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Laurent Weill

Do Islamic banks have greater
market power?



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All opinions expressed are those of the author and do not necessarily reflect the views of the Bank of Finland.

Laurent Weill^{1*}

Do Islamic banks have greater market power?

Abstract

The aim of this paper is to investigate whether Islamic banks have greater market power than conventional banks. An Islamic bank, for example, might enjoy enhanced market power if a captive clientele adhering to religious principles permits it to charge higher prices. To measure market power, we compute Lerner indices for a sample of banks from 17 countries where Islamic and conventional banks coexist. Comparison of Lerner indices shows no significant difference between Islamic banks and conventional banks over the period 2000-2007. When including control variables, regression of Lerner indices even suggests that Islamic banks have less market power than conventional banks. A robustness check with the Rosse-Panzar model confirms that Islamic banks are no less competitive than conventional banks. Thus, any reduced market power of Islamic banks can be attributed to differences in norms and incentives.

JEL Codes: G21, D43, D82.

Keywords: Islamic banks, Lerner index, bank competition.

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Laurent Weill

Do Islamic banks have greater market power?

Tiivistelmä

Tässä tutkimuksessa analysoidaan, onko islamilaisilla pankeilla enemmän markkinavoimaa kuin tavanomaisilla pankeilla. Islamilaisella pankilla voisi olla enemmän markkinavoimaa esimerkiksi tilanteessa, jossa uskonnollisiin periaatteisiin nojaava asiakaskunta mahdollistaa sen, että pankki perii korkeampia hintoja. Markkinavoiman mittaamiseksi tutkimuksessa lasketaan Lerner-indeksejä otokselle pankkeja sellaisista 17 eri maasta, joissa toimii sekä tavanomaisia että islamilaisia pankkeja. Lerner-indekseissä ei ilmene eroja islamilaisien ja tavanomaisten pankkien välillä tarkastelujakohtana 2000-2007. Kun analyysissä on mukana kontrollimuuttujia, Lerner-indekseillä tehdyt regressiot osoittavat, että islamilaisilla pankeilla on jopa vähemmän markkinavoimaa kuin tavanomaisilla pankeilla. Robustisuustarkastelu Rosse-Panzar – mallilla osoittaa, että islamilaiset pankit eivät ole vähemmän kilpailukykyisiä kuin tavalliset pankit. Tämän vuoksi islamilaisien pankkien mahdollisesti pienempi markkinavoima on seurausta normeissa ja kannustimissa ilmenevistä eroista.

Avainsanat: islamilaiset pankit, Lerner-indeksi, pankkien välinen kilpailu

1 Introduction

Islamic banks have gained in popularity in recent decades. Since the creation of the first modern Islamic bank in 1975, the number of such institutions has increased to over 300 operating in over 75 countries. Total assets of Islamic banks worldwide are estimated at about US\$ 300 billion with an annual growth rate exceeding 15% over the past decade (Chong and Liu, 2009).²

Despite this development, the academic literature, which keeps increasing, still has little to say about the economic implications of Islamic banking relative to conventional banking. Conceivably, this could have important implications if Islamic banks differ from conventional banks in ways that foster or hamper economic development relative to conventional banks.

A key issue here is the market power of Islamic banks. Market power is the ability of a firm to influence the price of products and therefore directly linked to competition as greater competition reduces market power. Islamic banks might benefit, for example, from a clientele with a more inelastic demand driven by religious principles that confers greater market power than conventional banks. In most countries with Islamic banks, a few Islamic banks coexist with conventional banks. Therefore, religious clients out of respect for the Sharia may be more loyal to Islamic banks than non-religious clients in all categories of banks. Indeed, El-Gamal (2007) mentions that some providers and observers of the Islamic banking industry refer to these additional charges and rates for clients of Islamic banks as “the cost of being Muslim,” and stresses the possibility of such overpricing.³ Kuran (2004) supports this view by observing that Islamic banks operating in Turkey managed to quickly attract one percent of total deposits in just a few months with a small number of branches.

The comparative analysis of market power between Islamic and conventional banks is a fundamental issue for economic development, as several studies have shown the importance of market power for economic development (Petersen and Rajan, 1995; Jayaratne and Strahan, 1996; Cetorelli and Gambera, 2001). In a nutshell, the argument here is that greater bank competition enhances access to credit at lower cost, which, in turn, leads to increase borrowing by firms and promotes growth. More generally, enhancement of bank competition can favor financial development by increasing access to financial products and, as the literature shows, creating a positive link be-

² For a complete reference on Islamic banking, see Iqbal and Mirakhor (2007).

³ In an interview, El-Gamal argues that he worries about the possibility that “some sectors of the Muslim American population might be willing to pay \$500 more to buy peace of mind.”
(<http://www.universityislamicfinancial.com/file/News/Voiceof%20AmericaArticle%2004.09.20071.pdf>)

tween financial development and economic development (Levine, 2005) that fosters economic development.

Here, we measure and compare the market power of Islamic banks and conventional banks by computing Lerner indices for a wide cross-country sample of banks from 17 MENA and South-eastern Asian countries, where Islamic banks and conventional banks coexist. The observation period covers 2000-2007. The Lerner index has been widely used in recent studies focusing on market power in banking (Fernandez de Guevara, Maudos and Perez, 2005; Fernandez de Guevara and Maudos, 2007; Solis and Maudos, 2008).

Although no empirical work to our best knowledge has investigated this issue, two papers loosely relate to our work as they provide elements of comparison between Islamic and conventional banks through empirical works at the bank level. In an analysis of efficiency of Turkish banks for the period 1990-2000, El-Gamal and Inanoglu (2005) compare efficiency among various types of banks, including a few Islamic banks (“special finance houses”). They find no significant difference in efficiency between Islamic banks and other banks. Cihak and Hesse (2008) perform a comparative analysis of Islamic and conventional banks in terms of financial stability. They compare the Z-score, an inverse measure of the bank’s probability of failure, for a sample of banks from 18 countries, and find that small Islamic banks are financially stronger than small conventional banks, while large conventional banks are financially stronger than large Islamic banks. Finally, Olson and Zoubi (2008) compare the accounting ratios of Islamic and conventional banks for the Gulf Cooperation Council countries. Notably, they conclude in favor of a greater profitability for Islamic banks.

The rest of the paper is organized as follows. Methodology is reported in section 2. Section 3 describes the data. The empirical results are provided in section 4. Concluding remarks appear in section 5.

2 Methodology

Empirical research on the measurement of bank competition provides several tools. These can be divided into the traditional Industrial Organization (IO) and newer empirical IO approaches. The traditional IO approach proposes tests of market structure to assess bank competition based on the Structure Conduct Performance (SCP) model. The SCP hypothesis argues that greater concentration causes less competitive bank conduct and leads to greater profitability of the bank. In this model,

competition is measured by concentration indices such as the market share of the largest banks or the Herfindahl index. These tools were widely applied until the 1990s.

The new empirical IO approach provides non-structural tests to circumvent the problems with competition measures in the traditional IO approach. Traditional competition measures suffer from the fact that they infer the degree of competition from indirect proxies such as market structure or market shares. In contrast, non-structural measures do not infer the competitive conduct of banks through the analysis of market structure, but rather measure bank conduct directly. The measures from the new empirical IO include the Rosse-Panzar model, which provide an aggregate measure of competition, and the Lerner index, an individual measure of market power.

Here, we compute the Lerner index as our goal is to determine the market power of each bank in our sample. The Lerner index has been computed in several recent studies on bank competition (e.g. Maudos and Fernandez de Guevara, 2004, 2007; Carbo et al., 2009). It is defined as the difference between price and marginal cost, divided by price.

Following Fernandez de Guevara, Maudos and Perez (2005) and Carbo et al. (2009) among others, price is computed by estimating the average price of bank production (proxied by total assets) as the ratio of total revenues to total assets. Marginal cost is estimated on the basis of a translog cost function with one output (total assets) and three input prices (price of labor, price of physical capital, and price of borrowed funds). One cost function is estimated for each year to allow technology to change over time. Symmetry and linear homogeneity restrictions in input prices are imposed. The cost function is specified as

$$\ln TC = \alpha_0 + \alpha_1 \ln y + \frac{1}{2} \alpha_2 (\ln y)^2 + \sum_{j=1}^3 \beta_j \ln w_j + \sum_{j=1}^3 \sum_{k=1}^3 \beta_{jk} \ln w_j \ln w_k + \sum_{j=1}^3 \gamma_j \ln y \ln w_j + \varepsilon,$$

where TC denotes total costs, y total assets, w_1 the price of labor (the ratio of personnel expenses to total assets),⁴ w_2 the price of physical capital (the ratio of other non-interest expenses to fixed assets), w_3 the price of borrowed funds (the ratio of interest expenses to all funding). Total costs are the sum of personnel expenses, other non-interest expenses, and interest expenses. The indices for each bank have been dropped from the presentation for the sake of simplicity. The estimated coefficients of the cost function are then used to compute the marginal cost (MC) such that

⁴ The Bankscope database does not provide information on the number of employees, so we use this proxy variable for the price of labor following Maudos and Fernandez de Guevara (2004, 2007).

$$MC = \frac{TC}{y} \left(\alpha_1 + \alpha_2 \ln y + \sum_{j=1}^3 \gamma_j \ln w_j \right).$$

Once marginal cost has been estimated and price of output computed, we calculate the Lerner index for each bank to obtain a direct measure of bank competition.

3 Data

The sample used in this study includes banks of 17 countries (Bahrain, Bangladesh, Brunei, Indonesia, Iran, Jordan, Kuwait, Malaysia, Mauritania, Qatar, Saudi Arabia, Sudan, Tunisia, Turkey, United Arab Emirates, Yemen). In all the countries Islamic banks and conventional banks coexisted during the period 2000-2007.

In line with earlier cross-country studies that include Islamic banks (Al-Muharrami, Matthews and Khabari, 2006; Viverita, Brown and Skully, 2007; Cihak and Hesse, 2008), we use the Bankscope database to collect data from financial statements of the banks. We use unconsolidated accounting data of banks.

We adopt a Tukey boxplot and use an interquartile range to clean data (i.e. banks with observations out of the range defined by the first and third quartiles that are greater or less than twice the interquartile range are dropped for each input price). We also perform truncations for the Lerner indices, dropping all outliers. These criteria produce a sample of 1,301 observations for 264 banks (135 observations for 34 Islamic banks and 1,166 observations for 230 conventional banks). The sample is described by country and bank type in Table 1.

Table 2 displays summary statistics for the variables adopted in the estimations. The similarities between the two bank types are quite striking. No significant difference in bank size can be observed. The mean Islamic bank has USD 3.27 million in total assets compared to USD 3.78 million for the mean conventional bank. Mean input prices for labor and physical capital are also quite similar. The only substantial difference concerns the price of borrowed funds, which is greater for conventional banks (4.93% vs. 3.50% for Islamic banks). This dissimilarity relates to the higher equity-to-assets ratio observed for Islamic banks (14.72% vs. 10.95% for conventional banks). As Islamic banks rely more on equity, they may have lower charges on borrowed funds. We observe a major difference for activities with the analysis of the ratio of loans to investment assets, which is by far greater for conventional banks. This is in line with the different activities practiced by Islamic banks and conventional banks. These latter dissimilarities suggest it may be worthwhile to

include the equity-to-assets and loans-to-investment-assets ratios in the estimations explaining market power as they constitute key differences between the two bank types.

4 Results

This section presents our results for the differences in market power between Islamic and conventional banks. We start with the Lerner indices for each bank type. Next, we perform regressions of the Lerner index on a set of variables to take control variables into account. Finally, we perform a robustness check with an alternative measure of competition.

4.1 Market power measures

We present the means of Lerner indices in Table 3 for each bank type and each year. The average Lerner index for the period is 23.71% with yearly means ranging from 18.80% to 27.13%. These figures are comparable to what is found in other studies. For instance, Fernandez de Guevara and Maudos (2007) find yearly mean Lerner indices between 16.9% and 24.9% for Spanish banks, while Carbo et al. (2009) observe mean Lerner indices at the country level ranging from 11% to 22% for EU countries with an EU mean of 16%. In dynamic terms, the evolution of the Lerner index shows a strong increase between 2000 and 2005 and a reduction in market power between 2005 and 2007.

The key issue here, however, concerns the comparison of market power between Islamic and conventional banks. The mean Lerner indices over the period are 24.37% for Islamic banks and 23.64% for conventional banks. The difference in favor of Islamic banks is not systematic; our year-by-year analysis shows Islamic banks outperform conventional banks in five years of our analysis. The opposite holds for the three other years observed. Nonetheless, the main finding is that the difference in market power is not significant for any given year considered separately or the full period.

Thus, our major conclusion is that there is no significant difference in the market power of Islamic banks and conventional banks. This finding does not support arguments that Islamic banks possess greater market power.

However, this analysis does not consider the possible role of other characteristics of two bank types. Further, the fact that banks operate in different countries should be taken into account. Thus, we perform a regression of Lerner indices on a set of variables that includes bank type and several control variables.

4.2 Regression

We perform a random effects GLS regression of the Lerner indices. This specification is motivated by the use of panel data and the fact that the key explanatory variable (whether or not the bank is Islamic) is constant over time. The set of explanatory variables includes a dummy variable equal to one if the bank is Islamic, and zero if it is not (*Islamic*). Following Fernandez de Guevara and Maudos (2007), we include control variables to control for risk, size, and activities. We consider the ratio of loans to investment assets (*Loans to Investment Assets*) to take the mix of assets into account, the ratio of equity to total assets (*Equity to Total Assets*) to control for risk aversion, and size measured by the logarithm of total assets (*Bank Size*). We also include dummy variables for countries and years in the regression.

Turning to the analysis of control variables, we observe a significantly positive sign for the size of the bank. This is in line with the fact that bigger banks enjoy greater market power. The ratio of loans to investment assets is not significant, meaning that the structure of assets between loans and investment assets does not influence market power. Finally, the ratio of equity to assets is significantly positive, i.e. banks with greater solvency have higher market power. This finding may be explained by the fact that better solvency allows the banks to charge higher prices for their services. Indeed, several papers demonstrate the existence of market discipline among depositors, particularly in developing and transition countries where the risk of bank failure is substantial (e.g. Karas, Pyle and Schoors, 2009). This discipline means that depositors adapt their deposits to their perception of the probability of bank failure. Thus, better solvency favors confidence of depositors in the bank's financial situation, so banks can charge depositors more for the perceived safety of their assets.

Our main finding is that Islamic banks do not have a greater market power than conventional banks. Our results from the regression even tend to show that Islamic banks have a lower market power.

Thus, we do not concur with the view that Islamic banks benefit from a captive religious clientele that allows them to charge higher prices. So what does explain the lower market power of

Islamic banks? Explanations focus on the different religious or economic incentives of Islamic banks.

One explanation may be the different objectives of Islamic banks in line with the values of Islamic economics. Islamic finance is a part of a global paradigm, Islamic economics, which can be defined as the economics in accordance with the principles of the Qur'an and the Sunna. While Islamic finance forms the centerpiece of Islamic economics, this "third way" approach to economics includes other features such as the promotion of Islamic norms of economic behavior.

Hasan (2004) notes Islamic banks have different objectives than conventional banks. Profit is an objective for Islamic banks, but is merely seen as a survival requirement. Islam aims at establishing a distinct social order, so the prohibition on charging interest is not in itself an objective of Islamic banks, but rather a rule that helps Islamic banks contribute to establish a world governed according to Islamic economic principles. A fundamental value of Islam is the promotion of mutual help and cooperation. As a consequence, Kuran (2004) explains that a producer or a trader is free to seek personal profit but must avoid harming others, and, therefore, must charge only fair prices to his customers. In other words, Islamic banks have the obligation to charge fair prices, which could well limit their ability to charge the maximal price accorded by their market power.

A major debate in the literature concerns the practice of these specific norms in Islamic banks. Kuran (1995) observes similar returns on savings deposits for Islamic and conventional banks in Turkey, while El-Gamal (2007) provides examples of an Islamic bank explicitly mentioning that its loan rates are similar to those of conventional banks.

Some explanations can also be suggested which are based on the economic incentives for an Islamic bank to charge lower prices than other banks. Islamic banks may have greater incentives to avoid moral hazard behavior of borrowers, which gives them incentives to charge lower loan rates than conventional banks. The reasoning is based on the argument from Boyd and De Nicolo (2005). They point out that lower loan rates allow easier the repayment of loans, and consequently reduce the moral hazard that arises when borrowers get involved in risky projects. Thus, these banks would enjoy a lower risk of default by borrowers. As a consequence, the bank's response to moral hazard behavior on the part of borrowers is to charge lower rates. As Islamic banks follow the profit-and-loss-sharing paradigm in opposition to conventional banks which charge fixed repayments, Islamic banks are more susceptible to moral hazard behavior as their return is riskier. They consequently have strong incentives to discourage moral hazard behavior and then to charge lower rates.

We also see that depositors of Islamic banks are in a position similar to shareholders. Instead of receiving a fixed interest rate, they share in the profits and losses of the bank. Ironically, greater profits from depositor services could mean the depositors themselves are charged higher prices for such services. Thus, the bank also has an incentive to refrain from charging depositors heavily for financial services.

Finally, a last argument can also be advanced which is not guided by specific features of Islamic banking. Islamic banking is a relatively recent industry, so an Islamic bank is likely to be younger than a conventional bank. The literature suggests the presence of switching costs in the banking industry that notably derive from the time and effort involved in closing out accounts with one bank and become comfortable with a new bank (Kim, Kliger and Vale, 2003), or can also endogenously result from the better information of the bank on their clients than competitors (Sharpe, 1990; Rajan, 1992). As a consequence, the clientele of relatively young Islamic banks may be less captive, which prevents them from enjoying market power on par with other banks.

4.3 A robustness check

To further address the validity of the results, we use an alternative measure for bank competition in our estimations. We estimate the Rosse-Panzar model (Rosse and Panzar, 1977), which has been widely applied in banking (e.g. Claessens and Laeven, 2004, for 50 countries; Al-Muharrami, Matthews and Khabari, 2006, for the six member countries of the Gulf Cooperation Council). This is a non-structural test, meaning that it takes into account the actual behavior of banks without using information on the structure of the banking market. The H-statistic aggregates the elasticities of total revenues to the input prices. It determines the nature of market structure: it is equal to 0 in monopoly, between 0 and 1 in monopolistic competition, and 1 in perfect competition.

Several recent studies aiming to explain banking competition have used the H-statistic as a measure of competition in regressions (Bikker and Haaf, 2002; Claessens and Laeven, 2004). We follow their approach by considering the H-statistic as a measure of competition and checking the difference in the H-statistic between bank types.

Our aim is to have a measure of competition for each bank type and each year. We run the Rosse-Panzar model for year to obtain estimates of input prices specific to each year. As we need estimates of the coefficients of input prices specific to each bank type, we include interactive terms for each input price, joining the variable with a dummy variable for each bank type. For each year, we estimate the following equation

$$\begin{aligned} \ln REVENUES = & \alpha_0 + [\alpha_1 (\ln w_1) + \alpha_2 (\ln w_2) + \alpha_3 (\ln w_3)] ISLAM \\ & + [\alpha_4 (\ln w_1) + \alpha_5 (\ln w_2) + \alpha_6 (\ln w_3)] CONVENTIONAL \\ & + \alpha_7 \ln ASSETS + \alpha_8 \ln EQUITY TO ASSETS \\ & + COUNTRY DUMMIES, \end{aligned}$$

where *REVENUES* are total revenues, w_1 , w_2 and w_3 prices of labor, physical capital, and borrowed funds, respectively (defined below), *ASSETS* total assets, *EQASS* the ratio of equity to total assets, k country, *ISLAM* dummy variable equal to one whether the bank is Islamic, *CONVENTIONAL* dummy variable equal to one if the bank is conventional. Similar to Bikker and Haaf (2002), the variable *ASSETS* takes into account differences in size and *EQUITY TO ASSETS* differences in risk. Indices for each bank have been dropped in the presentation for simplicity. Thus, the H-statistic is equal to $\alpha_1 + \alpha_2 + \alpha_3$ for Islamic banks and $\alpha_4 + \alpha_5 + \alpha_6$ for conventional banks.

The results of the Rosse-Panzar model appear in Table 5. We observe values between 0.3512 and 0.6233 for all bank types and all years, which suggests a monopolistic competition structure. This result is in accordance with most former studies estimating the Rosse-Panzar model (e.g. Bikker and Haaf, 2002). Al-Muharrami, Matthews and Khabari (2006) found an H-statistic for the six countries of the Gulf Cooperation Council (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates) for the period 1993-2002. The value was of 0.47 with country fixed effects and 0.24 in a pooled model. While our results are in line with the conclusion of monopolistic competition of this paper, we observe a higher level of competition that likely results from differences in the sample of countries and a more recent period when competition has increased.

In any case, the key result is that the H-statistic is greater for Islamic banks than for conventional banks for all years. This difference is only significant in 2005 and 2007. Therefore, the estimations of the Rosse-Panzar model tend to corroborate our main finding that Islamic banks are no less competitive than conventional banks.

5 Concluding remarks

In this paper, we compared the market power of Islamic and conventional banks by computing Lerner indices for a large sample of banks from countries in which both types of banks coexist. Our hypothesis was that market power is greater for Islamic banks, in line with the view that these institutions benefit from a captive client base with a more inelastic demand. This issue is important if we

are to understand the normative implications of the expansion of Islamic banks as it has been shown that lower bank competition can be detrimental to national economic growth.

Our findings clearly reject this hypothesis. A comparison of Lerner indices shows no significant difference in market power between Islamic and conventional banks. Furthermore, 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 supposed to respect Islamic norms of behavior such as the obligation to charge fair prices. Adherence to this rule could limit their ability to charge high prices. Furthermore, Islamic banks have incentives to charge lower loan rates than conventional banks and face higher exposure to moral hazard behavior of borrowers.

Thus, our findings do not support the concerns of detrimental effects resulting from the expansion of Islamic banks in terms of market power. Nevertheless, the results of this study should be taken with a heavy dose of caution. As this the first paper on this issue, further work could help confirm or reject these findings and explicate our interpretations.

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Table 1 Overview of the sample

This table gives the number of observations for each bank type and each country.

Country	All banks	Conventional banks	Islamic banks
Bahrain	38	24	14
Bangladesh	222	218	4
Brunei	16	10	6
Indonesia	249	244	5
Iran	39	26	13
Jordan	45	30	15
Kuwait	39	32	7
Malaysia	170	158	12
Mauritania	26	19	7
Pakistan	158	148	10
Qatar	31	23	8
Saudi Arabia	28	24	4
Sudan	37	34	3
Tunisia	107	100	7
Turkey	38	32	6
United Arab Emirates	46	42	4
Yemen	12	2	10
All	1301	1166	135

Table 2 Summary statistics

This table displays the means for variables used in subsequent estimations for each bank type. Standard deviations are reported in parentheses.

	All banks	Conventional banks	Islamic banks
Total assets (USD thousand)	3,719.65 (7,785.72)	3,771.21 (7,930.48)	3,274.30 (6,408.39)
Loans (USD thousand)	1,946.81 (3,992.48)	1,936.93 (3,937.88)	2,032.10 (4,451.36)
Price of labor (%)	1.10 (0.56)	1.11 (0.57)	1.10 (0.42)
Price of physical capital (%)	104.04 (77.78)	104.36 (77.89)	101.26 (77.11)
Price of borrowed funds (%)	4.78 (2.71)	4.93 (2.74)	3.50 (2.06)
Loans to investment assets	5.31 (71.23)	2.42 (4.59)	30.32 (219.88)
Equity to assets (%)	11.34 (8.71)	10.95 (8.47)	14.72 (9.96)

Table 3 Lerner indices

This table presents the Lerner index for each year and bank type. Lerner indices are given as percentages and standard deviations are displayed in parentheses.

	All banks	Conventional banks	Islamic banks	Difference	p-value
2000	18.80 (13.28)	18.70 (13.49)	20.21 (10.56)	-1.51	0.73
2001	19.66 (14.05)	19.65 (14.39)	19.79 (9.83)	-0.14	0.97
2002	21.62 (14.77)	21.65 (15.09)	21.29 (11.02)	0.36	0.93
2003	24.83 (16.34)	25.35 (16.49)	19.99 (14.47)	5.36	0.20
2004	26.87 (17.03)	27.53 (16.80)	22.10 (18.34)	5.43	0.17
2005	27.13 (16.65)	26.78 (16.60)	30.07 (17.28)	-3.28	0.43
2006	25.38 (15.68)	24.64 (14.78)	30.07 (20.28)	-5.43	0.12
2007	23.78 (15.40)	23.55 (14.62)	25.35 (20.28)	-1.79	0.63
All	23.71 (15.76)	23.64 (15.63)	24.37 (16.91)	-0.74	0.61

Table 4 Regression

Random effects GLS regression. The dependent variable is the Lerner index. *, **, *** denote an estimate significantly different from 0 at the 10%, 5%, or 1% level. Dummy variables for countries and years were included in the regression, but are not reported here.

Explanatory variables	Coefficient	Standard error
Intercept	-11.342	7.511
Islamic	-4.504*	2.547
Bank Size	2.515***	0.414
Loans to Investment Assets	0.002	0.006
Equity to Assets	71.133***	5.752
R ²	0.3333	
Number of banks	264	
Number of observations	1301	

Table 5 Robustness check: The Rosse-Panzar model

This table displays the H-statistic estimated by the Rosse-Panzar model for each year and bank type. We compute the Wald test (F-statistic) to test whether there is a significant difference between the H-statistic for Islamic and conventional banks. *, **, *** denote an F-statistic significantly different from 0 at the 10%, 5%, or 1% level.

	Conventional banks	Islamic banks	Wald test (F-statistic)
2000	0.5145	0.5991	0.91
2001	0.5473	0.6233	1.08
2002	0.4755	0.5526	0.80
2003	0.4003	0.4431	0.26
2004	0.3512	0.4084	1.08
2005	0.3573	0.4629	3.95**
2006	0.5271	0.5320	0.01
2007	0.4008	0.5801	6.08**

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