are now approximately 300 Islamic banks and 90 Islamic insurance companies in over 75 countries [1]. Moreover, during the turbulent 2007-2009 global financial crises, Islamic finance showed some degree of resilience to financial shocks. At the local front, Malaysia's Islamic banking assets reached USD65.6 billion with an average growth rate of 18-20% annually. Besides that, Malaysia has been living up to its tag as one of the industry's pioneers by becoming the single largest sukuk issuer in the world. It amounted to 60% out of the total sukuk issued in 2011 [2].

In order to position Malaysia as the international Islamic finance hub, the liberalization of its Islamic banking sector was brought forward to 2004 by granting three new Islamic bank licenses to foreign institutions [3]. Subsequently, through this direct competitions, one may hope that the local Islamic banks to achieve the target of 20% of total banking assets by 2010 as outlined by Bank Negara Malaysia (BNM) in its Financial Sector Master-plan (FSMP) 2001. However, upon further

scrutiny, even by 2013, Islamic banks only accounts for 19.65% out of the total banking assets. Coupled with the entrance of foreign-owned Islamic banks, it raises this question: why such growth target is yet to be achieved by the Islamic banks? In order to find out the reasons behind this failure, it is imperative to understand the patronage factors to attain the target set by BNM. It is because, customers' positive perception towards Islamic banking in Malaysia is even more crucial mainly because Islamic banks have to compete along with the more established conventional banks in a dual-banking milieu. Hence, utmost attention upon attitudes, behaviors and patronage factors of Islamic bank customers are imperative in securing the Islamic bank customers' allegiance.

The aim of this paper is to estimate a model in examining patronization attributes considered by Islamic and conventional bank customers in Malaysia.

Literature Review: Over the years, while there has been an extensive literature regarding banking behavior of banking customers, research in ascertaining patronage factors of Islamic bank customers is still in its incipency [4]. In what is considered to be the pioneer study of individual consumers' attitudes towards Islamic banking,

[5] discovered that convenience, Islamic bank's financial reputation and services provision have appeared to be the main factors influencing individual customer to patronize Islamic bank. Apart from that, among the common factors used to measure customers' selection criteria are cost and benefits of products offered (profit on deposits, lower financing cost, competitive transaction fees), service delivery (fast and efficient), confidentiality, size and reputation of the bank, convenience (location, ample parking space, branch network), exogenous factors (recommendation from a third party, advertisement), friendliness and competence of personnel ([5-14]).

Given the special nature of Shari'ah compliancy of Islamic banking, it is expected that some of the selection attributes that have been found to be crucial to the commercial bank customers, may or may not be applicable to the Islamic bank customers. Hence, it is postulated that religious motive will be the main selection criteria in patronizing Islamic banks. This motive is in line with previous studies ([4]; [9]; [13]; [15]; [16]). In contrast, this contradicts with some other studies that found that the religious factor is not the main and an all-important selection criterion of Islamic banks ([5]; [7]).

Drawn from the above-mentioned studies, the Islamic aspect or the conformity of Islamic banks with the Shari'ah law is not the only factor that motivates customers to adopt the Islamic banking services and it may not be the main reason for them to choose their banks. Therefore, this study will incorporate all of the above-mentioned attributes in order to provide a comprehensive framework that is most important for bank customers. This study employs logistic regression (LR) model to identify the variables among banking attributes that best predict banking behavior of its patrons.

MATERIALS AND METHODS

Data Collection: Sample size for formula for large population used in this study is adapted from [17]:

$$n_0 = \frac{z^2 pq}{e^2}$$

where:

- n_0 = Sample size
- z = Z-value of α (α in this study is 5%)
- p = Variability (variability used in this study is 0.5)
- q = 1- p

e = Level of precision or sampling error (sampling error tolerated in this study is 5%)

Therefore, sample size is equal to;

$$n_0 = \frac{z^2 pq}{e^2} = \frac{(1.96)^2 (0.5)(0.5)}{0.05^2} = 385$$

Thus, this study intends to incorporate at least 385 respondents and the final count for the available responses is 394.

In comparison with other types of surveys, researchers point out that Web-based survey has numerous biases because the collection method is not random in nature. However, there are advantages of Web-based survey in comparison between other types of social surveys. Among others, low administrative costs, convenience, ease of data entry and analysis and required completion answers [18].

Model Estimation: The dependent variable is binomial whereby code 1 means patronizing Islamic banks and code 0 means patronizing conventional banks.

In order to overcome the limitations in the distributions of the dependent variable, binary logistic regression has been widely utilized. Logistic regression model is a form of regression where the outcome variable is binary or dichotomous and the independents are continuous variables, categorical variables, or both. The dependent variable is denoted by p , the probability of certain event happens. In general, the logistic regression model has the form:

$$\log \frac{[p]}{[1-p]} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n = x\beta \tag{1}$$

where p is the probability of the outcome of interest, β_0 is intercept term, β_1 is the coefficient associated with the corresponding dependent (explanatory) variable. The probability of the outcome of interest, p , is expressed as a non-linear function of the predictors in the form

$$p = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n)}} \tag{2}$$

Eq. (2) ensures that the right hand side will always lead to values within the interval [0, 1]. This is called the logistic response function

Table 1: Explanatory variables

Symbol	Variables	Variable definition
AGE	Islamic or conventional bank customers Age	1 if Islamic bank customer, 0 conventional bank customer 1 if age of respondent is between 25 and 50 years old for middle age, 0 otherwise (less than 25 years old or more than 50 years old)
EDU	Education	1 if respondent attended tertiary education (diploma, executive diploma, bachelor, postgraduate diploma, master, Ph.D), 0 otherwise
FATWA	Fatwa	1 if respondent knows various fatwas in <i>fiqhmuamalat</i> (Islamic jurisprudence) by <i>Jawatanakuasa Fatwa Kebangsaan Malaysia</i> (National Fatwa Council of Malaysia)
SADAQAH	<i>Sadaqah</i> / Charity	1 if respondent gives to charity/ performs act of <i>sadaqah</i> regularly, 0 otherwise
ZAKAT	<i>Zakat</i> /Tithe payment	1 if respondent pays <i>zakat</i> regularly, 0 otherwise
REPUTE	Reputation	1 if reputation is important, 0 otherwise
SERVQUAL	Service quality	1 if service quality is important, 0 otherwise
ISLAMIC	Islamic working environment	1 if Islamic working environment is important, 0 otherwise
COMPETENT	Competent and knowledgeable personnel	1 if respondent considers bank personnel as competent and knowledgeable, 0 otherwise
IMAGE	Financial reputation and image	1 if respondent considers the bank has solid financial reputation and image, 0 otherwise
CONVENIENCE	Convenience	1 if banking activities are convenient, 0 otherwise
CREDIBLE	Credibility	1 if bank is credible, 0 otherwise
ADVICE	Professional advice	1 if bank personnel offer professional advice, 0 otherwise
CONF.	Instil confidence in customers	1 if bank instils confidence, 0 otherwise
BRANCH	Extensive branch network	1 if bank has extensive branch network, 0 otherwise
CSR	Social responsibility	1 if bank involves in Corporate Social Responsibilities related activities, 0 otherwise
FRIENDLY	Friendly personnel	1 if bank personnel are friendly, 0 otherwise
AFFORD	Affordable financing	1 if financing or loan is affordable, 0 otherwise
DIVERSE	Product diversification	1 if banking products are diversified, 0 otherwise
FEES	Transaction fees	1 if transaction fees by banks are affordable, 0 otherwise
DEPOSITS	Return on deposits	1 if bank offers high return on deposit accounts, 0 otherwise
AVAILABLE	Financing availability	1 if it is easy to obtain financing from bank, 0 otherwise
LOCATION	Location	1 if bank's location is convenient, 0 otherwise
ADS	Advertisement	1 if bank's advertisement campaigns are effective, 0 otherwise
RECEPTION	Reception	1 if bank's reception is friendly, 0 otherwise
PRESTIGE	Prestige	1 if respondent considers bank as prestigious, 0 otherwise
SIZE	Size of the bank	1 if respondent considers bank's asset size to be big, 0 otherwise
THIRD	Recommendation from a third party	1 if recommendation from a third party is important, 0 otherwise

Explanatory Variables: Table 1 below provides detailed description of variables employed in the study.

Substituting the above explanatory variables in the model, proposed empirical model can be postulated as follows:

$$p(IBC) = \beta_0 + \beta_1 AGE + \beta_2 EDU + \beta_3 FATWA + \dots + \beta_{28} THIRD$$

where $p(IBC)$ is the probability of the customers to patronize Islamic bank and $\beta_1, \beta_2, \dots, \beta_{28}$ are estimated vectors of the model coefficients.

RESULTS AND DISCUSSION

Descriptive Analysis: Out of 394 respondents, 257 (65.2%) are Islamic bank customers and 137 (34.8%) are conventional bank customers. The dominant group of the respondents aged between 25 to 50 years old. More than half of the participants (58.1%) indicated that they are aware of the fatwas in *fiqh muamalat* issued by National

Fatwa Council of Malaysia. Almost two-thirds of the participants said that they perform *zakat* on a regular basis while close to 80% of the respondents indicated that they perform acts of *sadaqah* regularly. Table 2 shows an overwhelming majority of the respondents have attended some form of tertiary education. The table also describes the demographic pattern as well as the breakdown of the variables in detail.

Logistic Regression: The overall fit of the model is assessed via Hosmer and Lemeshow goodness-of-fit test. From the result, the Hosmer and Lemeshow yielded a chi-square statistic equals 5.446 with degrees of freedom of 8 and p-value= 0.709. Since the p-value is greater than 0.05, we can conclude that goodness of fit test is valid for this model.

Table 3 exhibits the overall percentage correct of 72.1 percent that shows the logit model is quite accurate predicting bank patronage behavior. However, the percentage of incorrect classification, which is equal to likelihood to produce Type I error, is very high for Islamic

Table 2: Descriptive statistics of explanatory variables

Symbol	Variables	Frequency	%
AGE	Age of respondent is between 25 and 50 years old	367	6.9
	Age of respondent is less than 25 or more than 50 years old	27	93.1
EDU	Respondent attended tertiary education (diploma, bachelor, postgraduate diploma, master, Ph.D)	385	97.7
	Otherwise	9	2.3
FATWA	Awareness regarding fatwa in <i>fiqhmuamalat</i>	229	58.1
	Not aware regarding fatwa in <i>fiqhmuamalat</i>	165	41.9
SADAQAH	Perform acts of <i>sadaqah</i> / charity on regular basis	306	77.77
	Does not perform acts of <i>sadaqah</i> / charity on regular basis	88	22.3
ZAKAT	Pays <i>zakat</i> / Tithe payment on regular basis	251	63.7
	Does not pay <i>zakat</i> / Tithe payment on regular basis	143	36.3
REPUTE	Reputation is important	369	93.7
	Reputation is not important	25	6.3
SERVQUAL	Quality of service is important	316	80.2
	Quality of service is not important	78	19.8
ISLAMIC	Islamic working environment is important	223	56.6
	Islamic working environment is not important	171	43.4
COMPETENT	Bank personnel are competent and knowledgeable	326	82.7
	Bank personnel are incompetent and not knowledgeable	68	17.3
IMAGE	Solid financial reputation and image	370	93.9
	Weak financial reputation and image	24	6.1
CONVENIENCE	Banking activities are convenient	334	84.8
	Banking activities are not convenient	60	15.2
CREDIBLE	Bank of choice is credible	368	93.4
	Bank of choice is not credible	26	6.6
ADVICE	Bank personnel offer professional advice	271	68.8
	Bank personnel offer unprofessional advice	123	31.2
CONFIDENCE	Instil confidence in customers	333	84.5
	Does not instil confidence in customers	61	15.5
BRANCH	Extensive branch network	363	92.1
	Limited branch network	31	7.9
CSR	Bank involves in Corporate Social Responsibilities related activities	317	80.5
	Bank does not involve in Corporate Social Responsibilities related activities	77	19.5
FRIENDLY	Bank personnel are friendly	299	75.9
	Bank personnel are not friendly	95	24.1
AFFORD	Financing or loan is affordable	241	61.2
	Financing or loan is expensive	153	38.8
DIVERSE	Banking products are diversified	336	85.3
	Banking products are incomprehensive	58	14.7
FEES	Transaction fees by banks are affordable	299	75.9
	Transaction fees by banks are expensive	95	24.1
DEPOSITS	High return on deposit accounts	121	30.7
	Low return on deposit accounts	273	69.3
AVAILABLE	Easy to obtain financing/loan	237	60.2
	Difficult to obtain financing/loan	157	39.8
LOCATION	Location is convenient	322	81.7
	Location is inconvenient	72	18.3
ADS	Advertisement campaigns are effective	235	59.6
	Advertisement campaigns are ineffective	159	40.4
RECEPTION	Reception is friendly	314	79.7
	Reception is cold	80	20.3
PRESTIGE	Bank is prestigious	320	81.2
	Bank is lacklustre	74	18.8
SIZE	Asset size is big	329	83.5
	Asset size is small	65	16.5
THIRD	Recommendation from a third party is important	303	76.9
	Recommendation from a third party is unimportant	91	23.1

Table 3: Classification result using logistic regression

Observed	Predicted		% Correct
	Conventional	Islamic	
Conventional	68	69	49.6
Islamic	41	216	84.0
Overall			72.1

Table 4: Estimated coefficients and Odd-ratios by logistic regression

Explanatory Variable	B	p-value	Exp(B)
ISLAMIC	1.178	0.000***	3.247
SADAQAH	0.788	0.010**	2.200
AVAILABLE	0.784	0.004***	2.189
AGE	0.729	0.119	2.074
DEPOSITS	0.702	0.019**	2.017
REPUTE	0.610	0.250	1.841
CSR	0.457	0.199	1.579
SERVQUAL	0.358	0.327	1.431
RECEPTION	0.271	0.499	1.311
FATWA	0.269	0.303	1.309
AFFORD	0.238	0.420	1.269
FEES	0.210	0.525	1.234
ZAKAT	0.208	0.434	1.231
THIRD	0.196	0.512	1.216
CONFIDENCE	0.000	1.000	1.000
DIVERSE	-0.029	0.945	0.972
ADS	-0.062	0.829	0.940
PRESTIGE	-0.084	0.827	0.920
FRIENDLY	-0.237	0.561	0.789
CONVENIENCE	-0.251	0.550	0.778
IMAGE	-0.264	0.703	0.768
LOCATION	-0.387	0.293	0.679
ADVICE	-0.542	0.094*	0.582
COMPETENT	-0.655	0.101	0.519
SIZE	-0.759	0.064*	0.468
CREDIBLE	-1.001	0.135	0.368
EDU	-1.769	0.139	0.170
BRANCH	-1.938	0.006***	0.144

Note: *, **, *** means significant at 10%, 5% and 1% respectively.

bank customer but relatively low conventional bank customer classification. The type I error is 50.4 percent and 16 percent for Islamic and conventional bank customer respectively.

Table 4 shows that in general, factors that were predicted to influence the type of bank to be patronized are statistically significant ($\chi^2 = 101.095$, $p = 0.000$, $df = 28$) and affect the likelihood for customers to opt for Islamic bank. The above table also shows that Islamic working environment, ease of obtaining financing, return on deposits and extensive branch network are significantly and positively affecting customers to patronize an Islamic bank.

The variables with positive coefficients indicate that the likelihood to patronize Islamic bank increases in tandem with an increase in magnitude of these variables and decreases with the decrease in their magnitude. Those variables are Islamic working environments, sadaqah, ease to obtain of financing, high return on deposits and bank's engagement in CSR-related activities. [19] found similar results regarding the influence of return on deposit upon deposit behavior in Islamic banks. Meanwhile, unprofessional advices, incompetent and unknowledgeable personnel, small asset size, credibility issues, education level and limited branch network will decrease the likelihood of Malaysian bank customers to patronize an Islamic bank.

From the odds-ratio provided by the logistic regression, a customer who considers Islamic working environment prior patronizing any bank is 3.2 times greater to choose Islamic bank than those who are not. In similar vein, a customer that performs act of sadaqah on a regular basis is 2.2 times more likely to patronize an Islamic bank than those who says differently. Meanwhile, the likelihood to patronize an Islamic bank is 2.1 times greater for those who have the perception of ease in financing approval than those who are not.

The demographic analysis reveals that respondents, who attended tertiary education, are more likely to patronize Islamic bank. The findings corroborates with the idea of [16], who suggested that Indonesian bank customers that attended tertiary education are aware with various of fatwa issued in prohibition of bank interest. One possible explanation is that with the advent of the Internet; such fatwa can be disseminated and verified through online applications. For instance, in the case Malaysia, anyone may verify such fatwa using e-Fatwa, which is administered by Malaysia Department of Islamic Development (JAKIM).

Interestingly, the respondents in this study are also in agreement with most studies of banking behaviors of Islamic banks customers, which asserted that religious factor is one of the more important selection criteria. The top two criteria that have the highest odd ratios belong to the religiosity dimension (bank that promotes Islamic working environment and performing acts of sadaqah or charity on regular basis) and in contrast with earlier studies that found religious factor as not a significant selection criterion of Islamic banks.

CONCLUSION

The main motivation for this study is to ascertain the selection criteria of banking customers in Malaysia. Out of 28 explanatory variables, only 12 are chosen through the forward stepwise method with statistically significant result. From a customers' perspective, exogenous factors exude by the bank such Islamic working environment, ease of obtaining financing, return on deposits, extensive branch network, professional advice and asset size are of paramount importance in patronizing Islamic bank.

Identifying and understanding these patronage factors allows Islamic bank managers and marketers to channel their efforts and resources into the most cost-effective and efficient methods to prevent customers from switching to conventional banks and further increasing

their chance of achieving the 20 percent target of total banking assets in Malaysia. While Islamic banks need to focus on bettering those exogenous factors, they may want to tailor their advertising strategies that 'fill' the endogenous factors considered as important by Islamic bank customers.

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