The Likelihood of Engaging in Islamic Finance: The Case of Libyan Banks

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الملخص:

هذه الورقة تقيم احتمالية تقديم المعاملات المالية الاسلامية وأثر المتغيرات الديموغرافية على احتمالية تقديم التمويل الإسلامي من قبل المصارف الليبية. استخدم الاستبيان عن طريق الهاتف لعدد 134 موظف من رجال الادارة بالمصارف الليبية لتجميع بيانات عن المتغيرات الديموغرافية لمصارفهم ووجهات نظرهم أتجاه المعاملات المالية الاسلامية. (Descriptive Statistics) استخدم لبيان المميزات الشخصية لعينة الدراسة وكذلك احتمال إستخدام المعاملات المالية الاسلامية ، النتائج أوضحت أن 66.4 % من المستجوبين مقدمين محتملين للمعاملات المالية الاسلامية. (Factor Analysis) استخدم لاختصار عدد كبير من المتغيرات التى تقرر وجهات نظر عينة الدراسة الى فقط ثلاثة متغيرات هى نمو الطلب على التمويل ، الادارة الفعالة للقروض و الربحية.

(A Binary Logistic Regression Model) أستخدم على هذه الثلاث متغيرات والمتغيرات الديموغرافية لعينة الدراسة بهدف تقرير أثر هذه العوامل على مستقبلية إستخدام المعاملات المالية الاسلامية من قبل الأفراد الليبيين. نتائج هذا التحليل أسفرت على أن تصنيف المصرف والخبرة المصرفية تمثل المؤثرات الاساسية في احتمالية تقديم المعاملات المالية الاسلامية. أيضاً النمو في الطلب على التمويل يمثل العامل الأساسي في زيادة احتمالية تقديم المعاملات المالية الاسلامية من قبل عينة الدراسة.

كلمات مفتاحية: المصارف الإسلامية، المصارف، اتجاهات، احتمالات، ليبيا.

1. Introduction

Conventional financial institutions such as traditional banks have been established well by public and private sectors that offer all financial products and services. However, even though these financial institutions possess alone the traditional of banking products and services, recently Islamic banks have become emulative institutions for conventional ones because of their new methods of finance that has been practiced worldwide. While Islamic finance has been practiced for many centuries, it is only in the last thirty years that Islamic financial institutions (including banks) offering *Sharia*-compliant products and services have become more widespread and substantial. Indeed, even in Muslim countries it is only very recently that a full range of analogous Islamic finance products and services have been offered in direct competition to conventional banks and other financial institutions. These products and services include, amongst others: *Mudarabah, Musharakah*, *Murabaha*, *Bai muajjall*, *Bai Salam*, *Istisna*, *Ijarah*, and *Quard Hassan* (Gait and Worthington 2014), (El-Gamal 2000).

Clearly, for Islamic products and services to enter new markets, some considerations are the attitudes, perceptions and knowledge of existing financial institutions, their management and staff, towards these new methods of finance, demographic impacts on their attitudes towards Islamic financing methods and the likelihood of engaging in Islamic finance. For conventional financial institutions the presence of other operations offering Islamic financial products and services may affect their competitive position and how they construct new marketing strategies. It may also influence their decision to introduce *Sharia*-compliant products and services themselves. Similarly, for new Islamic financial institutions the attitudes and knowledge of the existing workforce can play an important role in the success of these institutions as they seek to enter the local labour market and interact and compete with other financial institutions in a dual banking system encompassing both conventional and Islamic financial institutions.

Libya provides an interesting context to examine these issues. First, while the majority of the population are Muslims, there are presently no Islamic financial institutions operating in Libya. Second, the

Libyan government is increasingly moving towards the liberalisation and reform of the country's financial system and part of this process foresees the contribution of Islamic financial institutions, products and services. Finally, there is no published work on the influence of demographic factors on Libyan banks' attitudes towards Islamic methods of finance and the probability of applying Islamic methods of finance by Libyan banks. The purpose of this paper is then to provide the results of a survey of Libyan banks' demographic influences on their potential use of Islamic methods of finance and the likelihood of engaging in Islamic finance. The paper is structured as follows. Section 2 provides the literature on the attitudes of financial institutions towards Islamic finance. Section 3 presents the empirical methodology. Section 4 provides some descriptive statistics and Section 6 discusses the empirical results. The final section concludes the paper.

2. Literature Review

While the attitudes of retail consumers towards Islamic financial institutions and products have been studied by researchers in Muslim and non-Muslim countries alike—including Erol and El-Bdour (1989); Erol, Kaynak, and El-Bdour (1990); Omer (1992); Haron, Ahmad and Planisek (1994); Metwally (1996); Al-Sultan (1999); Gerrard and Cunningham (1997); Hamid and Nordin (2001); Bley and Kuehn (2004); Dusuki and Abdullah (2007), Baej, Y and Worthington A.(2014); Rammal and Zurbruegg (2007)—and an emerging literature on the attitudes of business firms—Edris (1997), Jalaluddin and Metwally (1999) and Ahamad and Haron (2002)—relatively little inquiry has been made into the attitudes of financial institutions. In fact, only three studies comprise the extant literature.

First, Jalaluddin and Metwally (1999) surveyed 80 Sydney financial institutions on their attitudes towards the profit/loss sharing method of business finance found in Islamic finance and questioned whether they would agree to lend funds in accordance with these methods. Some 41.2% of financial institutions responded that they were prepared to lend funds on this basis, with their primary motivations being the provision of better business support, growth in the demand for funds, possible avoidance of the risk of default found with conventional lending and a potentially higher return to lenders. However, the

financial institutions also suggested that management complications, unfamiliarity with the principles of Islamic finance and the basic principle of risk sharing with borrowers represented a barrier to business lending on a profit/loss sharing basis, at least in Australia.

Second, Karbhari, Nasser and Shahin (2004) used focused interviews of financial institutions in London to investigate the problems, challenges and opportunities facing Islamic banks in the UK. The major finding was that most if not all respondents were convinced that including Islamic methods of finance in conventional bank operations would promote the establishment of Islamic banks in the UK. In turn, this would increase the understanding of Islamic methods of finance by retail customers. In addition, most respondents held the opinion that the government did not support the establishment of Islamic banks which partly accounted for the low level of awareness among both financial institutions and potential retail and commercial customers.

Finally, Abdullah and Abdul Rahman (2007) examined the level of awareness, knowledge and understanding of Islamic banking and finance of 79 Malaysian bank managers. The results indicated that bank managers possessed good knowledge of the general principles of Islamic banking and finance and were generally aware of some specific methods of finance, including *Morabahah*, *Qurad Hassan* and *Ijarah*. However, they only had a moderate level of awareness of other methods of finance like *Musharakah* and *Mudarabah* and a poor understanding of complex Islamic principles, especially *gharar*. Attendance at training programmes was found to be the most significant factor in improving management's knowledge of Islamic banking and finance while managers with longer working experience and a higher level of education were generally less informed.

However, even though the impact of demographic and socioeconomic variable on retail consumers' attitudes towards Islamic banking and products has been studied by some researches, including Hegazy (1995); Metawa and Almossawi (1998); Naser, Jamal and Al-Khatib (1999); Metwally (2002); Zainuddin, Jahyd and Ramayah (2004) and Okumkus (2005), there is no empirical studies in past literature has been focused on the influence of demographic factors on financial

institutions' potential use of Islamic methods of finance or the likelihood of engaging in Islamic finance (Gait and Worthington 2008).

3. Sample methodology

A questionnaire was designed to collect data from a sample of Libyan banks. To ensure speedy data collection, control of the sample, good flexibility, and reasonable cost, data was collected by filling the questionnaires through telephone interviews. As Libya has a relatively small number of individual financial institutions, all Libyan banks were surveyed, comprising four state banks (National Commercial Bank, Gumhouria Bank, Sahara Bank and Wahada Bank), four private banks (Bank of Commerce & Development, Aman Bank for Commerce & Investment, Alijmae Alarabi Bank and Wafa Bank) and four specialised banks (Agricultural Bank, Saving & Investment Real Estate Bank, Development Bank and Rural Bank). The general director, director of credit and investment, and director of marketing of each bank were surveyed, as well as the manager, acting manager and head of the credit and investment department in each of the biggest branches in Libya's four largest cities (Tripoli, Benghazi, Misratah and Al Murgub). In total, 210 Libyan bank employees were regarded as the population of interest. A focus group of 20 (pre-screened) respondents representing about 5% of the sample was first interviewed to ensure the effectiveness of the questionnaire before the full survey was undertaken.

The survey was administered on working days from 7:30 am to 2:30 pm. As these interviews involved directors or senior bank management, the researcher faced some difficulty in fully completing all of the questionnaires. Unfortunately, despite best efforts only 134 complete questionnaires were obtained. In nearly all cases, the incomplete questionaries arose from the subject refusing to respond or being on leave. Incomplete questionnaires were removed from the sample. The respondents were asked in the first part of the questionnaire some questions relating to their knowledge of Islamic banking and Islamic methods of finance. The second part of the questionnaire was used to elicit the respondents' attitudes towards Islamic methods of finance. A seven-point scale from 1 to 7 was used

where 1 is not important at all and 7 is very important for 14 statements that represent perceptions of Islamic methods of finance.

The questionnaire also collected information on the type of bank and the details of the respondent, including location and the number of years of banking experience. Descriptive analysis is used to indicate the main characteristics of the sample and potential use of Islamic methods of finance by Libyan banks. Factor analysis is used to identify the main factors that motivate Libyan banks to engage in Islamic methods of finance. A binary logistic regression is used to determine which of demographic profiles account for the most impact on potential use of Islamic methods of finance and examining the likelihood of engaging in Islamic methods of finance by Libyan banks (Metwally 2002 and Curhan & Kopp 1988).

4. Descriptive statistics

4.1 The Main Characteristics of the Sample

The main characteristics of the sample are shown in Table 1. This Table indicates that 43.3% of the respondents are private banks and 35.8% state banks. More than one-fifth (55.2%) of the respondents are branches whereas only 21.7% represent general headquarters. Approximately, 50% of the respondents have been working in banking transactions during a period of less than 10 years. On the other hand, 30.6% of respondents have banking experience of more than 20 years.

Table 1: The main characteristics of the sample

Variables	Frequency	%	Variables	Frequency	%
Type of bank			**Banking experience**		
State bank	48	35.8	Less than 10 years	65	48.5
Specialised bank	13	9.7	10 to 20 years	28	20.9
Regional bank	15	11.2	More than 20 years	41	30.6
Private bank	58	43.3			
Bank					

categorization					
General headquarter	29	21.7			
Main branch	31	23.1			
Branch	74	55.2			

5.2 Potential Use of Islamic Methods of Finance

Libyan banks' respondents are asked to indicate their intention to use Islamic methods of finance. In particular, Table 2 gives characteristics of Libyan banks' potential use of Islamic methods of finance motivating beliefs and outcomes. About two-third of Libyan banks (66.4 %) are potential users of Islamic methods of finance. In other words, most of Libyan banks are prepared to open specific windows to apply Islamic methods of finance. More than 60% of these potential users are private banks and more than three-fourth of them are branches. The majority of these potential users also have banking experience less than 10 years.

However, over one-third of respondents are not potential users of Islamic methods of finance and the majority of them are state banks. Also, and noticeably 60% of these not potential users are general headquarters. Most of these potential users (84.5%) have working banking experience more than 20 years.

Table 2: Libyan banks' potential use of Islamic methods of finance

Variables	Frequency	%	Potential user	%	Not a potential user	%
Potential use of Islamic methods of finance						
Potential user	89	66.4				
Not a potential user	45	33.6				
Type of bank						
State bank	48	35.8	17	19.1	31	68.9

Specialised bank	13	9.7	6	6.7	7	15.6
Regional bank	15	11.2	11	12.4	4	8.9
Private bank	58	43.3	55	61.8	3	6.6
Bank categorization						
General headquarter	29	21.7	2	2.2	27	60
Main branch	31	23.1	19	21.4	12	26.7
Branch	74	55.2	68	76.4	6	13.3
Banking experience						
Less than 10 years	65	48.5	65	73	00	00
10 to 20 years	28	20.9	21	23.6	7	15.5
More than 20 years	41	30.6	3	3.4	38	84.5

5. Empirical results

To specify potential use of Islamic methods of finance by Libyan banks as the dependent variable (y) in a regression with demographic as explanatory variables (x), a binary logit regression is performed here where the aim is to predict the presence of an outcome (in the case, potential use of Islamic methods of finance) based on a set of predictor demographic variables. It is similar to a linear regression model, however is suited to models where the dependent variable is dichotomous (i.e. potential users or not potential users of Islamic methods of finance) rather than continuous. The coefficients imputed by the binary logit model provide inferences about the effects of the explanatory variables (The set of demographic variables upon which the questions concerning potential use of Islamic methods of finance) on the likelihood of the use of Islamic methods of finance by Libyan banks. Therefore, banks are divided into two groups; namely, those who are potential users of Islamic methods of finance and those who are not).

Forward-Stepwise selection method with maximum-likelihood computations of parameter estimates is used to obtain results for the binary logistic regression (Norusis 2005). Therefore, model

employing the entire the three of explanatory variables are in three steps. The third step in table of variables in the equation (not shown) indicates that there are no factors left out of this analysis. The estimated coefficient, standard errors, Wald statistic and significant values of parameters for the binary logistic regression are provided in Table 3. The ratio-change in the odds Exp(B), the Nagelkerke R^2 as an analogue for that used in the linear regression model and the Hosmer-Lemeshow test for model misspecification are also included. In addition, Table 3 includes the Bayesian information correction (BIC), defined as the Wald statistic minus the logarithm of the sample size (logarithm of 134 has a value of 5.35). Since the sample is large, the strength of association is further evaluated using (BIC) (Ipsen 2006). Moreover, according to Raftery (1995), a BIC from 1 to 2 is a weak, from 2 to 6 is a positive, from 6 to 10 is a strong and greater than 10 is very strong. Finally, Table 3 includes the classification information that shows the practical results of using the logistic regression model.

Table 3: Logistic regression prediction of demographic factors affecting the potential use of Islamic methods of finance

Factor name	Logit	Standard error	Wald statistic	Sig	BIC	Exp (B)
Type of Bank	1.858*	.747	6.195	0.013	0.845	6.414
Bank Categorization	4.365*	1.381	9.990	0.002	4.640	78.682
Banking Experience	-3.449*	1.006	11.762	0.001	6.412	0.032
Constant	-5.766	4.139	1.941	0.164		
Nagelkerke R^2	0.910					
Hosmer-Lemeshow	0.818					
Groups	Predicted					
	Not potential users		Potential users		% correct	
Not potential users	44		1		97.8	
Potential users	2		87		97.8	

Overall percentage			97.8

Asterisks * indicate significance at 5 % level.

As shown in Table 3, the Hosmer-Lemeshow statistic is .818 which is greater than 0.05 and this indicates that the model adequately fits the data. In other words, the Hosmer-Lemeshow tests fail to reject the null hypotheses of no functional misspecification. Therefore, it can be indicate that this model is appropriate for modelling the potential use of Islamic methods of finance based on a set of predictor demographic variables (Hosmer and Lemeshow 2000). The Nagelkerke R^2 value is 0.910 which is adequate and illustrates that about 92% of the variation is explained by the logistic regression model. To test multicollinearity, the correlations between the predicted factors are calculated. The correlation matrix (not shown) shows that the highest correlation is 0.809, which suggests that multicollinearity is not a serious problem in this analysis. Start with the model predicting the effect of demographic and socioeconomic factors on the potential use of Islamic methods of finance in Table 3. The estimated coefficients (logit* in column 2) indicate that the factors representing bank categorization (4.365), banking experience (-3.449), and type of bank (1.858) respectively are statistically significant. This suggests that private banks with less banking experience are more likely to be potential users of Islamic methods of finance. On the other hand, a bank with a relatively long banking experience and public categorization will be among those who are not potential users of Islamic methods of finance.

Using the BIC, it is found that the banking experience factor has a strong association with the potential use of Islamic methods of finance and the bank categorization factor has a positive association. Clearly, this indicates that banking experience and bank categorization represent the primary effects for the potential use of Islamic methods of finance by Libyan banks. To conclude, Table 3 ends with the prediction success information and shows that the model successfully classified the use of Islamic methods of finance for 97.8 % of respondents.

Respondents of Libyan banks are requested to indicate their degree of importance for 14 statements that represent beliefs and evaluated outcomes for potential use of Islamic methods of finance on a seven-point Likret scale. Table 4 details the means and standard deviations of the variable scores. The data in column two of Table 4 suggest that the primary motivations towards potential use of Islamic methods of finance are applying Islamic methods of finance may contribute in Libyan economic development and Islamic methods of finance allow bank to use unique financing methods such as lease financing. In contrast, Islamic methods of finance are interest-free and Islamic methods of finance may result in a more effective monitoring of loan financed are considered to be at the end of motivations' list.

Table 4: Descriptive statistics

Variables	Mean	Std. Devi
Islamic methods of finance are interest-free.	3.2836	1.62041
Islamic methods of finance are in accordance with *Sharia.*	3.6866	1.66980
Applying Islamic methods of finance may increase deposits of bank.	3.5299	1.28432
Islamic methods of finance may expand the market for loans.	3.7687	1.51640
Islamic methods of finance allow bank to use unique financing methods such as lease financing.	3.8433	1.56010
Return to banks under Islamic methods of finance could be higher than under traditional methods of finance.	3.7015	1.26865
Islamic methods of finance may result in a more effective monitoring of loan financed.	3.4776	1.19344
Islamic methods of finance may encourage starting businesses with small equity to borrow funds.	3.8209	1.40274

Profit/loss sharing method may promote the relationship between bank and customers.	3.5000	1.75040
Profit/loss sharing method allows bank to share risk of investment with borrower.	3.7313	1.14488
Sharing the profits could help the borrower to reduce the risk of default.	3.5000	1.22474
Repayment of debt could be easily controlled under Islamic methods of finance.	3.5149	1.40747
Applying Islamic methods of finance would increase profit of the bank.	3.5821	1.28202
Applying Islamic methods of finance may contribute in Libyan economic development.	3.8507	1.23549

Factor analysis (principal component analysis) is performed on the fourteen explanatory variables with the primary goal of data reduction. The data in the correlation matrix (not shown) illustrate that there are high correlations among the explanatory variables that are significant at the 0.0 level. This justifies the appropriateness of factor analysis to reduce these highly correlated variables to a small manageable number of factors. An investigation of the statistical results suggests that the coefficients on the diagonals of the anti-image correlation matrix are greater than 0.5 for each variable. Therefore, there is no need to eliminate any of the variables. Also, all variables have a large correlation with more than one of the other variables. This also suggests the adequacy of the factor model (Malhotra 2006; Metwally 2000).

As shown in Table 5, Bartlett's test of sphericity is used to test the null hypothesis that the variables are uncorrelated in the population. The test gives a value of 1658.071 which is highly significant favouring a rejection of the null hypothesis. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is calculated. A value of 0.915 is obtained, this means that all of the partial correlation coefficients are small compared to the ordinary correlation coefficients. Therefore,

this indicates that it's reasonable to go ahead with a factor analysis (Norusis 2006).

Table 5: Eigenvalues and total variance explained

No	Initial Eigenvalues		
	Total	***% of Variance***	***Cumulative %***
1	8.240	58.860	58.860
2	1.527	10.910	69.770
3	1.215	8.675	78.445
4	.608	4.346	82.791
5	.438	3.125	85.916
6	.381	2.724	88.640
7	.320	2.286	90.926
8	.276	1.968	92.894
9	.249	1.777	94.670
10	.199	1.421	96.092
11	.176	1.254	97.345
12	.131	.934	98.279
13	.126	.899	99.178
14	.115	.822	100.000
Notes: (a) Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.915			
(b)Bartlett's Test of Sphericity is 1658.071			
(C) Significance is .000			

Table 5 also indicates relevant information after the desired number of factors has been extracted. The table shows the commonalties for the variables, along with the variance accounted for by each factor that is retained. It can be seen that 14 explanatory variables can be reduced to just three factors with an eigenvalue grater than 1. These three factors account for approximately 78.44% of the total variance. In addition, reproduced correlations matrix (not shown) indicates that the magnitudes of residuals are computed between observed and reproduced correlations; only 19% of the residuals are greater than 0.05 (in absolute value). Accordingly, this also suggests the best fit for factor analysis model (Malhotra and Birks 2003).

Table 6 shows the rotated factor matrix obtained by the varimax procedure and indicates the factors and their coefficients used to interpret the factors in terms of the variables. Factor 1 has high coefficients (more than 0.5) on five variables which are shown with the shading in column 2. These represent (i) Islamic methods of finance are interest-free, (ii) Islamic methods of finance may expand the market for loans, (iii) Islamic methods of finance allow bank to use unique financing methods such as lease financing Religious motivation for depositing with Islamic bank, (iv) Islamic methods of finance may encourage starting businesses with small equity to borrow funds, and (v) Profit/loss sharing method may promote the relationship between bank and customers. Clearly, most of these variables help to expand market for loans and religious variables has lowest coefficient among them. Hence, this factor can be labelled as "Growth in demand for funds".

Table 6: Rotated Factor Matrix

	Factors		
Variables	1	2	3
Islamic methods of finance are interest-free.	.675	.451	.279
Islamic methods of finance are in accordance with *Sharia.*	.157	.826	.345
Applying Islamic methods of finance may increase deposits of bank.	.321	.244	.817
Islamic methods of finance may expand the market for loans.	.841	.131	.184
Islamic methods of finance allow bank to use unique financing methods such as lease financing.	.815	.160	.342
Return to banks under Islamic methods of finance could be higher than under traditional methods of	.315	.246	.717

finance.			
Islamic methods of finance may result in a more effective monitoring of loan financed.	.035	.781	.486
Islamic methods of finance may encourage starting businesses with small equity to borrow funds.	.792	.327	.341
Profit/loss sharing method may promote the relationship between bank and customers.	.776	.208	.370
Profit/loss sharing method allows bank to share risk of investment with borrowers.	.178	.737	.431
Sharing the profits could help the borrowers to reduce the risk of default.	.517	.747	.037
Repayment of debt could be easily controlled under Islamic methods of finance.	.484	.803	.011
Applying Islamic methods of finance would increase profit of the bank.	.308	.217	.832
Applying Islamic methods of finance may contribute in Libyan economic development.	.495	.234	.519

Factor 2 has high coefficients (more than 0.5) on five variables which are shown with the shading in column 3. These are (i) Islamic methods of finance are in accordance with *Sharia*, (ii) Islamic methods of finance may result in a more effective monitoring of loan financed, (iii) profit/loss sharing method allows bank to share risk of investment with borrower, (iv) sharing the profits could help the borrower to reduce the risk of default, and (v) repayment of debt could be easily controlled under Islamic methods of finance. Even though religious factor has the highest coefficient among these variable, most of them aim to promote management effectiveness for loans. Therefore, this factor can be labelled as “effective management for loans”.

Finally, Factor 3 has high coefficients (more than 0.5) on four variables which are shown with the shading in column 4. These are; (i) applying Islamic methods of finance may increase deposits of bank, (ii) return to banks under Islamic methods of finance could be higher than under traditional methods of finance, (iii) applying Islamic methods of finance would increase profit of the bank; and (iv) applying Islamic methods of finance may contribute in Libyan economic development. These motivations related to the bank's objective to increase profits. This factor therefore, can be labelled as "profitability". Clearly, 14 explanatory variables listed in Table 4 are reduced to (Growth in demand for funds, effective management for loans; and Profitability).

According to Hair, Anderson, Tatham and Black (1995) and Curhan and Kopp (1988), factor scores are suitable for use in subsequent multivariate analysis, including discriminant analysis and binary logistic regression, especially if the data is used for the original sample. In particular, a binary logistic regression is also useful here where the dependent variable is dichotomous (i.e. potential users of Islamic methods of finance and not potential users) and suitable technique to determine a probability (Worthington 2006; Norusis 2005).These factor scores are calculated automatically when applying factor analysis in previous section. Therefore, a binary logistic regression is performed on the four factor scores (Growth in demand for funds, effective management for loans, and Profitability) as explanatory variables with the primary goal of determining the probability of applying Islamic methods of finance by Libyan banks. The potential use of Islamic methods of finance is representing dependent variable. Thus, respondents of banks are divided into two groups, those who are potential users of Islamic methods of finance and those who are not. Since the probability of an event must lie between 0 and 1, the criterion variable is the type of potential use (Y) where: Y is 1 if the respondent is potential user of Islamic methods of finance, Y is 0 otherwise.

Forward-Stepwise selection method with maximum-likelihood computations of parameter estimates is used to obtain results for the binary logistic regression (Norusis 2005). Therefore, model

employing all the three explanatory variables are in three steps. The estimated coefficient, standard errors, Wald statistic and significant values of parameters for the binary logistic regression are provided in Table 7. The ratio-change in the odds Exp(B), the Nagelkerke R^2 as an analogue for that used in the linear regression model and the Hosmer-Lemeshow test for model misspecification are also included. In addition, Table 7 includes the Bayesian information correction (BIC) and the classification information that shows the practical results of using the logistic regression model.

Table 7: Logistic regression prediction of the potential use of Islamic methods of finance

Factor name	Logit	Standard error	Wald statistic	Sig	BIC	Exp (B)
Growth in demand for funds	2.625*	0.470	31.178	0.000	25.828	13.809
Effective management for loans	1.691*	0.613	7.612	0.006	2.262	5.425
Profitability	1.416*	0.411	11.883	0.001	6.533	4.119
Constant	1.874	0.604	9.639	0.002	4.289	6.514
Nagelkerke R^2	0.852					
Hosmer-Lemeshow	0.876					
Groups	Predicted					
	Not potential users	Potential users	% correct			
Not potential users	43	2	95.6			
Potential users	4	85	95.5			
Overall percentage			95.5			

Asterisks * indicate significance at 5 % level.

As shown in Table 7, the Hosmer-Lemeshow statistic is 0.876 which is greater than 0.05 and this indicates that the model adequately fits the data. In other words, the Hosmer-Lemeshow tests fail to reject the null hypotheses of no functional misspecification. Therefore, it indicates that this model is appropriate for modelling the use of Islamic methods of finance in Libya (Hosmer and Lemeshow2000). The Nagelkerke R^2 value is 0.852 which is adequate and illustrates that about 95% of the variation in is explained by the logistic regression model. To test for multicollinearity, the correlations between the predicted factors are calculated. The correlation matrix (not shown) shows that the highest correlation is 0.369, which suggests that multicollinearity is not a serious problem in this analysis.

Start with the model predicting the potential use of Islamic methods of finance in 7. The estimated coefficients (logit* in column 2) indicate that the factors representing growth in demand for funds, affective management for loans, and profitability are statistically significant and carry a positive sign. This suggests that more desire to expand market to increase the demand on funds; greater the motivation to obtain effective management for loans and greater wishes for the profitability led to the higher probability of applying Islamic methods of finance by Libyan banks. In particular, the desire for growth in demand for funds increases the likelihood of the use of Islamic methods of finance by 2.625 times, effective management for loans by 1.691, and Profitability by 1.416 times. In addition, they have large values for Exp(B) comprising 13.809, 5.425, and 4.119, respectively.

Using the BIC and in accordance with Raftery (1995) categorization, it is found that the growth in demand for funds factor has a very strong association with the use of Islamic methods of finance and effective management for loans factor has a weak association. However, the profitability factor has a strong association with the use of Islamic methods of finance. Clearly, this indicates that growth in demand for funds represents the primary predictor for increasing the likelihood in engaging in Islamic methods of finance by Libyan banks. To conclude, Table 7 ends with the prediction success information and shows that the model successfully classified the use of Islamic methods of finance for 95.5% of respondents.

6. Concluding Remarks

This study presents that about two-third of Libyan banks (66.4 %) are potential users of Islamic methods of finance. More than 60% of these potential users are private banks and more than three-fourth of them are branches. The majority of these potential users also have banking experience less than 10 years. However, over one-third of respondents are not potential users of Islamic methods of finance and the majority of them are state banks. Also, and noticeably 60% of these not potential users are general headquarters and most of these not potential users (84.5%) have working banking experience more than 20 years. In addition, the current study has been analysed demographic influences on banks' potential use of Islamic methods of finance for 134 banks in Libya. The findings illustrate that banking experience, bank categorization respectively have much impact on Libyan banks' potential use of Islamic methods of finance. More particularly, the results indicate that Islamic methods of finance will be mostly preferred by private banks and branches in general with limited banking experience in Libya.

Factor analysis results illustrate that the 14 explanatory variables (motivations for the use of Islamic methods of finance by Libyan banks) reduced to only three factors: namely growth in demand for funds, effective management for loans; and profitability. Performing a binary logistic regression on these four factor scores in order to determine the likelihood of engaging in Islamic finance indicate that growth in demand for funds represents the primary predictor for increasing the likelihood in engaging in Islamic methods of finance by Libyan banks.

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