Performance of the Commercial Banks: The Case of Jordan

Ali Sulieman Al Shatti*

This research aims at examining the competitiveness of the Jordanian commercial banks by using the concentration ratios indices, and by estimating the impact of the banks competitiveness on their performance during the time period (2005 - 2012). To achieve the research objectives the concentration ratio and Herfindahl - Hirschman (HHI) indices have been measured on the basis of the market share of the largest four banks in terms of their total assets, total deposits and total credit facilities, at a descending order of the largest four banks to examine the banks competitiveness, and a model has been used to estimate the impact of the competitiveness indicators on the banks profitability. The empirical results show that there is a high concentration ratio among the largest four banks, relative to the all other Jordanian commercial banks, and an increase in the total assets and total credit facilities, leads to an increase in the banks’ profitability, while an increase in the banks’ total deposits leads to a decline in their profitability, so the researcher think that this conclusion related to existing of an excess cash in the banks treasuries resulting from the increased volume of untapped deposits, and the banks are not enough able to re-invest these deposits in a profitable projects for their benefits.

Keywords: concentration ratios, competitiveness, Jordanian commercial banks, banks profitability.

1. Introduction

Organizations today are much concerned of competitive advantage more than ever, due to the many factors such as the continuous changes that occur in today’s business environment, the rise of globalization, the advancement of science and technology as well as information technology and the effects of these factors on organizations profitability.

In Jordan, and like other developing countries, has seen changes in the financial sector with the aim of integrating the Jordanian economy with the global markets, Jordan has begun banking and financial freedom, and reconsidering the existing regulations and laws, as well as the enactment of the new laws, as prerequisites to repair infrastructure and make it able to accommodate with datum of the era of globalization and economic openness. These developments have been accompanied by new competitive challenges for all sectors of the national economy, including the banking sector, since this sector constitutes great importance in the Jordanian economy, as well as the repercussions of the global financial crisis in recent years on the reality of the Jordanian economy.

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In light of the intensive competition faced by the Jordanian commercial banks, locally, regionally and internationally, and as a result of the openness of the Jordanian market on the foreign markets, the Jordanian commercial banks strive to enhance their competitiveness.

So, this research seeks to answer the following questions:

1. Is there a competitiveness among the Jordanian commercial banks?
2. Is there a concentration among the largest four banks relative to all other Jordanian commercial banks?
3. What is the impact of the banks market share in terms of total assets on banks profitability?
4. What is the impact of the banks market share in terms of total deposits on banks profitability?
5. What is the impact of the banks market share in terms of credit facilities on banks profitability?
6. What is the impact of the Jordanian commercial banks competitiveness on their profitability?

The purpose of this research is to examine the competitiveness of the Jordanian commercial banks by using the concentration ratio indices, to estimate the impact of the banks market share on the banks’ profitability, and to estimate the impact of the banks competitiveness indicators on the banks’ profitability.

This research consists of two parts: The first aims to examine for Competitiveness in the Jordanian commercial banks during the time period (2005 - 2012), by calculating the concentration ratio and Herfindahl - Hirschman index (HHI), whereas the second part concentrates on estimating the impact of banks competitiveness on banks’ profitability.

The research organized as follows: Section two presents an extensive review of literature on the impact of banks performance on their profitability. Section three spells out the methodological approaches used in this research. While Section four focuses on the analysis of the research hypotheses, and to show the contribution of research results in the provision of a new addition to previous studies. Finally, section five suggests the significance of these findings for decision makers in the Jordanian commercial banks, and lastly the research recommendations.

2. Literature Review

This section discusses some empirical and theoretical literature on the measurement of competitiveness in the banking sector literature and the impact of the competitiveness indicators on banks profitability, introduces an overview of Jordanian commercial banks.

2.1 Theoretical Literature

The measurement process of competition in the banking sector literature has been categorized into two approaches: structural and non-structural approaches. The structural approach measures competition based on market structure indicators such as concentration
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ratios. The non-structural approach on the other hand examines competitive conditions based on bank level behavior.

There are two competing explanations about the relationship between market concentration and firms’ performance (profit) that are at the center of the structural approach: the structure-conduct-performance (SCP) hypothesis and the efficient-structure (ES) hypothesis.

The SCP paradigm assumes that in concentrated markets, banks can easily arrange collusive agreement and exercise market power. Empirically, a positive relationship between profitability and market concentration indicates that the market is less competitive.

The ES hypothesis (Demsetz, 1974) on the other hand asserts that the positive relationship between profit and concentration in concentrated markets could result from the banks’ efficiency gains (cost advantage) contrary to the collusive behavior.

Banks with superior managerial capability or production technology have lower costs which enable them to take a larger market share and generate higher profit. Under the ES hypothesis the positive statistical relation between profitability and industry concentration could be explained by efficiency gains of banks.


2.2 Empirical Review

A number of researches have examined the measurement of competitiveness in the commercial banks and its impact on the banks profitability. The results varied from one research to another.

Scholtens (2000), ‘competition, growth, and performance in the banking industry’, he analyzed the relationship between market structure and the performance of the banking industry, through testing hypotheses on whether size matters for individual banks' profit performance. He found those banks profits are inversely related to the amount of bank assets are positively associated with the amount of tier-one bank capital.

Bikker and Haaf (2002), examined competitive conditions and market structure in the banking industry, and investigated their interrelationship. They found that competition is weaker in local markets and stronger in international markets. And the impact of the market structure on competition viewed that concentration impairs competitiveness.

Guevara et al. (2007) analyzed the evolution of the convergence in interest rates and the level of competition and its inequalities among the European banking systems for the period 1993 to 2001. The inequality index used –the Theil index- allows us to break down the inequalities so that the importance of either a country effect or a specialization effect is quantified. If the former effect dominates it would mean that the national banking markets are segmented as a consequence of the existence of obstacles or barriers to the integration. On
the other hand, the dominance of the latter effect would be related to the different level of competition depending on the type of banking specialization.

Leuvensteijn et al. (2008) researched into competition and lending in the Italian banking industry. The Boone indicator of competition was applied on banking firms of eight major countries during the 1994-2004 periods. They concluded that a fairly stable level of competition, slightly increases over time, even when concentration increases.

Bikker and Spierdijk (2009), ‘Measuring and explaining competition in the financial sector’, they found that banking competition is explained, using explanatory variables of market structure, contestability, inter-industry competition, and institutional and macro-economic conditions.

Eggert (2012), ‘A Strategy Analysis Of the “Big Five” Canadian Banks’, The study findings showed that the Canadian banking industry is effectively an oligopoly, with a small number of banks controlling the lion share of the system. He found that the Canadian banking sector is stable, very well developed, highly competitive and considered one of the safest financial systems in the world.

Park (2013) ‘testing for Competition in the South Korean and Chinese Commercial Banking Markets’, the study found that along with decreased market concentration, competition in the Chinese banking industry has improved moderately.

This research improves on some of the existing studies, in that it seeks to investigates for competitiveness in the Jordanian commercial banks by measuring the concentration ratio and Herfindahl - Hirschman index (HHI), and then to estimate the impact of the banks concentration in terms of total assets, total deposits, and total credit facilities, , and the impact of its main competitiveness on the banks performance(profitability. ). It also contributes to the existing literature in the provision of a new addition to previous studies.

2.3 Jordanian Commercial Banks

The banking sector in Jordan distributed into three types of banks, namely:
1. The commercial banks.
2. The Islamic banks.
3. The foreign banks in Jordan.

The Jordanian Commercial Banks sector consists of (13) Banks, as follows:
2.4 Research Hypotheses

Based on the research problem and its objectives, the research hypotheses have been formulated as follows:

1. H0: there is no statistically significant impact of the banks’ competitiveness on the banks’ profitability.

2. H0: there is no statistically significant impact of the banks’ market share in terms of the total assets on banks’ profitability.

3. H0: there is no statistically significant impact of the banks’ market share in terms of the total deposits on banks’ profitability.

4. H0: There is no statistically significant impact of the banks’ market share in terms of the total credit facilities and on banks’ profitability.

3. The Methodology and Model

3.1 Data

This research consists of two parts: The first one aims to examine for competitiveness in the Jordanian commercial banks by measuring the concentration ratio and Herfindahl - Hirschman index (HHI), whereas the second one concentrates on estimating the impact of competitiveness on banks’ profitability during the time period (2005 - 2012). The research population consists of the 13 Jordanian commercial banks and the research sample consists of the largest four commercial banks on the basis of their total assets, total deposits, and total credit facilities, (Arab Bank, the Housing Bank, Jordan Kuwait bank, Jordan national Bank), sources of data: the research is based on the annual financial statements issued by the banks and published at Amman Stock Market.

3.2 Model Specification

The following model used to estimate the impact of competitiveness indicators on the banks’ profitability, as follows:
\[ Y = a \pm \beta_1 (X_1) \pm \beta_2 (X_2) \pm \beta_3 (X_3) \pm \beta_4 (X_4). \]

Where the symbols represent the following:

- **Y**: The profitability of the Jordanian commercial banks, measured by the net income after taxes (Ln NI).
- **X1**: Total assets (Ln TA).
- **X2**: Total deposits (Ln TD).
- **X3**: Total credit facilities granted by the banks (Ln TCF).
- **X4**: A measure of the bank concentration (HHI) in terms of the banks’ total assets.
- **a**: Represents the point of intersection with the y-axis.
- **\( \beta \)**: Represents the value of the independent variable slope, and is the value of the independent variables coefficients.

### 3.3 Research Variables Definition

**Table 2: Variables definitions**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Explanations</th>
<th>Measurement Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Banks Profitability</td>
<td>Ln. NI</td>
</tr>
<tr>
<td>X1</td>
<td>Total Assets</td>
<td>Ln. TA</td>
</tr>
<tr>
<td>X2</td>
<td>Total Deposits</td>
<td>Ln. TD</td>
</tr>
<tr>
<td>X3</td>
<td>Total Credit Facilities</td>
<td>Ln. CF</td>
</tr>
<tr>
<td>X4</td>
<td>Bank Concentration</td>
<td>HHI Index</td>
</tr>
</tbody>
</table>

- The dependent variable: the Banks’ performance represented by banks’ profitability, and measured by the Ln net income after taxes.

- The independent variables:
  - Ln total assets.
  - Ln total deposits.
  - Ln total credit facilities.
  - The banks concentration measured by (HHI) index.

### 3.4 Data Analysis

The research objectives have been achieved as follows:

1. Examining of competitiveness in the Jordanian commercial banks by measuring the concentration ratio and Herfindahl- Hirschman index (HHI), on the basis of the total assets, total deposits, total credit facilities held by the largest four banks as a percent of those held by the all (13) Jordanian commercial banks during the research period.

- the concentration ratio is measured by dividing the market share of the largest four banks on the total market share of the all Jordanian commercial banks, as follows:
\[ Cr = \sum \frac{X_i}{X}. \]

Where:

- \( Cr \): Represent the concentration ratio.
- \( X_i \): The market share of the largest four banks.
- \( X \): The total market share of the all (13) Jordanian commercial banks.

- Whereas the Herfindahl- Hirschman index; equals the sum of the squared percent of total assets, total deposits, and total credit facilities held by the largest four as a percent of those held by all Jordanian commercial banks, this index is used to distinguish among banks according to their market share. The values of Herfindahl- Hirschman index range between zero and one, in which the value of one reflecting a complete monopoly in the market due to the existence of a single producer, whereas the decrease in the ratio indicates that an increase in the number of banks operating in the sector and increase competitiveness among them.

The formula of Herfindahl- Herschman Index as follows:

\[ HHI = \sum \left( \frac{X_i}{X} \right)^2. \]

2. Estimating the impact of the banks competitiveness on the banks’ profitability measured by the net income after taxes (NI).

### 3.5 Statistical Analysis and Interpretation

#### 3.5.1 Analysis of concentration ratio indices

As the research seeks at examining the competitiveness in the Jordanian commercial banks by using the concentration ratio and HHI indices, the analysis results were as follows:

- Results of the concentration ratio analysis

<table>
<thead>
<tr>
<th>Year</th>
<th>Concentration ratio of total assets</th>
<th>Concentration ratio of total deposits</th>
<th>Concentration ratio of total credit facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>0.80098289</td>
<td>0.808923407</td>
<td>0.78891309</td>
</tr>
<tr>
<td>2006</td>
<td>0.79421730</td>
<td>0.788569057</td>
<td>0.78610304</td>
</tr>
<tr>
<td>2007</td>
<td>0.80142687</td>
<td>0.800853189</td>
<td>0.79799221</td>
</tr>
<tr>
<td>2008</td>
<td>0.79900413</td>
<td>0.800051575</td>
<td>0.79119815</td>
</tr>
<tr>
<td>2009</td>
<td>0.78505699</td>
<td>0.777329933</td>
<td>0.77588390</td>
</tr>
<tr>
<td>2010</td>
<td>0.79096849</td>
<td>0.769109839</td>
<td>0.75941689</td>
</tr>
<tr>
<td>2011</td>
<td>0.77480684</td>
<td>0.768925437</td>
<td>0.74892259</td>
</tr>
<tr>
<td>2012</td>
<td>0.64247877</td>
<td>0.668873252</td>
<td>0.60723156</td>
</tr>
</tbody>
</table>
The table above shows that there is a significant concentration among the largest four banks in terms of their total assets, total deposits and total credit facilities, and that means the largest four banks (Arab Bank, the Housing Bank, Jordan Kuwait bank, Jordan Ahli Bank), account for a high percentage of the market share of the all Jordanian commercial banks, especially in terms of assets, deposits and credit facilities.

- Results of Herfindahl- Hirschman index analysis

The Herfindahl- Hirschman index (HHI) measures the market share of the largest four banks relative to the market share of the all commercial banks on the basis of the banks market share in terms of total assets, total deposits, and total credit facilities held by the four largest banks relative to those held by the all Jordanian commercial banks during the research period, so it is considered as an indicator of the competitiveness level among banks.

<table>
<thead>
<tr>
<th>Year</th>
<th>HHI index for total assets</th>
<th>HHI index for total deposits</th>
<th>HHI index for total credit facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>0.641574</td>
<td>0.387361676</td>
<td>0.622383865</td>
</tr>
<tr>
<td>2006</td>
<td>0.630781</td>
<td>0.381872071</td>
<td>0.617957985</td>
</tr>
<tr>
<td>2007</td>
<td>0.642285</td>
<td>0.405503506</td>
<td>0.636791572</td>
</tr>
<tr>
<td>2008</td>
<td>0.638408</td>
<td>0.391869139</td>
<td>0.625994520</td>
</tr>
<tr>
<td>2009</td>
<td>0.616314</td>
<td>0.362398981</td>
<td>0.601995831</td>
</tr>
<tr>
<td>2010</td>
<td>0.625631</td>
<td>0.332599046</td>
<td>0.576714007</td>
</tr>
<tr>
<td>2011</td>
<td>0.600326</td>
<td>0.314592039</td>
<td>0.560885050</td>
</tr>
<tr>
<td>2012</td>
<td>0.412779</td>
<td>0.135961941</td>
<td>0.368730173</td>
</tr>
</tbody>
</table>

As the value of Herfindahl-Hirschman index ranges between zero and one, in which the value of one reflecting a complete monopoly in the market due to the existence of a single producer, whereas the decrease in the ratio indicates that an increase in the number of banks operating in the banking sector, that means increasing competitiveness among them. Where the HHI index values for the total assets and total credit facilities are about 60% that there is a monopoly in the banking sector, with roughly about 40% of competitiveness in the Jordanian banking market. While the index values for the total deposits are about 30%, which indicates that the existence of more competitiveness among Jordanian commercial banks regarding the total deposits item.

3.5.2 Statistical Analysis

This research applies the descriptive and econometrics analysis approach in examining the impact of banks competitiveness on their profitability during the time period (2005–2012), by using the multiple regression method, which is being estimated by the least squares method (OLS), through applying the statistical program (STATA) on the cross sectional data, related to the indicators of competitiveness and profitability during the period of the study, based the annual reports issued by the Jordanian commercial banks, and other relevant previous studies conducted on the banking profitability and competitiveness in Jordan banks and in other countries around the world.
• The co linearity Diagnostics test

To examine if there is a linear correlation between one independent variable and the other independent variables, the values of Variance Inflation Factor (VIF) derived from the analysis output are a good indicators of the linear correlation, as follows:

<table>
<thead>
<tr>
<th>1/VIF</th>
<th>Variance Inflation Factor (VIF)</th>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.844976</td>
<td>1.18</td>
<td>TDR</td>
</tr>
<tr>
<td>0.898014</td>
<td>1.11</td>
<td>TCFR</td>
</tr>
<tr>
<td>0.927237</td>
<td>1.08</td>
<td>TA</td>
</tr>
<tr>
<td>0.980186</td>
<td>1.02</td>
<td>LHH</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>1.10</td>
<td>Mean VIF</td>
</tr>
</tbody>
</table>

We accept one of the following hypotheses:

**Ho:** There is no existence of a linear correlation between one independent variable and the other independent variables.

**H1:** There is an existence of a linear correlation between one independent variable and the other independent variables.

Resolution base as follows:

If the value of VIF > 10, there is a problem a linear correlation.

From the values of (VIF) in the table above, we note that there is no existence of a linear correlation among the independent variables, so we accept the null hypothesis (Ho).

• Testing for the suitability of the multiple regression model

To examine the suitability of the multiple regression model for analysis, by using the distribution (F-Fisher) test, one of the following hypothesis will be rejected;

**Ho:** the model is not appropriate; if there is no impact of the independent variables on the dependent variable.

**H1:** the model is appropriate; if there is an impact of the independent variables on the dependent variable.

The decision rule as follows:

Accept H0 If (Sig. F) > 5%.
Accept H1 If (Sig. F) <5%. 
From the analysis output, the value of (Sig. F) equals to (0.000) which is less than 5%. This means that we reject the null hypothesis and accept the alternative one and the model used is appropriate, that there is a statistically significant impact of the banks competiveness indicators on the profitability of the Jordanian commercial banks.

And we note that the total variation of the dependent variable explained by the independent variables (R-squared) equals to (0.9052) which is statistically significant at the level of less than (0.05) where (Sig. R = 0.000), and the value of the determination coefficient (adjusted R-squared) equals to (0.9118).

- The correlation analysis test:

To examine the correlation between the dependent variable and the independent variables, we accept one of the following hypotheses:

**H0**: There is no statistically significant correlation between the banks competiveness and their profitability.

**H1**: There is a statistically significant correlation between the banks competiveness and their profitability.

The decision rule as follow

Accept H0 if (Sig. R) > 5%.
Accept H1 if (Sig. R) <5%

The analysis outputs show that the significant of the correlation value equals to (Sig. R = 0.000), that there is a statistically significant correlation between the banks competiveness and the profitability of the Jordanian commercial banks.

- The research hypotheses test:

The following model used to examine the impact of banks competiveness indicators on the banks profitability, as follows:

\[ Y = \alpha \pm \beta_1 (X1) \pm \beta_2 (X2) \pm \beta_3 (X3) \pm \beta_4 (X4). \]

To examine the total variation in the dependent variable explained by the independent variables, we accept one of the following hypotheses:

**H0**: There is no statistically significant impact of the banks competiveness on their profitability.

**H1**: There is a statistically significant impact of the banks competiveness on their profitability.
Table 6: Coefficients of the independent variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients</th>
<th>Sig. t</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1</td>
<td>+0.8494911</td>
<td>0.011</td>
</tr>
<tr>
<td>X2</td>
<td>-0.0209431</td>
<td>0.000</td>
</tr>
<tr>
<td>X3</td>
<td>+0.0365258</td>
<td>0.000</td>
</tr>
<tr>
<td>X4</td>
<td>+0.00000004</td>
<td>0.000</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.0000002</td>
<td>0.013</td>
</tr>
</tbody>
</table>

Based on the coefficients values in the table above, the regression equation will be written as follows:

\[ Y = -0.00000002 + 0.8494911 (X_1) - 0.0209431 (X_2) + 0.0365258 (X_3) + 0.00000004 (X_4). \]

4. The Findings

The research aims at examining the competitiveness of the Jordanian commercial banks by using the concentration indices (the concentration ratio and HHI), and then estimating the impact of banks competitiveness on the banks profitability.

The empirical results of the concentration ratio show that there is a high percent of a concentration among the largest four banks, as a percent of all other Jordanian commercial banks, in terms of total assets, total deposits and total credit facilities.

This means the largest four banks account for the largest market share compared with the all other Jordanian commercial banks, which weakens the chance of competition among these banks and at the same time increases the chances of concentration and monopoly, this result is consistent with what Bikker and Haaf found in their research, that the impact of the market structure on competition viewed that concentration impairs competitiveness, but is inconsistent with what Kunt and Peria indicated that although concentration has declined, competition in the country is low and has decreased over time.

According to the Herfindahl and Hirschman Index, their ratios ratios are closer to the reality than those of the concentration ratio, and this is resulting from the squaring of the market share of each bank, where the concentration ratios of this index is about 60% in total assets and total credit facilities, and about 40% in total deposits, that means the Herfindahl-Hirschman index values indicate to a decline in concentration ratios in favor of increasing the competitiveness ratios between the Jordanian commercial banks, and so there is a significant percent of a competitiveness among the Jordanian commercial banks, especially in the bank deposits item, which indicates that the depositors distribute their deposits on more than one bank not only at a specific banks through diversifying their deposits, to get the highest available interest rate among banks.

In estimating the impact of the competitiveness of the Jordanian commercial banks (by its four indicators) on the banks profitability, there is a statistically significant positive impact of the banks competitiveness by their total assets, and total credit facilities, and a negative impact in terms of deposits on the banks' profitability of these banks during the research period.
So an increase in the total assets and total credit facilities leads to an increase in the banks’ profitability, while an increase in the banks’ total deposits leads to a decline in the banks’ profitability. This conclusion conforms with the claims of some bankers that there is an excess cash in their banks funds resulting from the increased volume of untapped deposits, since the banks are not enough able to re-invest these deposits in a profitable an increase.

5. Summary and Conclusions

Based on the research findings, the researcher concluded that, there is an existence of competitiveness among Jordanian commercial banks especially at the deposits aspect, in spite of increasing in deposits item doesn’t lead to increasing in banks profitability, and this is due to the increased volume of untapped deposits.

This requires that the Jordanian commercial banks should apply a certain banking policies may enable them to face the competitiveness challenges of other banks operate in the same market by adjusting the operating, financing, and investing costs in order to increase their profitability, and they have to work hard to attract the least expensive deposits and to re-invest them more efficiently and effectively in a successful investments.

These results insure that there is a need for the monetary authorities should take the lead in developing the applied laws and regulations which control the banks expansion in the local market, to reduce the negative impact of the concentration on the banks profitability and to encourage the spirit of competition among them, to reduce the power among these banks and and lastly to help them in increasing the competitiveness among them, in order to enhance profitability of the Jordanian commercial banks.

References


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