

Does Behavioral Finance have an Impact on Banking Competitiveness over the Time?

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Abstract—This paper investigates the impact of behavioral Finance on the competitive structure of banking sector in economy over time. This paper reports an empirical assessment of competitive conditions among GCC countries during the years of 2009-2014. We opt for a methodology as proposed by Lerner Index based on a nonstructural estimation of the market power of the banking industry. We adopt two approach to study the impact of Behavioral finance penetration on banking competition. In the first step we investigates the market structure of Islamic banking industry. In the second step we estimate an equation linking Islamic bank penetration to general banking market competition. The empirical results confirm that the banking industry in GCC countries become more competitive during the last decades. Furthermore, an increase in Behavioral finance penetration enhances competition in these banking sectors.

Keywords---Behavioral Finance penetration – Banking competition- GCC countries

I. INTRODUCTION

IN the context of the financial globalization, Islamic finance seems to be a strategic issue to guard against economic crises and practice of our ethical values. Disclosure of Islamic banks in the banking sector has changed the structure of the banking market. This is a question mark for the economic policy makers. In the same context of financial globalization and the emergence of new technologies of information and communication, the banking industry is sustained by a process of banking and financial consolidation observed in the worldwide sphere. These worked embrittlement of the barriers to entry of new competitors and an intensification of competition. The penetration of Islamic banking has changed the financial environment and the macro-economic conjuncture. The expansion of Islamic banks has an effect on the market structure as banks gain the ability to exercise a market power. The restructuring of the banking system and the penetration of Islamic banks have resulted a change in the conditions of competition and the structure of the banking industry.

This study provides an overview of the tools at hand to identify factors that affect differences in the degree of market power across the banking sectors, examine the impact of Islamic bank penetration on the competitive structure of

banking sectors in economies. We focus our analysis on GCC countries during the period 2009–2014 using bank-level panel data. The first step is the evaluation of the competitive conditions by developing the Lerner Index which Islamic bank entry affect the market structure of each banking market . The second step is the analysis of the Islamic bank penetration and banking competition link with different degrees of Islamic bank penetration. Third, we use the variable defining the market structure of the Lerner Index as a dependent variable to explain differences in the degree of competition, assess the impact of Islamic banks penetration on the competitive conditions in economies, based on specific bank data and macroeconomic data.

II. METHODOLOGY AND DATA EVALUATION METHOD OF LERNER INDEX

We proceed in our study of the model with the presentation which is the fundamental step in our empirical study. The Lerner Index is a direct measure of competition because it focuses on the pricing power apparent in the difference between price and marginal cost thereby capturing the degree to which a firm can increase its marginal price beyond marginal cost (Berger et al., 2009).

Theoretically, a key determinant of market power is demand elasticity; a popular measure of such relationship is the Lerner index (Lerner, 1934). The Lerner Index methodology allows for the calculation of a market power. A number located in the unit interval that is usually depicted as having an inverse relationship with (the absolute value of) demand price elasticity. The Lerner index is appealing because it shows where a firm's market power is located between perfect competition and maximal market power, and the role that demand elasticity plays in determining a firm's mark-up (Rojas, 2010).total revenues of the bank with respect to its input prices. Lerner index focuses on the pricing power: the difference between price and marginal cost, thereby capturing the degree to which a firm can increase its marginal price beyond marginal cost (Fernandez de Guevara et al. (2005); Jimerez, Lopez, et Saurina,(2007); Berger et al, (2008); Berger et al. (2009); DemircucKunt and Peria (2010), Fungáčová et al. (2010)). The index is defined by the difference between price and marginal cost divided by the price.

The lerner index is calculated as:

$$Lerner_{it} = (P_{it} - MC_{it})/P_{it} \quad (1)$$

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P_{it} is the price of banking output for the bank i at time t : is the price of total assets proxied by the ratio of total revenues(interest income and non-interest income) to total assets for bank i at time t . Modernization of the banking sector was followed by the increase in the share of interest income in the total income of the bank. However, with the emergence of new banking products, the share of non-interest income occupies an important part in the total income of the firm. Total revenue is measured by the ratio of total interest income and non-interest relative to total assets.

MC_{it} is the marginal cost for the bank I at the time t , the marginal cost is derived from the translog cost function. The lerner index is range between 0 and 1. When $P = MC$, the lerner index is 0 and the bank has no pricing power. The lerner index is closer to 1, the bank has higher mark-up of price cover.

The computation of Lerner Index required the estimation of the marginal cost on the basis of a Translog cost function with one output and three input prices. Symmetry and linear homogeneity restrictions in input prices are imposed. The estimation of Translog cost function with fixed effects and time dummies is specified as follows:

$$LnCost = \alpha_0 + \alpha_1 LnTA + \frac{1}{2} \alpha_2 (LnTA)^2 + \sum_{j=1}^3 \beta_j LnW_j + \sum_{j=1}^3 \sum_{k=1}^3 \beta_{jk} LnW_j LnW_k + \sum_{j=1}^3 \gamma_j LnTA LnW_j + \varepsilon \quad (2)$$

Cost: is the total cost and is measured by the sum of personnel expenses, other non-interest expenses and interest expenses.

TA: is the total cost

$W_{L,it}$ is the cost of labor. This variable is represented by the ratio of personnel expenses to total assets. Personal expenses include salaries and wages.

$W_{F,it}$ is the cost of funds. This variable is represented by the ratio of interest expense to total deposits. Interest expense includes interest paid on deposits and interest paid on loans. As for the funds, they are made by customer deposits, interbank deposits, subordinated debt and other long-term debts.

$W_{K,it}$ is the cost of fixed capital. This variable comprises general and administrative costs, physical depreciation, depreciation of investment securities, and other overheads, This variable is represented by the ratio of other operating and administrative expenses of total assets.

The estimated coefficients of the cost function are then used for computing the marginal cost. The marginal cost is equal to the product of the derivative of the logarithm of total cost to output multiplied by the ratio of total cost to output. The marginal cost is then derived as:

$$MC = \frac{Cost}{TA} (\alpha_1 + \alpha_2 LnTA + \sum_{j=1}^3 \gamma_j LnW_j) \quad (3)$$

Once the Translog cost function is estimated, we use the estimated coefficient for computing the marginal cost. Once the marginal cost is calculated, we use the marginal cost and the price of the output to compute the Lerner Index for each bank and we obtain a direct measure of banking competition.

III. ESTIMATION OF ISLAMIC BANK PENETRATION- BANK COMPETITION LINK EQUATION

In second step we study the effects of Islamic Bank penetration on banking competition through an empirical model which estimate the equation link. The model contain four group factors: market structure, bank specific factors, financial environment factors, and macroeconomic environment factors.

The regression equation is the following:

$$LI_{i,t} = \beta_0 + \beta_1 Penetration_{i,t} + \beta_2 C_{i,t} + \beta_3 BCF_{i,t} + \beta_4 FEF_{i,t} + \beta_5 MEF_{i,t} + \beta_6 D + \varepsilon_{i,t} \quad (4)$$

Where the dependant variable $LI_{i,t}$ measure the market competition for country i in year t determinant by estimating Eq (2). Independent variable contain the measure of the degree of Islamic bank penetration ($Penetration_{i,t}$), concentration measures ($C_{i,t}$) which include the measure of entropy, Bank- specific characteristics ($BCF_{i,t}$) which include bank size, liquidity, capitalization, profitability, efficiency, and riskiness, Financial –environment Factors ($FEF_{i,t}$) which include stock market turnover, Macroeconomic environment factors ($MEF_{i,t}$) which include GDP, and GDP growth rate.

| Variable | Definition |
|-----------------------|---|
| Penetration (Assets) | Ratio of assets owned by Islamic banks to the total banks in the country |
| Concentration | Concentration measured by the measure entropy |
| Size | Average bank size, measured by the bank assets in millions of US dollars |
| Capitalization | Average bank capitalization, measured by the ratio total equity to total assets |
| Profitability | Average Return on total Assets |
| Efficiency | Ratio of non –interest expenses to total assets |
| GDP | GDP in constant 2000 US Dollars |
| GDP growth rate | Growth rate of GDP |
| Stock market turnover | Stock market turnover ratio |

IV. DATA

We use annual bank-level balance sheet and income statement data retrieved from the Datastream database to estimate the degree of banking competition. Our data set covers a total of 6 emerging economies from GCC countries for the period 2009-2014. The final sample includes Islamic banks (24 banks) and conventional banks (63 banks) operating in different countries. It is important to mark the structure of banks in our sample is similar to the functional, institutional, and legal. Our sample is homogeneous which makes it probably more reliable estimates.

V. EMPIRICAL RESULTS

Table I expressed the Value of the estimated value of Lerner Index for the banking industry in GCC countries during the period 2009-2014. The calculated Lerner index is close to 1 and confirms that the GCC banking industry has higher mark-up of price cover and price power.

TABLE I
LERNER INDEX FOR BANKING MARKET IN GCC COUNTRIES

| Year | Lerner Index |
|------|---------------------|
| 2009 | 0,879148907581802 |
| 2010 | \$0,868418481519189 |
| 2011 | 0,86214543158404 |
| 2012 | 0,856239224655777 |
| 2013 | 0,85000482676049 |
| 2014 | 0,847436474359878 |

Source: prepared by the author based on R statistical package

According to the figure I we remark that there is slight decrease in the market power for the period 2009-2014. The trend evolution is explained by several reasons which are economic such as the inflation rate, the effect of subprime crisis, the turnover rate, the integration and connectiveness.

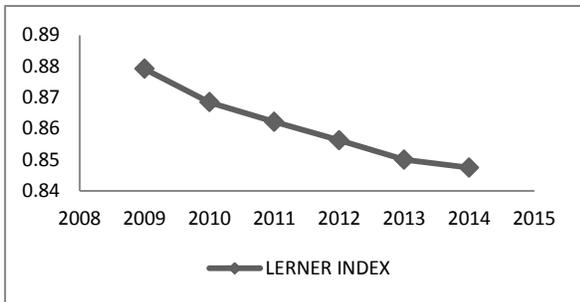


Fig. 1 Trend evolution of Lerner Index

We are proceeding to estimate the factors that influence the evolution of the market power of banking industry over the time. We estimate the equation link the Islamic banking penetration and the banking completion, we use the GLS estimator allowing for heteroskedasticity across panels (countries) with country and year fixed effect. For the independent variable we use the calculated Lerner Index obtained from the step one. We examine the Islamic banking entry on the overall level of competition in the banking market. Table II reports all results for the banking sector in GCC countries during the period 2009-2014.

Our result reveal that higher Islamic banking penetration levels are associated with an increase in the degree of banking competition in GCC countries. This conclusion is consistent whether the penetration rate is measured by the Total Islamic banking assets divided by the total banking assets. The estimates presented in Table II imply that 10% increase in the

share of total bank assets owned by Islamic banks raises the Lerner Index measure of competition by 0.004 point for the overall industry.

The higher market concentration may decrease the competition. We find that the coefficient on the banking concentration is negative. The negative coefficient implies that higher inequality of distribution of banks in the market is associated with a lower level of banking competition.

The coefficient on bank size and profitability are always positive, which indicate that competition seems to be more intense in market dominated by larger and well capitalized banks. Higher profits lead to less competition; we interpret this coefficient on profitability as support for the expected fact that per unit profits are higher in more competitive market. The positive coefficient of stock market turnover rate seem to suggest that more developed substitute for bank credit makes competition in banking more intense.

TABLE II
PANEL RESULT – EQUATION LINK ISLAMIC BANKING PENETRATION AND BANKING COMPETITION

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Panel
Depended Variable: Lerner Index

      Min.    1st Qu.    Median    3rd Qu.    Max.
-0.02620 -0.01040 -0.00118  0.00890  0.03830

Coefficients:
      Estimate Std. Error t-value Pr(>|t|)
EC      -5.7076e-02  1.8080e-02  -3.1568  0.003898 **
P       4.2009e-03   9.5391e-03  0.4413  0.6633 ***
GGDP    3.1512e-03   8.5794e-04  3.6730  0.001044 **
GDP     5.3971e-04   4.9012e-04  1.1012  0.280541
Tuc     5.4777e-04   1.0315e-04  5.3105  1.324e-05 ***
TA      2.5401e-10   4.0115e-11  6.3320  8.864e-07 ***
ROA     4.6061e+00   6.7416e-01  6.8323  2.439e-07 ***
ROE     1.5794e-01   1.6098e-01  0.9811  0.335248
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Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Total Sum of Squares: 0.061605
Residual Sum of Squares: 0.0081934
R-Squared : 0.867
Adj. R-Squared : 0.65025
F-statistic: 22.001 on 8 and 27 DF, p-value: 6.179e-10
    
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Source: prepared by the author based on R statistical package

VI. CONCLUSION

The penetration of behavioral finance has increased in the world since the early 2008. Behavioral finance are highly in GCC countries. Banking sectors in this economies have become increasingly concentrated by creating Islamic banks or opening Islamic windows. The banking literature has not yet reaches the impact of Islamic banking entry in the competition of banking industry. We provide an answer to this question at this paper. We contribute to the literature by exploring the factors trough which Islamic banking penetration alter the competition structure. Using bank level data to measure the impact of the entry of Islamic banks on banking competition in GCC countries during the period 2009-2014. We are able to provide a robust empirical evidence for positive link between Behavioral finance penetration and Banking competition over the time. Our finding has important policy implications for both policy makers and banking regulators in GCC countries for the entry of Islamic banking. This research is called in for identifying the channels in which Islamic banking penetration enhance the competition in Islamic banking sectors.

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