Efficiency in Islamic Banking: Evidence from MENA Region

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Abstract

The purpose of this paper is to assess empirically the efficiency of 33 Islamic banks operating in MENA region over the period 2006-2012. This paper is based on efficiency measurement in which the non-parametric approach, Data envelopment Analysis (DEA) method that applied the intermediation approach, is employed to measure the level of Technical, pure technical, and scale efficiency. Overall, our empirical evidence suggests that during the period of study, pure technical inefficiency dominates scale inefficiency in the Islamic banking sector which can be attributed to their relative inability to monitor the operations costs and the full use of resources. Moreover, the largest Islamic banks tend to operate at constant return to scale (CRS) or decrease return to scale (DRS), despite the fact that the small banks tend to operate at CRS or at increase return to scale (IRS).

Keywords: Islamic Banks, Data Envelopment Analysis (DEA), MENA.

JEL Classification: G21, G24, G28, C14

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Introduction

Recent decades have seen the emergence of a new fund called "Islamic finance". The particularity of this fund is that it puts into practice the principles related to Islamic jurisprudence in particular, prohibition of interest and adherence to other Shariá (Islamic law) requirements. Islamic banking practice started on a modest scale in the sixties and since then, the practice has grown considerably. Accordingly, many Islamic banks have been established and have developed all over the world recording exceptional growth rates. Newly, conventional banks are also involved in the adaptation of Islamic banking techniques.

For instance, Islamic finance is an ethical finance, which aims to develop financial products compatible with the requirements of Islamic law. First of all, Islamic finance emerged in the 60s with the appearance of the first financial institutions in Egypt (Mitghamr Saving Bank) and Malaysia (Malaysia Tabung Haji). Then in the early 70s, other institutions have emerged in Egypt. However, Islamic finance in its contemporary form has started on 1975 with the creation of the Islamic Development Bank (IDB), which was the first International Islamic Bank and Dubai Islamic Bank in Dubai. In 1980, several banks in different countries namely Iran, Pakistan and Sudan have established their first Islamic banks. It was not until the 2000s that this funding has grown with double digit growth and has operations in Europe.

Nowadays, the Shariá compliant services sum-up to a global industry amounting neighboring $2 trillion in assets: 80% is accounted for by Islamic banks (including Islamic windows of conventional banks), 15% Sukuk, 4% Islamic mutual funds and 1% Takaful (The Economist, 2014). Bestowing to the Islamic Financial Services Board (2013), Iran is the biggest Islamic banking market (accounting for around 40% of global Islamic banking assets) followed by Saudi Arabia (14%), Malaysia (10%) and the United Arab Emirates (UAE) and Kuwait (both with 9% shares).

Measuring the relative efficiency of financial institutions has gained academic attention over years. Various approaches have been used to determine the efficiency. These approaches broadly fall under two types: non-parametric approaches, such as Data Envelopment Analysis (DEA), and parametric approaches, such as Financial Ratios Analysis (FRA).

The remainder of the paper is organized as follows. Section 1 analyses the literature review. Section 2 reviews the methodology employed in the study and describes data sources and model's specification. Section 3 contains empirical results and concluding remarks.

Eventually, summary and conclusion are presented.

1. Literature Review

There have been widespread literatures scrutinizing the efficiency features of the Islamic banking sector all over the world. Typically, studies on Islamic bank efficiency focus on theoretical issues. The empirical work principally relies on the analysis of descriptive statistics rather than rigorous statistical estimation (El-Gamal and Inanoglu, 2004).

Nevertheless, the majority of Islamic Banks are within the Middle-East countries. The demand of Islamic financial products has risen up in several universal banks in developed countries.

The Islamic assets grew up annually by 11% over the past decade in the Persian Gulf. While some admit that the financial prosperous future of the Muslim world. Others considered it as an enormous deception, (Hassoune, 2010). Some researches have examined the efficiency of Islamic banks (El-Gamal and Inanoglu, 2005). Part of them has deliberated the efficiency of banks during times of crises (Kiyota, 2009; Chapra, 2008).

In addition, Hassan and Hussein (2003) studied the efficiency of the Sudanese banking system during the period of 1992 and 2000. They engaged a variety of parametric (cost and profit efficiencies) and non-parametric DEA techniques to a panel of 17 Sudanese Islamic banks.

They establish that the average cost and profit efficiencies were 23% under the non-parametric approach while they were 55% and 50% respectively under the parametric. During the study period, they found that the Sudanese banking system have exhibited 37% allocative efficiency and 60% technical efficiency, signifying that the overall cost inefficiency of the Sudanese Islamic banks were principally due to technical rather than allocative efficiency.

Furthermore, some of studies have employed the non-parametric approach "Data Envelopment Analysis (DEA)" to evaluate efficiency of Islamic banks (Yudistira, 2004; Sufian, 2007; Danesh, 2007; Sufian, 2009; Kamaruddin et al., 2008; Hamim et al., 2008).

Batchelor and Wadud (2004) showed the mean technical efficiency (TE) of the overall Malaysian Islamic banking operations and specified a significant improvement of technical efficiency from 63% in 1997 to 83.7% in 2002. Except for two years, the attribution of scale efficiency (SE) seems to be upper than pure technical

efficiency (PTE) as the source of overall TE. The average PTE deteriorated from 84% in 1997 to 75.4% in 1998, conceivably in replication of the sudden shock of the Asian crisis, but amplified almost consistently from 1999 onwards peaking to 91.5% in 2002(viz., 1997, 2001).

Lately, Sufian (2006) scrutinized the efficiency of the Malaysian Islamic banking sector by using the non-parametric Data Envelopment Analysis (DEA) method during the period 2001-2004. The results show that scale efficiency outweighs pure technical efficiency in the Malaysian Islamic banking sector, which means that Malaysian Islamic banks have been operating at non-optimal position of operations.

Morerecent studies tend to be cross-country in nature and use frontier modelling approaches, either parametric (Majid et al, 2003; Mohamad et al. 2008; Gheeraeart and Weill, 2014) or nonparametric (Yudistra, 2004; Bader et al. 2008; Johnes et al 2014) to model cross country bank cost and profit efficiency (as well as productivity). In addition Gishkori and Ullah (2013) studied the level of efficiency on 34 banks in Pakistan, including Islamic, conventional, and foreign banks by using a DEA approach (technical and scale efficiency) from 2007 until 2011. Technical efficiency of Islamic banks has been seen lower then commercial banks when they measured in terms of constant return to scale.

2. Data Sources and Model's Specification

The choice of the method of DEA is attributed to several reasons. First, among the highlighted points of this method is that it requires significantly few data and work with small sample sizes (Canhoto and Dermine, 2003). In addition, DEA requires no fixed structure or specific functional form to be imposed on data in classifying and defining the efficient frontier, error and inefficiency structures DMUS (Evanoff and Israelvich, 1991 and Grifell-Tatje and Lovell, 1997, Bauer et al., 1998). In the same vein, Hababou (2002) adds that it is best to adopt the DEA technique as it was shown that functional form generally accepted outputs to inputs is difficult to prove or find. Such a specific functional form is very difficult to show for entities of financial services. Avkiran (1999) recognizes the edge of DEA stating that this technique allows researchers to select any kind of input and output of managerial interest, regardless of the different units of measurement. There is no need for standardization (Ariff and May, 2008, Berger and Humphrey, 1997).

2.1. Data and Choice of Variables

Hence, the DEA method requires bank inputs and outputs whose choice is always an arbitrary issue (Ariff and Can, 2008 and Berger and Humphrey, 1997).The border of efficiency is built by using a well-balanced sample of 33 Islamic banks operating in the countries of the region MENA during the period 2006-2012.

Table 1: Sample Distribution of Islamic Banks

Countries	Number
UAE	6
Kuwait	5
Qatar	2
KSA	2
Turkey	2
Bahrain	9
Jordan	2
Yemen	4
Egypt	1

We can decompose data on three outputs and two inputs. The Islamic banks are modelled as diversified companies producing three outputs to be known, Total of the Loans (y_1), which includes loans to the customers and the other banks, the income (y_2), which includes the income from the investment of the funds of the depositors and the Investments (y_3), which includes the titles of investment considered as the trade and investment securities held to maturity, by committing two inputs to be known, Total of the Deposits (x_1), which includes the deposits of the customers and the other banks and Assets (x_2). All the variables are measured in US million dollars and deflated against the inflation rates of respective countries.

2.2. The Model

DEA is a linear programming technique for examining how a particular decision making unit (DMU or bank in this study) operates relative to the other banks in the sample. The technique creates a frontier set by efficient banks and compares it with inefficient banks to produce efficiency scores. Furthermore, banks are bordered between zero and one scores, with completely efficient bank having an efficiency score of one. In DEA, the most efficient bank (with score of one) does not necessarily generate the maximum level of output from the given inputs.

Rather, this bank generates the best practice level of output among other banks in the sample. The term DEA was introduced by Charnes, Cooper, and Rhodes (1978), based on the research of Farrell (1957). Assume that there is data on K inputs and M outputs for each N bank. For i^{th} bank these are represented by the vectors x_i and y_i respectively. Let us call the K x N input matrix – X and the M x N output matrix – Y. To measure the efficiency for each bank we calculate a ratio of all inputs, such as (u'yi/v'xi) where u is an M x 1 vector of output weights and v is a K x 1 vector of input weights. To select optimal weights, the efficiency of each bank is calculated as follows:

$$\textbf{Min } \left(\frac{u'yi}{v'xi}\right),$$

$$\frac{u'yj}{v'xj} \leq 1 \qquad j = 1, \ldots\ldots, N \qquad (1)$$

$$u, v \geq 0$$

The above formulation has a problem of infinite solutions and therefore we impose the constraint $v'xi = 1$, which leads to:

$$\textbf{Min } (\mu' yi),$$

$$\varphi' xi = 1$$

$$\mu' yi - \varphi' xj \leq 0 \qquad j = 1, \ldots\ldots, N \qquad (2)$$

$$\mu, \varphi \geq 0$$

Where we change notation from u and v to μ and φ, respectively, in order to reflect transformations. Using the duality in linear programming, an equivalent envelopment form of this problem can be derived:

$$\textbf{Min } \theta,$$

$$\theta, \lambda$$

$$yi + y\lambda \geq 0$$

$$\theta xi - X\lambda \geq 0$$

$$\lambda \geq 0 \qquad (3)$$

Where θ is a scalar representing the value of the efficiency score for the i^{th} decision-making unit which will range between 0 and 1. 1 is a vector of N x 1 constants. The linear programming has to be solved N times, once for each decision-making unit in the sample. In order to calculate efficiency under the assumption of variable returns to scale, the convexity constraint ($N1'1 = 1$) will be added to ensure

that an inefficient firm is only compared to firms of similar size, and therefore provides the basis for measuring economies of scale within the DEA concept. The convexity constraint determines how closely the production frontier envelops the observed input-output combinations and is not imposed in the constant returns to scale case. The variable returns to scale technique therefore forms a convex hull which envelops the data more tightly than the constant returns to scale and thus provides efficiency scores that are greater than or equal to those obtained from the constant returns to scale model.

3. Results and Discussion

Table 2 represents the summary of the descriptive statistics of the Islamic banking balance sheet in this model. The dynamics of assets, deposits, loans, income and investments shows an unstable variability of the values of standard deviation through banks. It is because our study concerns the Islamic banks of nine country in which the sample includes five countries GCC: Bahrain, Kuwait, Qatar the United Arab Emirates and Saudi Arabia and four other countries of the Middle East: Egypt, Jordan, Yemen and Turkey. Furthermore, to approach these differences later with the evaluation of DEA, this study groups the types of banks according to the size and the region from where each bank.

Rendering to the table 3, we can observe a various efficiency scores of Islamic banks for the fiscal years in the sample. The results suggest that there's a downtrend in the technical efficiency during the first part of study. For instance, the TE falls from 41.2 % in 2006 to 33% in 2008 before declining slightly for a second time in 2010 and 2012. Besides, the results show that the technical inefficiency is triggered by pure technical inefficiency and not from scale inefficiency for all years except in 2008. Throughout these years of study, we illustrate that GCC[1] countries were the most efficient from the MENA region, revealing a mean efficiency score of 92.1%. This is attributed to the performance of the Saudi's banks which its score climbed to 99.6 %. In fact, the banks in KSA preserve a higher mean of assets raise to 60 million USD during this period. On the other hand, we perceive that the non GCC[2] are less efficient, recording a mean efficiency score about 50.6%. The inefficiency here is endorsed

[1] The GCC countries are: UAE, Kuwait, Qatar, KSA and Bahrain.

[2] The non GCC countries are: Jordan, Yemen, Egypt and Turkey.

to the non-qualification of some of the Bahrain[3] Islamic banks witch recorded a score of 2.3%.

Pure technical efficiency is basically technical efficiency devoid of scale effects, the difference between technical efficiency and pure technical efficiency represents the cost operating at an inappropriate scale.

Moreover, the division of total technical efficiency (TE) into its constituents divulges that pure technical inefficiency for Islamic banks is also persistently higher than scale inefficiency for all years except in 2008. From this year, we show scale inefficiency (output related) about 47% against 36% in pure technical inefficiency (input related).

More evidently, we can interpret these empirical findings by admit that the managerially inefficiency in controlling operations costs and exploiting the fullest of resources are the main origin of this technical inefficiency. In addition, the result obtained in 2008 means that scale inefficiency outweighs the pure technical inefficiency witch implies that the Islamic banks in the MENA region don't operate in the relatively optimal scale of operations.

Table 4 reports sample statistics of the various scale efficiency over the years under study. Whereas, previous results treat the origins of technical inefficiency of the Islamic banks, we dedicate this part to discuss the origins of the scale inefficiency. Indeed, the banks may possibly operate at CRS or VRS. Once the banks operate at CRS, this means that a rise in inputs leads to proportionate rise in outputs. However, if they operate at VRS, this means that an increase in inputs causes an unequal growing in outputs. Besides, the banks operate at VRS can be at decreasing returns to scale (DRS) or at increasing returns to scale (IRS). Further, the situation of DRS can be interpreted by an increase in inputs results in less important rise in outputs, while the IRS situation means that an increase in inputs results an upper rise in outputs.

In order to detect the dominant source of returns to scale, we compare the CRS scores founded with the CCR model to VRS scores gotten by BCC model. However, each bank is said to be operating at constant return to scale, if the CRS score equivalents to its VRS score. In addition, in the case of non-equality between the scores, the bank can operate at IRS or at DRS. This may be

[3] The inefficient bank is « Bahrain Islamic Bank B.S.C"

determined by using the DEA model under the non-increasing returns to scale assumption (NIRS). Hence, we obtain a difference between the score under VRS and NIRS score, we conclude that the bank is operating at IRS. Second possibly, if the score under VRS equals the NIRS score, we conclude that the bank is operating at DRS (Coelli et al., 1998).

The composition of production frontiers displays the banks that lie on the efficiency frontier. This table recommends the number of 100% efficient banks fluctuates from 1 to 33 banks. Sharjah Islamic Bank, ABC Islamic Bank (E.C.) and Investors Bank BSC are small banks seem to have exhibit higher efficiency frontier (CRS) compared with other Islamic banks. Our results support the previous study of McAllister and McManus (1993). The authors considered that small banks have mostly revealed IRS. We find that Bahrain Islamic Bank B.S.C and Islamic Co-operative Development Bank exhibit IRS during all the period of study. Similarly, it is interesting to note that First Investment Company K.S.C.C operates mostly at IRS.

In fact, under the studies of McAllister and McManus (1993), Drake (2001), Yudistira (2004), the smaller banks (small on total assets) tend to operate with IRS or CRS while the large banks tend to operate with DRS or CRS. By referring to our findings, we remark that we are in line with studies stated before for the most of smaller banks, especially Bahrain Islamic Bank B.S.C which operate constantly at IRS during all the period of study. Furthermore, based on the results, Sharjah Islamic Bank appears to be the most efficient small bank because it operates at CRS all years except in 2006.

With reference to the works of Drake (2001) which stipulates that an increase in size of bank causes a smaller increase of outputs causes a proportionate increase in inputs of the large banks, it states the fact that the large banks have been operating at DRS during the periods. According to the table we find that Bank 3, Bank 5, Bank 10, Bank 13, Bank 15, Bank 29, Bank32 et Bank 30, which are classified as a large banks (large on total assets), operate at DRS throughout the period of study. Hence, the efficient use of the inputs for the small and the large size of the company could collaborate with higher returns.

To review, banks can change the scale by organic growth or by acquisition merger which will result in substantial gains. Thus, banks operating in IRS are forced to evict their scale inefficiency by internal

growth. Otherwise, it becomes a target for the acquisition of banks as this can generate value from underperforming bank and eradicate redundancies and inefficiencies (Evanoff and Israelvich, 1991).

4. Summary and Conclusion

The present study investigates the efficiency of the Islamic banks in MENA countries during the period from 2006 to 2012. The efficiency estimates of specific banks are assessed by using the DEA approach. Two different approaches are employed; the CRS and VRS in order to evaluate respectively the scale efficiency and the pure technical efficiency.

The empirical findings suggest that during the period of study, the technical inefficiency is triggered by pure technical inefficiency and not from scale inefficiency for all years except in 2008. These findings imply that the Islamic banks have been managerially inefficient in exploiting their resources to the fullest extent.

The study supports the view of McAllister and McManus (1993), Drake (2001), Yudistira (2004), which affirms that the smaller banks (small on total assets) tend to operate with IRS or CRS while the large banks tend to operate with DRS or CRS. The results of this study are projected to contribute significantly to the existing literature on the operating performance of the Islamic banking industry in the MENA countries.

Besides, our empirical results on the scale efficiency of Islamic banking operations join the findings of the DEA study on US banks which directed by Miller and Noulas (1996). The authors institute that the larger banks are more expected to operate at decreasing returns to scale (DRS) and constant returns to scale (CRS) at best. However the small banks are apt to operate at increasing returns to scale (IRS).

This empirical investigation evaluates a significant operational performance of Islamic banks in the MENA region. However, this work has exhibited new information on management expertise for improvement, the optimal allocation of scarce resources and the optimal scale for the functioning of Islamic banks during the period of the study.

Knowing the study's limitations, we can offer various extensions. First, to assess the efficiency of Islamic banks operating in the study area, we can consider the function along with the intermediation function. Also, we can consider a survey on changes

in productivity over time due to technological development or technological progress or regression by using the index of total factor productivity Malmquist.

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Appendix 1

Table 2: Summary Statistics of the Variables Employed in the DEA Model (in million of USD)

Outputs	Mean	Min	Max	Std. Dev
2006				
Financing (y1)	3877.817	1	41995.7	9584.059
Investments (y2)	54.83333	62	523	110.0461
Income (y3)	183.3167	1	2464.2	475.3906
2007				
Financing (y1)	51423.62	1	1666987	277272.9
Investments (y2)	660.8056	98	18157	3040.963
Income (y3)	338.7417	1	5937	1041.515
2008				
Financing (y1)	68642.85	1	2241515	372774.7
Investments (y2)	1399.222	1	39957	6677.295
Income (y3)	603.431	1	11916.5	2008.191
2009				
Financing (y1)	90240.6	4.9	2918585	485309.2
Investments (y2)	2101.167	39	61111	10192.83
Income (y3)	1024.692	1	13321.2	2702.693
2010				
Financing (y1)	121148.9	7.6	3993128	664147.1
Investments (y2)	3062.061	37	95493	15885.72
Income (y3)	1155.708	1	16453.3	3203.997
2011				
Financing (y1)	140840.4	4.5	4641298	771872.7
Investments (y2)	4085.508	574	134281	22348.24
Income (y3)	1533.387	1	25113.1	4605.251
2012				
Financing (y1)	206156.2	1	6956411	1157459
Investments (y2)	4915.744	728	168252	28024.46
Income (y3)	1886.103	1	31912.5	5692.214
Inputs	**Mean**	**Min**	**Max**	**Std. Dev**
2006				
Deposits (x1)	5561.367	1	72287.4	13707.03
Assets (x2)	5265.5	1	79163	13773.03

2007				
Deposits (x1)	66164.01	1	2117117	352056.5
Assets (x2)	75314.22	1	2361665	392639.1
2008				
Deposits (x1)	83086.03	1	2652914	441131.2
Assets (x2)	94365.94	1	2951434	490559.3
2009				
Deposits (x1)	99760.55	1	3142532	522492.2
Assets(x2)	124220.2	117	3861115	641693.4
2010				
Deposits (x1)	151888	6.9	4915118	817451.1
Assets (x2)	179285.4	137	5718698	950682.8
2011				
Deposits (x1)	182687.5	6.9	5928882	986063.7
Assets (x2)	214307.2	95	6814897	1132866
2012				
Deposits (x1)	241845.6	6.9	7962256	1324507
Assets (x2)	295221.5	74	9594265	1595462

Table 3: Summary Statistics of Efficiency Scores

The table presents mean, minimum, maximum, and standard deviation of the Asian Islamic banks technical efficiency (TE), and its mutually exhaustive pure technical efficiency (PTE) and scale efficiency (SE) components derived from the DEA. Panel A, B, C, D, E, F, G and H shows the mean, minimum, maximum and standard deviation of TE, PTE, and SE of the Islamic banks for the years 2006-2012 respectively. Panel H presents the Asian Islamic banks mean, minimum, maximum, and standard deviation of TE, PTE, and SE scores for all years. The TE, PTE, and SE scores are bounded between a minimum of 0 and a maximum of 1.

	Mean	Std. Dev	Min	Max
Panel A: All Banks 2006				
TE	.412	.336	.029	1
PTE	.585	.356	.058	1
SE	.671	.247	.056	1
Panel B: All Banks 2007				
TE	.330	.335	.017	1
PTE	.578	.389	.025	1
SE	.587	.322	.027	1
Panel C: All Banks 2008				
TE	.330	.279	.056	1

PTE	.640	.291	.134	1
SE	.522	.269	.183	1
Panel D: All Banks 2009				
TE	.571	.275	.115	1
PTE	.727	.281	.196	1
SE	.797	.217	.299	1
Panel E: All Banks 2010				
TE	.546	.231	.206	1
PTE	.708	.254	.322	1
SE	.787	.192	.391	1
Panel F: All Banks 2011				
TE	.580	.285	.04	1
PTE	.702	.283	.049	1
SE	.838	.213	.265	1
Panel G: All Banks 2012				
TE	.511	.296	.085	1
PTE	.654	.304	.125	1
SE	.790	.253	.224	1
Panel H: All Years				
TE	.511	.085	1	.296
PTE	.654	.125	1	.304
SE	0.791	.224	1	.253

Table 4: Composition of Production Frontiers

Bank	2006	2007	2008	2009	2010	2011	2012	Count Bank
Bank 1	IRS	CRS	CRS	CRS	CRS	CRS	CRS	6
Bank 2	IRS	CRS	DRS	CRS	DRS	DRS	DRS	2
Bank 3	DRS	DRS	DRS	DRS	DRS	DRS	DRS	0
Bank 4	DRS	DRS	DRS	CRS	IRS	IRS	DRS	1
Bank 5	DRS	DRS	DRS	DRS	DRS	DRS	DRS	0
Bank 6	DRS	DRS	DRS	IRS	IRS	IRS	IRS	0
Bank 7	DRS	IRS	IRS	IRS	IRS	IRS	IRS	0
Bank 8	CRS	IRS	CRS	IRS	IRS	CRS	IRS	3
Bank 9	IRS	IRS	IRS	IRS	CRS	IRS	IRS	1
Bank 10	DRS	DRS	DRS	DRS	DRS	DRS	DRS	0
Bank 11	DRS	IRS	IRS	IRS	IRS	IRS	IRS	0
Bank 12	DRS	DRS	DRS	DRS	DRS	CRS	DRS	1
Bank 13	DRS	DRS	DRS	CRS	CRS	DRS	CRS	3
Bank 14	CRS	DRS	DRS	DRS	DRS	DRS	DRS	1
Bank 15	DRS	DRS	DRS	DRS	DRS	DRS	DRS	0
Bank 16	CRS	DRS	DRS	DRS	DRS	DRS	DRS	1
Bank 17	CRS	DRS	DRS	DRS	DRS	IRS	DRS	1
Bank 18	CRS	DRS	DRS	CRS	CRS	CRS	CRS	5

Bank 19	IRS	CRS	DRS	DRS	DRS	CRS	DRS	2
Bank 20	DRS	DRS	DRS	CRS	DRS	DRS	DRS	1
Bank 21	IRS	IRS	IRS	IRS	IRS	IRS	IRS	0
Bank 22	DRS	CRS	IRS	IRS	IRS	IRS	DRS	1
Bank 23	DRS	CRS	DRS	DRS	CRS	CRS	CRS	4
Bank 24	CRS	CRS	CRS	CRS	IRS	CRS	IRS	5
Bank 25	DRS	DRS	IRS	IRS	IRS	IRS	IRS	0
Bank 26	DRS	DRS	DRS	IRS	DRS	IRS	IRS	0
Bank 27	DRS	IRS	IRS	IRS	IRS	IRS	IRS	0
Bank 28	IRS	IRS	IRS	IRS	IRS	IRS	DRS	0
Bank 29	DRS	DRS	DRS	DRS	DRS	DRS	DRS	0
Bank 30	DRS	DRS	DRS	DRS	DRS	DRS	DRS	0
Bank 31	DRS	DRS	DRS	DRS	DRS	DRS	IRS	0
Bank 32	DRS	DRS	DRS	DRS	DRS	DRS	DRS	0
Bank 33	IRS	IRS	IRS	IRS	IRS	IRS	IRS	0
Count year	6	6	3	7	5	7	4	

Appendix 2

Countries	Banks
Sharjah Islamic Bank	Bank1
Tamweel PJSC	Bank 2
Abu Dhabi Islamic Bank 8	Bank 3
Dubai Bank	Bank 4
Dubai Islamic Bank plc	Bank 5
Emirates Islamic Bank PJSC	Bank 6
Boubyan Bank KSC	Bank 7
First Investment Company K.S.C.C.	Bank 8
International Investor Company. K.S.C. (The)	Bank 9
Kuwait Finance House	Bank 10
Kuwait International Bank	Bank 11
Qatar International Islamic Bank	Bank 12
Qatar Islamic Bank SAQ	Bank 13
Al Rajhi Bank-Al Rajhi Banking & Investment Corporation	Bank 14
Bank AlBilad	Bank 15
Kuveyt Turk Katilim Bankasi A.S.-Kuwait Turkish Participation Bank Inc	Bank 16
Türkiye Finans Katilim Bankasi AS	Bank 17
ABC Islamic Bank (E.C.)	Bank 18
Albaraka Banking Group B.S.C.	Bank 19
Arcapita Bank B.S.C	Bank 20
Bahrain Islamic Bank B.S.C.	Bank 21
Capivest	Bank 22
Gulf Finance House BSC	Bank 23

Investors Bank BSC	Bank 24
Khaleeji Commercial Bank	Bank 25
Shamil Bank of Bahrain B.S.C.	Bank 26
Islamic International Arab Bank	Bank 27
Jordan Islamic Bank	Bank 28
Islamic Bank of Yemen for Finance & Investment	Bank 29
Saba Islamic Bank	Bank 30
Shamil Bank of Yemen & Bahrain	Bank 31
Tadhamon International Islamic Bank	Bank 32
Faisal Islamic Bank of Egypt	Bank 33