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Estimation of the Islamic Banks' Competitive Structure VS Conventional Banks' One

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Estimation of the Islamic Banks' Competitive Structure VS Conventional Banks' One

Asma Sghaier [α], Manelle Lahdhiri [σ], Gilles Philippe [ρ] & Mansouri Faysal [ω]

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I. Introduction

Islamic banks follow certain ethics in their operations. Islamic banks are exposed to risks that differ from those that conventional bank are exposed; this is because of the constraints they impose and the specificity of their management which induces Unlike bank returns.

In this paper, we analyse the structure of competition (depending on concentration indices on one hand, and modelling Panzar and Rosse, on the other hand.

The objective of this study is to investigate the nature of the relationship of the structure of competition between the two types of banks.

II. The Literature Review

Based on the model of Panzar and Rosse (1987), Vesala (1995) several studies showed a monopolistic competition in the Finnish banking sector in 1985-1992. In the same study Molyneux et al (1994) show a monopolistic competition for the UK banking market compared to other markets its sample elements (the sample is composed of German banks, French, Italian, Spanish and British) for a period 1986-1989.

Bikker and Groeneveld (1998) found, for a sample of European banks and in the period 1989-1996, monopolistic competition for the majority of European banking markets. Bikker and Haaf (2002) confirmed the results proved by De Bandt and Davis (2000), the results show a monopolistic competition, which becomes weaker on local markets and stronger in international markets.

Al-Muharrami et al. (2006) estimate monopolistic competition GCC banks (Gulf countries) for a period of 1993 to 2002, using the Panzar and Rosse approach (1987). They showed that the banking market in Kuwait, Saudi Arabia and the UAE operate under perfect competition, while banks in Bahrain and Qatar operate in monopolistic competition, which is not the case in Oman. Saeed Al-Muharrami (2008) found a monopolistic competition in the banking market of Saudi Arabia during the period 1993-2006. The assessed value of H-statistic is equal to 0.23 during the period studied.

Saeed Al-Muharrami (2009) found a perfect competition in the Kuwaiti banking market in the period 1993-2002. He showed that bank mergers (= concentration) can improve bank services. He also suggested that the Central Bank of Kuwait has to stop allowing the opening of new branches because the country will eventually adjust. The following table summarizes what has already been treated:

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Authors	Countries	Period	Résultats
Shaffer (1982)	New York	1979	monopolistic competition .
Nathan and Neave (1989)	Canada	1982-1984	En 1982 : perfect completion 1983-1984 : concurrence monopolistique
Lloyd Williams et al (1991)	Japon	1986-1988	monopolistic competition .
Molyneux et al (1994)	Allemagne, Espagne, France, Italie et le Royaume-Uni.	1986-1989	Monopolistic competition France, l'Allemagne, l'Espagne and the Royaume-Uni.
Vesala (1995)	Finlande	1985-1992	monopolistic competition .
Bikker et Groeneveld (2000)	15 États européens	1989-1996	monopolistic competition .
De Bandt et Davis (2000)	Allemagne, France et Italie	1992-1996	- « Large "banks: monopolistic competition for all States. - "Small" banks: monopolistic competition and monopoly in Italy in France and Germany.
Bikker et Groeneveld (2000)	15 pays de l'UE	1989-1996	monopolistic competition .
Bikker et Haaf (2002)	23 pays de l'OCDE (dont 17 États européens)	1988_1998	monopolistic competition .
Hernpell (2002)	Allemagne	1993-1998	monopolistic competition .
Coccorese (2004)	Italy	1997-1999	monopolistic competition .
Perera et al (2006)	South Asian countries	1995-2003	monopolistic competition .
Al-Muharrami et al (2006)	Countries of the GOLFE	1993-2002	Strong competition between: Kuwait, Saudi Arabia, UAE. And monopolistic competition between Bahrain, Qatar and Oman Unspecified
Guralp and Celik (2006)	Turquie	1990-2000	monopolistic competition .
Yildirim (2007)	Countries of « Central andastrern EC »	1993-2000	monopolistic competition .

In the following, we will examine the differences between Islamic and conventional banking' structures. An important assumption in the theory of classical industrial organization regarding the profit maximization, it can be argued that the new empirical industrial organization techniques such as RA H-statistic (H-statistique Panzar & Rosse) and Lerner index can't be applied to Islamic banks. In our work we will study the art of IHH, CRk and H-Statistics PR. The objective of Islamic banks is to ensure social and economic justice rather than being primarily guided in principle, by the principle of profit maximization, and this can be achieved mainly through the promotion sharing of financing techniques risks (PLS). However, a close look at the balance sheet of Islamic banks shows that credit-based financing (Murabaha or cost plus sales) is the dominant form of funding applications while financing profit and loss (or sharing risks) as mudaarabah and Musharaka on average less than 10% of assets (Dar and Presley, 2000), this, in fact, could be an Achilles heel for Islamic banks, which have been criticized in the past three decades to ignore the social aspect of their mission, but rather the search for quick profits and safer thanks a Murabaha financing.

Traditional measures of concentration include concentration ratios and the Herfindahl Index - Hirschman (HHI). Using the rate of bank concentration n, especially CR3 index (the three largest banks concentration ratios) according to their share of the assets, deposits and loans in the banking sector. We also calculated the HHI index summing the squares of the market shares of all banks (using total assets, deposits and total credit). However, according to competitiveness indicators (eg Berger, Demirguc -Kunt, Levine, and Haubrich, 2004; Beck, Demirguc -Kunt, and Levine, 2006)these measures are ambiguous.

Some studies use statistical H- PR to assess the degree of competition in the banking sector (eg Claessens & Laeven., 2004; Schaeck et al, 2009) and the Lerner index (Jimenez et al, 2007; Berger, Klapper Turk Ariss, 2009 and Weill, 2010). In this study, we calculate the traditional measures of market structure, in addition to estimating the H Panzar and Rosse Statistics.

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III. Estimation of the Competition' Structure

We analyse the structure of competition for conventional banks (BC) and non- conventional banks (BNC) in the MENA region. Our sample is distributed as follows :

Table 2 : Sample search by type of bank in MENA' countries

countries	Conventional banks	Islamic banks	Total
Bahrain	11	14	25
Egypt	23	2	25
Jordan	11	2	13
Kuwait	6	7	13
Qatar	6	3	9
Saoudi Arabia	9	3	12
Sudan	11	7	18
Tunisia	14	1	15
Turkey	19	4	23
United Arab Emirates (UAE)	17	6	23
Yemen	5	3	8
Total	132	52	184

"An important aspect to consider when evaluating efficiency is competition. All things being equal, a more competitive market generally means greater efficiency "(Allen and Engert 2006). In this section we present the results of a comparative study of the state of competition between 132 CB and 52 NCB in the MENA region. To conduct our study we will proceed in two steps, (1) we will conduct an analysis based on the evolution of the index of CRK concentration and Hirfindahl Hirshman Index (HHI), and (2) we'll try to validate the econometric model Panzar and Rosse (1987).

a) Measured by concentration indices

Traditional measures of concentration include CRK concentration ratios and Herfindahl-Hirschman IHH.

i. *The CR3 concentration' index*

CRk The index takes into account the market share of K first banks in the sector. Generally, studies take a value of k equal to 3 or 5. In our sample, some countries don't have more than three NCB, therefore, we will choose K = 3.

The concentration ratio CR3 consider the relative market share of the three largest banks. This share is approached to the case of banks according to their share of the assets and deposits and Net Loans.

The table below shows the evolution of the CR3 index in terms of total assets, total loans and total deposits during the period from 2005 to 2011 BC (Conventional Bank) and BNC (Non Conventional Bank) for the MENA region. It allows us to identify three main findings.

First, the BC market structure is not characterized by intense competition. In fact, between 2005 and 2011, the value of the CR3 index is quite high. It varies between 0.36 and 0.49 and it doesn't mark a significant downward trend. Considering the "total assets" criterion and "Total loans", the highest values are recorded in 2006. During this year's three overly banks (the largest) account for over 49% of allocations and capitalize more than 44% of total assets.

Second, NCB market structure isn't characterized by an intense competition. The three largest banks have over 33% of assets and provide more than 32% of loans. The market trend is for greater concentration. It peaked in 2011 considering the criterion "Total deposits".

Third, despite the trends of similar concentration, we note that the NCB market structure is more competitive than CB. This leads us to ask, if the difference in concentration of the BC market and BNC leads to efficiency difference.

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Table 3 : Evolution of CR3 for BIC and NCB between 2005 and 2011

B.C	CR3 (BC)			CR3 (BNC)		
	Asset	Loans_Net	Deposits	Asset	Loans_Net	Deposits
2005	0.3941	0.4191	0.3978	0.3439	0.3261	0.3574
2006	0.4450	0.4906	0.4137	0.3494	0.3634	0.3819
2007	0.4229	0.4502	0.4219	0.3324	0.3548	0.3817
2008	0.4112	0.4363	0.4266	0.3453	0.3529	0.3839
2009	0.3892	0.4181	0.3824	0.3679	0.3655	0.3655
2010	0.4184	0.4486	0.3669	0.3639	0.3287	0.4194
2011	0.4215	0.4527	0.4015	0.3635	0.3325	0.4204

Countries of the MENA region don't have the same structures of banking markets. The table above shows the evolution of the CR3 index for each country throughout the period 2005-2011.

The CR3 index certainly allows to observe and to compare the state of the competition, but its use is followed by the fact that it does not account for all banks. The CR3 index can, indeed, hide a false competition or concentration. Thus, we continue our analysis by characterizing the state of competition in the banking market by HHI. We also allow the analysis of the state of competition in the country using section as the HHI is more complete and to avoid duplication of results.

ii. *The HHI concentration index*

In the following section, and based on the HHI index, we will analyse the state of competition that characterizes the market for BC and BNC. This index is used in several studies to analyse competition in the financial sector, particularly the banking sector in different countries. This in my study we include in particular the study of Nathan and Neave (1989) about the Canadian financial system, the study of Molyneux, Altunbas and Gardener (1996) relating to the Japanese banking sector during 1986-1988, the study of Rime (1999) of the Swiss banking system and finally that of Ben Ali. M.S and SGHAIER.A (2012) about the Tunisian banking system.

Our analysis with the HHI index has two parts. In the first we will meet the general trends in the entire region. In the second part, we will try to describe the state of competition in the MENA countries separately.

iii. *The state of the banking competition for MENA*

The HHI is calculated by summing the squares of the market shares of all banks. To improve this calculation banks must first be sorted in descending order of sales. In our application on the banking sector we will calculate the HHI by approaching the size of banks by three indicators: total assets (Asset), total deposits (Deposits) and total loans (Loans_Net). The following table indicates the evolution of the HHI 2005-2011 period for BC and BNC.

Table 4 : Evolution of indices IHH and n * for BC and NBC between 2005 and 2011

Années		BC			BNC		
		Asset	Loans_Net	Deposits	Asset	Loans_Net	Deposits
2005	IHH	0.217	0.2232	0.2133	0.4663	0.5276	0.5168
	n*	5	4	5	2	2	2
2006	IHH	0.2259	0.2461	0.2076	0.577	0.5996	0.6441
	n*	4	4	5	2	2	2
2007	IHH	0.2184	0.2367	0.2058	0.477	0.5314	0.5394
	n*	5	4	5	2	2	2
2008	IHH	0.214	0.2329	0.2058	0.4864	0.5307	0.543
	n*	5	4	5	2	2	2
2009	IHH	0.2661	0.2901	0.2957	0.4787	0.4998	0.5514
	n*	4	3	3	2	2	2
2010	IHH	0.2417	0.2641	0.2452	0.4806	0.4994	0.5767
	n*	4	4	4	2	2	2
2011	IHH	0.23	0.2517	0.2176	0.4811	0.4953	0.5753
	n*	4	4	5	2	2	2

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The analysis of the above table allows us to address three key findings about the market structure of BC and BNC. First, among the 132 BC retained in our analysis, 3-5 banks dominate the market and lead the competition. Whatever the size of endpoint, the indicated trend is almost the same and shows a fairly stable market concentration between 2005 and 2001. In 2009, the market is in the closest state of the oligopoly. Indeed, only three banks account for the largest share of the votes and the largest share of deposits.

Second, among the 52 NCB included in our analysis, only two banks dominate the market throughout the period 2005-2011. This state of the concentration is indicated by the size of three evaluation criteria. Third, we note that the index and the CR3 HHI give conflicting results. The CR3 index indicates a false competition in the market and BNC false trend of concentration for the BC market for 2006. Given that the HHI is more comprehensive than the CR3 index, we will remember trends identified by the HHI.

The state of the banking competition for MENA

The structure of the banking market is not the same in all the countries of the MENA region. Thus, we share further our analysis by considering IHH each country separately and as shown in the table below. We found in our calculations that the size indicator "Total assets", "Total deposit" and "Total credit" all show the same trends. Thus, we will limit our interpretation that the evolution of the HHI index calculated on the basis of "total assets" for BC and BNC.

We note that the trends in competitive intensity was almost stable for most countries marking sometimes small changes they can be explained by the fusion acquisition movements knows that the banking market countries.

Indeed, in the case of Jordan and Qatar, it should be noted that they have the BC market most concentrated in the MENA region. Tunisia (9 banks out of 14), Saudi Arabia (7 banks of 9) and the United Arab Emirates (9 out of 17 banks) have the most competitive conventional banking market.

considering the case of Tunisia, in 2005, competition in the banking sector is not achernée and is led by nine commercial banks of similar size among the 14 commercial banks used in our sample. This result is similar to A.SGHAIER (2010). Indeed, "Since 1985, Tunisia, like many developing countries, introduced a structural adjustment program (SAP) for the restructuring and the total liberalization of all economic sectors of the country, including the banking system. This liberalization was seen by economic and monetary authorities, above all, as a strategic choice dictated by the need to step up investment, diversify the economy in view of the comparative advantages of the country, but especially to increase the efficiency of the banking sector, creating a more competitive environment among financial institutions and strengthening the capital base of banks. The axes of this strategy, initiated in 1987 and strengthened especially towards the 90s, focused on the removal of credit controls, liberalization of the banking business, the revision of the refinancing policy and strengthening the efficiency. Following these reforms, the situation has improved dice 2006 and remained the same until 2011. In fact, these reforms have been introduced mainly by the Tunisian monetary authorities to liberalize the banking system and to promote banking competition.

Table 5 : Evolution of IHH and No. BC market by country for 2005-2011

coutries	index	2005	2006	2007	2008	2009	2010	2011
Bahreïn	IHH	0.2322	0.217	0.2114	0.2018	0.2303	0.2349	0.2183
	n*	4	5	5	5	4	4	5
Egypte	IHH	0.1619	0.1475	0.1326	0.1418	0.1949	0.1722	0.178
	n*	6	7	8	7	5	6	6
Jordanie	IHH	0.3132	0.3128	0.3147	0.3254	0.3849	0.3614	0.3539
	n*	3	3	3	3	3	3	3
Kuwait	IHH	0.2408	0.2497	0.2658	0.2693	0.2379	0.224	0.2321
	n*	4	4	4	4	4	4	4
Qatar	IHH	0.3374	0.3383	0.3456	0.3332	0.3588	0.4011	0.3755
	n*	3	3	3	3	3	2	3
Saudi arabia	IHH	0.1422	0.14	0.1445	0.1384	0.1457	0.1491	0.1462
	n*	7	7	7	7	7	7	7
Sudan	IHH	0.2902	0.4546	0.3557	0.3094	0.3425	0.3499	0.337
	n*	3	2	3	3	3	3	3
Tunisia	IHH	0.1098	0.1096	0.1098	0.1096	0.3956	0.1319	0.123
	n*	9	9	9	9	3	8	8
Turkey	IHH	0.1842	0.1783	0.1722	0.1651	0.1708	0.1691	0.1682
n*	5	6	6	6	6	6	6	
IHH	0.1171	0.1088	0.1256	0.1229	0.22	0.2338	0.162	
n*	9	9	8	8	5	4	6	

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IHH	0.2584	0.2282	0.2247	0.2371	0.2459	0.2318	0.2359
n*	4	4	4	4	4	4	4
	58	59	59	60	46	51	54

Regarding non-conventional banks analysing the chart below shows that the HHI index records for most countries rather large values. This shows that the NCB market is fairly concentrated and particularly in Tunisia, Jordan, Egypt and Saudi Arabia. The lowest values indicating a competitive market are raised for Bahrain, Sudan and the United Arab Emirates. In addition, we find that for most countries the value of the HHI is not stable. This could be explained by the fact that the BNC market has not yet reached a stage of maturity.

In the MENA region, the number of NCB influencing the market recorded a significant increase in 2006 and from 32 to 36. This number has decreased slightly from 2007 and remains almost unchanged up at the end of the period of our study. We note the same observation HHI calculated in terms of total credit. Indeed, in 2006 there was 34 of 52 dominant BNC and this number has been declining ever since the end of the period (2005-2011) to move to NCB 27 that have the same size and that engage in competition in terms of lending (as Murabaha, Musharaka ...).

Table 6 : Evolution of IHH BNC market by country for 2005-2011

Pays		2005	2006	2007	2008	2009	2010	2011
Bahrain	IHH	0.2409	0.227	0.2055	0.178	0.1475	0.2033	0.1908
	n*	4	4	5	6	7	5	5
Egypt	IHH	0.6129	0.6001	0.588	0.5765	0.6025	0.609	0.609
	n*	2	2	2	2	2	2	2
Jordan	IHH	0.6506	0.5949	0.6049	0.6576	0.5628	0.5628	0.5628
	n*	2	2	2	2	2	2	2
Kuwait	IHH	0.4294	0.4895	0.518	0.6084	0.4169	0.444	0.4628
	n*	2	2	2	2	2	2	2
Qatar	IHH	0.478	0.4895	0.5123	0.5399	0.5512	0.5078	0.5078
	n*	2	2	2	2	2	2	2
Saudi arabia	IHH	0.5984	0.5565	0.5515	0.5814	0.7721	0.7522	0.7522
	n*	2	2	2	2	1	1	1
Sudan	IHH	0.1474	0.1593	0.1618	0.1726	0.1932	0.1932	0.1932
	n*	7	6	6	6	5	5	5
Tunisia	IHH	1	1	1	1	1	1	1
	n*	1	1	1	1	1	1	1
Turkey	IHH	0.3042	0.2616	0.2633	0.2602	0.2615	0.2615	0.261
	n*	3	4	4	4	4	4	4
United arab emirates	IHH	0.1667	0.1088	0.3171	0.2638	0.2515	0.2467	0.2467
	n*	6	9	3	4	4	4	4
Yemen	IHH	0.5006	0.5258	0.5246	0.5122	0.5062	0.5062	0.5062
	n*	2	2	2	2	2	2	2
Total des n*		32	36	30	30	32	30	30

After calculating the concentration ratios in the period 2005-2011, we will now estimate the Panzar and Rosse H-statistic (1987) for the CB and NCB during the same period, according to a data panel.

IV. Analysis by Modeling Panzar & Rosse

In the analysis by the model of Panzar & Rosse, one can refer to the work of De Bandt and Davis (2000), where the estimated revenue function takes the following form (According to the work of Nathan and Neave (1989) Casu and Girardone (2006), Molyneux, Thornton, Lloyd-Williams (1996), Gelos and Roldós (2004) and Claessens and Laeven (2004) :

$$Ln\,(TR_{it}) = \alpha + \sum_{j=1}^{3} \beta_j Ln\,(W_{it}^{j}) + \sum_{k=1}^{2} Ln(Y_{it}^{j}) + \varepsilon_{it}$$

$$Ln\,(TR_{it}) = \lambda_0 + \lambda_1 LnY_{1,it} + \lambda_2 LnY_{2,it} + \beta_1 LnW_{1,it} + \beta_2 LnW_{2,it} + \beta_3 Ln\,W_{3,it} + \varepsilon_{it}$$

Based on the methodology of Panzar and Rosse (1982, 1987) and following the empirical strategy pursued by classes and Laeven (2004), we obtain the H-statistic by the following estimating equation (Gelos &

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Roldos, 2004; Claessens & Laeven, 2004; Schaeck et al, 2009; Jimenez et al, 2007; Berger, Klapper and Turk Ariss, 2009, and Turk Ariss, 2010):

$$Ln\,(ROA_{it}) = \lambda_0 + \lambda_1 LnY_{1,it} + \lambda_2 LnY_{2,it} + \beta_1 LnW_{1,it} + \beta_2 LnW_{2,it} + \beta_3 Ln\,W_{3,it} + D_{it} + \varepsilon_{it}$$

Where ROA is the pre-tax return on assets, and since the ROA ratio can take negative values, we, therefore, calculate the dependent variable ln (1+ ROA). According Claessens and Laeven (2004), "the measure of ROA included in the above equation is equal to ln (1 + ROA) and thus adjusted for small negative values because of bank losses in any given year.

The H statistic is equal to β1 + β2 + β3, the sum of the inputs of price elasticity's of the total income. These statistics measure the sensitivity of bank earnings compared to the prices of inputs. A less than or equal to 0 H-statistic is interpreted as a sign of monopoly; by constante if the H statistic is equal to 1, this indicates a situation of perfect competition, and if the H value is between 0 and 1 the sector is monopolistic competition (Shaffer (2004 a, b)).

Maudos and Perez (2005, 2007) and Berger, Klapper and Turk-Ariss (2008) estimated the "total assets" output according to production approach which is calculated as the total income of banks on assets, d where the Translog cost function is:

$$\begin{aligned} Ln\,(C_{it}) = {} & a_0 + b_0 ln(Q_{it}) + b_1 0.5[ln(Q_{it})]^2 + a_1 ln(W_{1it}) + a_2 ln(W_{2it}) + a_3 ln(W_{3it}) + b_2 0.5\, ln(Q_{it}) * ln(W_{1it}) \\ & + b_3 0.5\, ln(Q_{it}) * ln(W_{2it}) + b_4 0.5\, ln(Q_{it}) * ln(W_{3it}) + a_4 ln(W_{1it}) * ln(W_{2it}) + a_5 ln(W_{1it}) \\ & * ln(W_{3it}) + a_6 ln(W_{2it}) * ln(W_{3it}) + a_7 0.5\, [ln(W_{1it})]^2 + a_8 0.5\, [ln(W_{2it})]^2 + a_9 0.5\, [ln(W_{3it})]^2 \\ & + \delta D + \mu_{it} \end{aligned}$$

We will follow the study of Gelos and Roldós (2002) in the estimate of the revenue function. The application of the model will be distributed in two stages: first, we will check the validity of the competitive balance in our sample. Second, we will assess the value of the index H.

Although there is a vast literature that uses non-structural measures to assess the competition in many developed countries and some developing countries, "throughout our research we found" only three papers that lead this type of analysis MENA. These three studies calculated the H-statistic as a measure of the competition.

Murjan and Ruza (2002) study the degree of competition during the period 1993-1997 in nine banks in the MENA region (Bahrain, Egypt, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, Tunisia, and United Arab Emirates) they find that the banking sectors in the MENA operate in monopolistic competition.

Analysis of Al-Muharram et al. (2006) on banking competition in the Gulf countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates) during 1993 to 2002, concluded that the banking sectors in these countries operate in monopolistic competition. Another more recent article, Turk Ariss (2010), analyzes the competition in 12 countries in the MENA region (Algeria, Bahrain, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, Turkey and UAE) during the period from 2000 to 2006. Consistent with previous research, Turk-Ariss notes that most of the banking sectors in the MENA region operate in monopolistic competition. In addition, their work found that indicators of market contestability and activity restrictions are important factors to determine the degree of competition between the countries of the region. Referring to previous studies and the study of Molyneux et al (1994), we must estimate our model for our entire sample and for both types of banks. Our estimate of the model, taking into account the two problems (hétérosédasticité and autocorrelation) gives us the following results:

Table 7 : Descriptive Statistics of the Panzar and Rosse model

Variable	Obs	Mean	Std. Dev.	Min	Max
w1	1288	1.731296	26.65433	-3.492754	888.8889
w2	1288	0.6036735	0.6606814	0	7.540467
w3	1288	0.0813828	0.7340037	-0.140088	13.40604
y1	1288	0.1924635	0.1880487	-0.125674	2.87398
y2	1288	0.5136035	0.3507693	-0.05805	5.786367
ROA	1288	0.0221594	0.0485944	-0.3007	0.5309

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Table 8 : Correlation Matrix Model Panzar and Rosse

Variable	w1	w2	w3	y1	y2	ROA
w1	1.0000					
w2	0.0002	1.0000				
w3	0.1653*	-0.0154	1.0000			
y1	0.0285	-0.0446	0.0079	1.0000		
y2	-0.0243	0.3404*	0.0162	-0.2047*	1.0000	
ROA	-0.0328	-0.3098*	0.0109	0.2688*	0.1207*	1.0000

In the previous section, concentration ratios indicate that some Islamic institutions dominate the banking markets, the HHI index in the section above, also shows that the concentration on the Islamic world market is higher than for banks classics. The table (N°8) shows the evolution of the Herfindahl-Hirshman that the concentration is higher for Islamic banks than conventional banks, and all the HHI measures are almost twice as large.

To have a better clearer understanding of the conditions of competition between the two banking sectors, one should refer to RA H-Statistical which confirm the results.

According to the preceding table (the correlation matrix) although we can see there is a significant correlation between W3 and W1 ie between the price of financial capital and labour prices (measured in personnel costs related to the size of the bank i). As against the profitability ratio ROA was significantly correlated with almost all variables except the W3 and W1.

The following table shows the H-statistic for the countries of the MENA region during the period 2005-2011. In addition, the table shows our model of variable values for testing: if H is 0 so the market can be considered as a monopoly and if H is 1 so the market operates in pure competition perfectly.

Referring to Panzar and Ross model (H = 0.0116567) H (0.1), banks in our sample are monopolistic. Therefore, any increase in costs of inputs induced a disproportionately low increase in revenues. "In such a market structure, each firm seeks to differentiate its products from competitors' products, by make its unique product to escape the homogeneity and thus obtain a separate application from other competing products. In addition, several economic analyses and empirical research agree that a liberal and competitive economy type supports the efficient use of production factors, lower costs, diversification of risk, the growth of the national product and the emergence of creativity. This performance contrasts with that of command economy, cartelized or compartments. A market dominated by cartels or monopolies hinders productivity growth and growth of the national product. In addition, cartels or monopolies impede the implementation of macroeconomic policies. " (L.Daly 2006).

Table 9 : Estimated balance settings

lroa	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
lw1	0.0025342	0.0008208	3.09	0.002	0.0009235	0.004145
lw2	-0.0181163	0.0028697	-6.31	0.000	-0.0237475	-0.012485
lw3	0.0039254	0.0012393	3.17	0.002	0.0014935	0.0063573
ly1	0.0290414	0.0036047	8.06	0.000	0.0219678	0.0361149
ly2	0.0087969	0.0019446	4.52	0.000	0.0049809	0.0126128
cons	0.0982227	0.0085244	11.52	0.000	0.0814951	0.1149502
sigma_u	0.0210638					
sigma_e	0.03030193					
rho	0.32578499	(fraction of variance due to u_i)				
F test that all u_i=0:	F(180, 1009) =	2.11		Prob > F = 0.0000		

Table 10 : Total sample model estimation:

Estimated covariance's	= 178	Number of obs	= 1192
Estimated autocorrelations	= 178	Number of groups	= 178
Estimated coefficients	= 6	Obs per group: min	= 2
	avg = 6.696629		
	max = 7		
		Wald chi2(5)	= 2027.60
		Prob > chi2	= 0.0000

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lroa	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
lw1	0.0013442	0.000184	7.30	0.000	0.0009835	0.0017049
lw2	-0.0179604	0.0006173	-29.10	0.000	-0.0191702	-0.0167506
lw3	0.0050972	0.000288	17.70	0.000	0.0045327	0.0056618
ly1	0.015311	0.0006657	23.00	0.000	0.0140062	0.0166158
ly2	0.0017704	0.0005293	3.34	0.001	0.000733	0.0028078
cons	0.065578	0.0018515	35.42	0.000	0.061949	0.0692069

From this table, it appears a balance index E = 0.011519 nonzero, the banking system is therefore not studied in long-term equilibrium (we are in the situation where 0 <H <1). The H-statistics calculated are consistent with those reported by previous studies and suggest that monopolistic competition best describes the market structure in Islamic and conventional banking sectors worldwide.

The model results using ROA as the dependent variable indicate that the observations are in long-term equilibrium. These results could provide more clarity on the degree of competition. They show that the estimates of Islamic banks are more significant than their conventional counterparts, suggesting a high degree of Islamic financial market power.

To explain the differences in the levels of profitability between Islamic and conventional banks, we combined the two samples enveloping 1288 observations, and then we made multivariate regressions in the last equation, and finally present the results (following tables).

ROA ratio was used as a dependent variable, and then to determine the method of parameter estimation and after estimating the Hausman test (to get an idea about the behavior of random variables and the study of the structure variances and covariances of the errors), which confirmed that this is a fixed effects model (hypothesis H1 is accepted: fixed effect model [Prob> chi2 = 0.0001] there is no type coefficients estimated by fixed effects and those estimated by random effects), so the fixed effects were used. Second step we tested the existence of a problem of heteroscedasticity and / or correlation errors. After the Wald test was confirmed the existence of a problem heteroscedasticity, over the autocorrelation test errors gave us the following result:

F(1, 173) = 4.759
Prob > F = 0.0305

from the table below, we see that F = 0.0305 is significantly different from zero, the financial factor positively affects the total income of the bank, while the coefficient on the size (W2) is significant at 10% and a negative effect on income. This leads us to conclude that the errors are serially correlated between them. This encouraged us to estimate our model taking into account the two problems (heteroscedasticity and autocorrelation).

In the second stage, and to clarify the extent of our sub samples (Islamic banks and conventional banks), a dummy variable was induced in the previous model (As did R.Turk Ariss, 2010 and L.Weill 2010) and we get a random effects model because of the existence of the Dummy taking into account the two preceding problems (heteroscedasticity and autocorrelation).

One notices a linear relationship between competition and bank profitability. The results indicate that the coefficient estimated for all variables are positive, and that the relationship between the profitability of the bank and the labor price is negative.

Table11: Estimated taking into account the presence of a dummy variable (random effects model because of the existence of Dummy):

Estimated covariance's	= 178	Number of obs	= 1192
Estimated autocorrelations	= 178	Number of groups	= 178
Estimated coefficients	= 7	Obs per group: min =	2
	avg = 6.696629		
	max = 7		
	Wald chi2(6)	= 2718.41	
	Prob > chi2	= 0.0000	

lroa	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
lw1	0 .0011243	0.0001901	5.92	0.000	0.0007518	0.0014968
lw2	-0.0188861	0.0006492	-29.09	0.000	-0.0201584	-0.0176137
lw3	0.0051093	0.000291	17.56	0.000	0.0045389	0.0056796
ly1	0.0154736	0.0006106	25.34	0.000	0.0142769	0.0166702
ly2	0.0028496	0.0004937	5.77	0.000	0.001882	0.0038172
dummy	0.0048856	0.0009114	5.36	0.000	0.0030994	0.0066719
cons	0.0645519	0.0018163	35.54	0.000	0.0609921	0.0681117

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Given our study period (2005-2011), we are able to reject the null hypothesis that the banking sector is best characterized by a monopoly (H = 0). Also, we are able to reject the hypothesis of perfect competition in all countries.

The significance of the parameter PR - statistique H indicates a low degree of association between the two measures of competition and bank profitability, and that bank yields increase with increasing degree of market power.

The meaning of the parameters is maintained during the measurement of the bank performance. This has an impact on the general concept of the higher degree of market power. Thus, the strategies used to enter new market sectors where the level of competition is low, are likely to be rewarding for banks. However, this finding does not provide sufficient grounds to conclude that Islamic banks are more profitable than conventional banks. Although the coefficient on the dummy variable (or dummy) Islamic is positive in our model, it is more significant at 1%, the regression results do not provide evidence that Islamic banks can usually achieve a higher level profitability compared to their commercial counterparts. As a robustness test, an interaction term was added in all regressions, ie the Dummy variables and each provides measures of competition.

V. Conclusion

Our conclusion is almost identical with the results of the empirical literature: Islamic banks are more cost effective compared to conventional (Samad, 1999; Samad & Hassan, 1999; Iqbal, 2001; Hassoun, 2002).

Finally, the parameter estimates of the size of banks and market shares are significantly positive when considering the ROA as the dependent variable. The size of banks and market shares appear to be a significant determinant of bank profitability.

Diego Anzoategui, Maria Soledad Martinez Peria and Roberto Rocha (2010) in their article "Bank Competition in the Middle East and Northern Africa Region" concluded that, "Comparing the MENA region to other regions, we find that the H-statistic for MENA is much lower than that of the countries of Eastern Europe, the former Soviet Union, Latin America and South Asia in the most recent period (2002 2008), and the study period of 1994-2008. On the other hand, we find no difference in the H statistic for the MENA region, East Asia and sub-Saharan Africa, the two regions with the lowest level of competition in the banking sector by H Statistics.

In this part, we compared the market power of Islamic and conventional banks by concentration indices such as HHI and CR3 for a large sample of countries and banks where the two types of banks coexist. The studies do confirm that market power is more important for Islamic banks, this proven by the strong inelastic demand of these institutions.

Our results clearly reject this hypothesis. A comparison of the concentration indices showed no significant difference in market power between Islamic and conventional banks. In addition, the regression of market power indices even suggests a lower market power for Islamic banks.

We explain the lower market power of Islamic banks by their different religious and economic incentives. Islamic banks are expected to adhere to Islamic norms of behavior, such as the obligation to charge fair prices and sharing of loss and profit. Compliance with this rule could limit their ability to charge high prices. In addition, Islamic banks have an incentive to charge lower borrowing rates than conventional banks and a higher risk of moral hazard behavior of borrowers.

Thus, our results do not support the concerns of adverse effects resulting from the expansion of Islamic banks in terms of market power. Nevertheless, the results of this study should be taken with caution. Further work could help confirm or refute these findings and clarify our interpretations (L.WEILL 2010).

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