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Evaluation of the Impact of Competition on the Profitability of Commercial Banks in Iraq

Ameen Fahad Jayed
Iraqi Ministry of Education

Abstract: The increase in the number of banks and the increase in the needs of customers and banking products and the entry of technology into the banking business have led to an increase in the intensity of competition in the banking sector in Iraq, and the impact of competition in the banking sector on the profitability of banks has not been studied. Banking and risk reduction are important in many aspects. This paper studies the impact of competition on profitability in the Iraqi banking sector using an OLS estimator through a data set of 21 commercial banks in the Iraqi Stock Exchange. The main results showed that the high competition index leads to the achievement of lower profits by Iraqi banks, because these banks tend to reduce the degree of risks they bear, which in turn brings profits, which is measured through the return on shares and net investment. In addition, our empirical results also show that banks tend to increase collateral to reduce risk when faced with increased competition.

Keywords: competition, profitability, banking sector.

Introduction

Competition is an important factor in the activation and development of banking and its reflection on the economy, including banking services, and therefore competition deserves a lot of attention and discussion in the literature. Since the banking system has a significant contribution throughout the economy, competition in the banking sector is a key factor for efficient resource allocation, achievement, innovation and pricing in the economy. Moreover, since banks play prominent roles in resource allocation and capital allocation not only to the financial system but also to the economy as a whole, it is important to understand competition and its relationship to other factors in the sector as they are of particular importance (Tan, 2016; Borio, 2020; Nguyen and Tran, 2020).

The topic of links between competition and profitability in the banking sector has become increasingly important and is attracting more attention not only in mature economies but also in emerging countries (Louati et al., 2015; Turk Ariss, 2010). According to the literature, banking competition may affect the entire banking system through two opposite mechanisms. On the one hand, the low level of competition between banks encourages the adoption of safer policies to ensure the highest values of banks, and thus this contributes to the stability of the entire banking system (Berger et al. 2009).

On the other hand, banking competition negatively affects the solvency of banks, as their franchise values may be exposed to certain risks, and this may lead to disruption of the banking system at the macro level. Moreover, the increasing competition between banks encourages them to adopt risky strategies and engage in riskier loan portfolios, and this leads to lower levels of capital in order to maintain their

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previous profits. These more risky policies are likely to lead to loan defaults, leading to more bank failures (Anginer et al., 2014; Berger et al., 2009).

The analysis was carried out in many studies on the subject of competition and profitability and in a broad way in the financial literature, as the relationship between competition and profitability in the banking sector was studied by many researchers (Delis and Tsionas, 2009; Homma et al., 2014; Nguyen and Tran , 2020). And there were no similar results, nor were they conclusive, as it was found (Tan, 2014; Bunea, 2022) that banks tend to achieve higher profits when increasing the level of competition in the banking sector, which leads to the stability of the banking system, on the other hand, (Soedarmono et al, 2011) indicated that the decrease in competition in the banking sector leads to an increase in the profits of banks, and this may reflect the monopoly of banks to provide services according to the study area.

The current study attempts to provide a deep insight into the relationships between competition and profitability within the banking sector due to the prominent role that banks play in the activity of the economy as a whole, and its reflection in turn on both the performance of banks, stability and economic growth, so it is necessary to understand the nature of the relationship between competition and profitability, which is a critical matter Importance.

The current paper aims to explore the impact of competition on profitability in the banking sector by studying the data of (27) banks listed on the Iraqi Stock Exchange during the period (2013-2020).

As (OLS) estimates were used to test the relationship between the variables of the study, it was found that banks in the case of competition are more efficient in terms of net interest margin, but in terms of return on assets and return on equity, they achieve lower profits, and this may be due to the policy followed by the banks Which is based on avoiding risks.

While the rest of the paper sections discussed the literature related to the study in Section 2, Section 3 was devoted to describing the data and methodology used to measure the relationship between competition and profitability, while Section 4 presents the results of the empirical analysis of the study variables.

1. Literature review

The effect of banking competition on profitability

The issue of profitability in the banking sector is a subject of interest and focus by researchers and academics in developed and developing countries, and many empirical and theoretical studies have been conducted and have been studied on a large scale because of this sector's vital role in internal and external economic activity, especially in light of the expansion of the concept of profitability in the banking sector. Globalization and economic and trade integration between countries.

A number of studies have presented a number of hypotheses that explain the relationship between competition and profitability in the banking sector, as there are two main hypotheses to explain the relationship, the first is referred to as the Hypothesis of Structure, Behavior and Performance (SCP), which indicates the existence of a positive association between competition and profitability. This hypothesis argues that the banks listed in the concentrated market, which reflect a low level of banking competition, have the ability to generate monopolistic profits through a policy of granting higher loans and lower deposit rates. It can be said, in light of the SCP hypothesis, that banks with a lower degree of competition often have a greater ability to achieve monopolistic or abnormal profits (Tan, 2016; Batten and Vo, 2019).

As for the other hypothesis, which is called the Effective Structure (ESH), which indicates the existence of a negative relationship between competition and profitability. As this hypothesis assumes that the nature

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of competition in the banking sector leads to pressure on banks to become larger and more efficient. The main objectives of banks operating in a competitive environment include achieving higher profits and obtaining a high percentage of market share (Homma et al, 2014). Accordingly, this ends up in higher profitability of banks. In other words, this hypothesis indicates that the significant impact that competition plays on the profitability of banks arises from a higher level of efficiency of banks that have a larger market share and not from strength and supports this view (Lloyd-Williams et al, 1994), as it provides evidence to support this view. The hypothesis suggests that banks that have high efficiency have the ability to increase their market share and bank size.

Experimental studies presented mixed results about the relationship between competition and profitability, as many studies supported by evidence showed results that confirmed the positive relationship between competition and profitability, as (Ul-Huq, 2020; Turk Ariss, 2010) confirmed through the experiments conducted on data The study that market efficiency and the high degree of competitiveness in the banking sector have the effect of enhancing the profitability efficiency of banks and increasing the bank's stability despite the great losses in cost efficiency, and this confirms the positive relationship between banking competition and the profitability of banks. (Dinu & Bunea, 2019) also believes that the increased competition has a positive impact on the bank's profitability through a positive impact on banking stability.

In contrast, many of the literature that referred to the negative relationship between competition and the profitability of banks, they tested (Beck et al, 2006; Tan, 2014) the relationship between competition and profitability in the banking system by examining the data of 69 countries, as it was found that The high level of banking competition leads to a decrease in the concentration of the largest banks, which leads to a decrease in the profitability of banks. Also (Yong et al, 2017) supports this result from his study on commercial banks in China, where he found that high competition in the banking industry in China causes the profitability of banks to decrease, and that banks with high levels of cost efficiency have a lower return. From the assets, and this supports the second hypothesis, which refers to the negative causal relationship between competition and profitability.

Dinu, & Bunea (2022) also indicates that the high level of competition in the banking sector may lead to the fragility of banks and to more risks, and thus may cause default in the repayment of loans to customers, individuals and institutions, and thus reflect the negative impact of competition on the profitability banks.

There are a number of literature that indicated the non-linear relationship between banking competition and profitability, as Fu and Heffernan (2009) tested the relationship between market structure and performance in the banking sector in China during the period (1985-2002), and data estimation techniques were used. The board is for the purpose of testing the relevant study hypotheses such as market power and effective structure, and it did not produce any relationship between competition and bank efficiency (Nguyen and Tran, 2020). (Koetter et al. 2012) supports this view, as another test was conducted to investigate the relationship between bank competition and profitability on a sample of commercial banks in America for the period (1976-2007), and used Lerner's modified indicators and cost efficiency with The efficiency of profitability, and it was found that Lerner indicators are negatively related to the efficiency of profitability, which indicates the non-linear relationship between competition and profitability of banks.

The banking sector in Iraq

The banking sector in Iraq has faced many difficult challenges at the structural level and the laws regulating banking work as a result of political fluctuations and the change of governance systems. The

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technology is new to banking in Iraq, and banks are young in using technology, which made them modern in communication with foreign banks, international work and openness to the world.

Deposits in local banks achieved remarkable growth by the end of 2021, despite the repercussions of the health crisis, and the growth may be greater this year with higher incomes from the oil trade.

According to central bank data, total deposits increased by about 15 percent in 2021 on an annual basis to reach about (102.4) billion dollars, and total assets in the banking sector increased by (67) billion dollars, and the volume of deposits in the year 2020 was (59.5). One billion dollars, and loans granted to individuals and companies amounted to more than (36.5 billion dollars), after it was in the year 2020 about 35 billion dollars.

As the increase in banking indicators is due to the high confidence between customers and banks and the spread of banking awareness due to the strategy of the Central Bank that worked to develop the sector and increase and diversify services. These results come despite the fact that financial services using technology are still weak in the oil-producing country, despite the launch of the Trade Bank of Iraq application for financial services via mobile phone with the aim of developing follow-up of the movement of funds and increasing revenues.

Official figures show that about seventy banks operate in Iraq, but most of them have not entered into any updates to enable them to benefit from financial technology, which has become one of the determinants that measure standards of transparency and speed in securing payments and commercial transactions.

According to official statistics, only three major banks, namely Al-Rafidain, Al-Rasheed and the Trade Bank of Iraq, account for about 85 percent of the total assets of the banking sector. There is only one major international bank currently operating in the country, Standard Chartered, which has a few branches and focuses on major government projects.

2. methodology

Model

For the purpose of testing the relationship between the study variables and modeling the impact of banking competition on the profitability of commercial banks, the following equations are used:

Profitabilityit =α0+α1∗Compeit+ α2 ∗A_GROit+α3∗DP_TAit+α4∗L_GROit (1)

Where profitability refers to the profitability of commercial banks. In this research, a number of measures are used to estimate profitability, as it is based on the ratio of return on assets, which represents the total return on assets, and the return on equity, which is the division of the total return on equity and net investment, which is calculated as a ratio of net interest income to total profitable assets. These metrics for estimating banking profitability are widely used in previous studies (Alhassan et al., 2016; Athanasoglou et al., 2008; Dietrich and Wanzenried, 2011; García-Herrero et al., 2009; Tan, 2016).

Compeit refers to the variable banking competition. In this paper, we use the Herfindahl-Hirschman index as indicators to measure banking competition, and a higher value of this indicator indicates lower competition. The Herfindahl-Hirschman Index is defined as the sum of the squares of the market shares of all banks in the banking system:

$$HHI = a_0 + \sum_{i=1}^{K} (marketshare_i)2$$

The market share of banks is represented by the bank's total assets.

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We also include the following control variables that are likely to explain the profitability of banks as follows.

Table (1) Variables and Measures Necessary for them

Variables	Measurement	Source
Bank profitability		
NIM	net interest income / earning assets	Bank scope
ROA	Net income/total assets	Bank scope
ROE	Net income/shareholder's equity	Bank scope
Bank competition	Net Interest income/earning assets	Bank scope
COMP	$HHI = a_0 + \sum_{i=1}^{K} (marketshare_i)2$	Data of bank
Bank-specific variables		
A_GRO	Growth in the bank's assets	Data of bank
DP_TA	he percentage of capital mobilization of the banl	Data of bank
L_GRO	Total loan to total assets	Data of bank

The table was prepared by the researcher

The A_GROit indicator is a measure of the growth of the investigated bank's assets in year t, as it is estimated through the growth rate of total assets for the current year compared to the previous year. Where the A_GRO indicator was relied on in the model to control the effects of rapid expansion strategies on the profitability of commercial banks in Iraq (Lee et al., 2014; Sanya and Wolfe, 2011).

Also (DP_Tait) is an indicator that reflects the percentage of capital mobilization of bank i in year t, as this indicator is measured by dividing the total capital mobilized by the total assets of the bank (Lei and Song, 2013; Lepetit et al., 2008).

As for (L_GROit) it is the growth rate of loans owed by bank i in year t, and it represents the growth rate of bank-based loans for the current year compared to the previous year.

The data

These data, which were relied upon to implement the study, cover all banks operating and listed in the Iraq Stock Exchange, which fall within the period (2014-2020), and the data of the study sample banks are obtained from the Iraq Stock Exchange and the Central Bank of Iraq, Through audited financial reports published on the official website of both the market and the Central Bank.

27 banks participate in the Iraq Stock Exchange, as shown in Table (2).

Table (2) Iraqi banks participating in the Iraqi market

Mosul Bank for Development and Investment	Gulf Commercial Bank	Baghdad Commercial Bank
Al Ataa Islamic Bank for Investment and Finance	Regional Commercial Bank	International Islamic Bank
Al-Qidd Islamic Bank for Finance and Investment	Al-Ansari Islamic Bank for Investment and Finance	Arab Islamic Bank

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Al Qirtas Islamic Bank	International Development Bank for Investment and Finance	Al-Qidd Islamic Bank
Islamic advisor bank for investment and finance	International Islamic Trust Bank	Noor Iraq Islamic Bank
Mashreq Arab Islamic Investment Bank	Al Janoub Islamic Bank for Investment and Finance	Erbil Investment and Finance Bank
Amin Bank of Iraq for Investment and Islamic Finance	Al Rajeh Islamic Bank	Iraqi Credit Bank
Dar Al- Salaam Investment Bank	World Islamic Bank	Union Bank of Iraq
Dijlah and Al-forat Bank for Development and Investment	Arab Islamic Bank	Economy Bank for Investment and Finance

Table prepared by the researcher

Empirical results

Table (3) shows the descriptive statistics of the variables used in this analysis, as the mean, median, highest and lowest value of the variables are calculated, and the correlation matrix between the variables is displayed in Table (4). This table presents a preliminary overview of the association between the variables. This table also shows that all correlation coefficients are less than 0.8, confirming that there is no problem of multilinearity in the regression estimation.

Table (3). Descriptive Statistics for the Variables Employed in the Analysis

Table 1. Descriptive Statistics for the Variables Employed in the Analysis				
	Mean	**Median**	**Maximum**	**Minimum**
Bank profitability				
NIM	**0.0323**	**0.0295**	**0.1049**	**−0.0059**
ROA	**0.0139**	**0.0112**	**0.1583**	**0.0002**
ROE	**0.0947**	**0.0845**	**0.2846**	**0.0008**
Bank competition				
COMP	**0.0878**	**0.0835**	**0.1153**	**0.0750**
Bank-specific variables				
A_GRO	**0.3318**	**0.2009**	**5.8415**	**−0.4069**
DP_TA	**0.9709**	**0.9790**	**0.9927**	**0.8228**
L_GRO	**17.7946**	**17.8618**	**20.3095**	**14.5294**

Source: From the researcher's work based on the Eviews program

Through the results in the table above, the profitability variables include the return on assets index, the return on equity ratio, and the net income margin calculated by way of the ratio of net income generated from interest to total profitable assets. As for banking competition, it is measured through the Herfindahl - Hirschman index, which is measured by the sum of squares of market shares of all banks in the banking sector. A_GRO is calculated as the growth rate in the total assets of a bank for the current year compared to the previous year. L_GRO It is calculated as the growth rate in the volume of outstanding loans for the current year compared to the previous year. DP_TA is measured by the ratio of total capital mobilized divided by total assets.

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Table 4. Matrix of Correlation Coefficients Between Variables

	NIM	ROA	ROE	COMP	A_GRO	DP_TA	L_GRO
NIM	**1**						
ROA	**0.3957****	1					
ROE	**0.1252***	**0.4001****	1				
COMP	**−0.1303****	**0.0553****		1			
A_GRO	**−0.2283***	**0.0282**	**0.0465***		1		
DP_TA	**−0.0214****	**−0.0899***				1	
L_GRO	**−0.1596****	**0.0741***	**0.0811**			**0.6304***	1

−0.0075*

***** $p < 0.05$, ****** $p < 0.01$ ******* $p < 0.001$**

The current research aims to estimate the impact of competition in the banking sector on the profitability of commercial banks, where the regression of ordinary least squares (OLS) is used. And through Table (4) it becomes clear the regression results to estimate the relationship between the independent variable (competition) and the dependent variable (bank profitability). , ROE, NIM, and these results indicate that the relatively high level of competition between banks leads to achieving lower profits and with high efficiency in terms of the results of the net interest margin.

Table 5. Effect of Bank Competition on Bank Profitability

Table 3. Effect of Bank Competition on Bank Profitability						
	Dependent variable ROA		**Dependent variable ROE**		**Dependent variable NIM**	
Variable	**Coeff.**	t-**Stat.**	**Coeff.**	t-**Stat.**	**Coeff.**	t-**Stat.**
CC	**0.0378*****	**3.8751**	**−0.3432*****	**−2.6442**	**0.1057*****	**3.3914**
COMP	**0.0162**	**0.6224**	**0.4951*****	**4.0088**	**−0.1454*****	**−4.0019**
L_GRO	**−0.0008**	**−0.1663**	**−0.0414**	**0.3987**	**−0.0510**	**−2.3060**
A_GRO	**0.0006**	**0.5483**	**0.0309**	**0.7699**	**0.0442**	**−2.0142**
DP_TA	**−0.0041**	**−0.5028**	**−0.0357***	**−1.6454**	**0.3082*****	**3.5068**
RR-**squared**	**0.0801**		**0.1908**		**0.3466**	
Adj. RR-**squared**	**0.0694**		**0.1612**		**0.3387**	
FF-**statistic**	**3.941**		**9.5422**		**15.5502**	
Prob(FF **statistic)**	**0.0048**		**0.0000**		**0.0000**	

Source: From the researcher's work based on the Eviews program

Notes: This table presents OLS regression results of the equation

$Profitability_{it}=\alpha 0+\alpha 1*Compeit+ +\alpha 2*A\_GROit+\alpha 3*DP\_Tait+\alpha 4*L\_GROit+it$, in which

Through the results presented in the above table, the coefficients of the delayed dependent variables related to bank profitability (ROA, NIM and PBT) indicate the dynamic nature of the model specifications. It takes values of 0.057, 0.34 and 0.34 when profitability is measured by the ROA, ROE and NIM indicators respectively, which indicates that the profitability of Iraqi banks does not continue to rise if the competition index is high, and this means that the exit from the fully competitive market structure in the banking sector The Iraqi is not too big. In other words, the banking sector in Iraq has a relatively competitive structure.

It is clear from the results of Table (5) that the statistical value (F) is significant at the level (0.01), which means that the competition index has a significant effect on the profitability indicators of commercial

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banks, and the model used is appropriate to estimate the effects of banking competition on profitability in the banking sector.

Through the explanatory variables, it is clear that competition affects the profitability indicators of Iraqi banks clearly, as competition through the Herfindahl-Hirschman indicator is linked with the return on assets in a positive relationship with statistical significance, as well as with the return on equity, where the correlation is positive between them, which It refers to the achievement of increasing rates of ROA and ROE with the level of competition between banks, while competition is related to a negative relationship with the net interest margin of banks, which shows that the interest margin decreases when the competition index among banks rises, as there is a level of competition between Iraqi banks within the limits The possibility of the banking sector in Iraq.

As for A_GRO, which refers to the growth rate of the bank's total assets in the current year compared to the previous year of total assets, through the results in Table (3) it appears that there is a positive, statistically significant correlation of the A_GRO indicator with the profitability indicators ROA, ROE and NIM, as It is clear that Iraqi banks are keen to increase their total assets every year for the purpose of achieving the bank's goals, as it is noted that the rate of return on assets and the rate of return on equity are increased when the bank's total assets are increased, as well as the case for the interest margin, and this reflects the impact of A_GRO on the expansion strategies in profitability Banks and the risk of bankruptcy.

DP_TA represents the ratio of total loans to total assets, and it appears from the results in Table (3) a negative and significant correlation in the banking sector in Iraq. Where it appears that there is a negative correlation between the ratio of total loans to total assets with rates of return on assets and return on equity, and this reflects the tendency of banks to reduce this ratio for the purpose of increasing profits. It represents the bank's profits, and this result indicates that the increase in total loans increases the net interest margin, which represents the bank's target profit, which reflects the importance of DP_TA in influencing the bank's strategy and decisions.

Cunclosion

This paper aimed to assess the impact of competition on the profitability of commercial banks operating in the Iraqi market for securities, and the study included (21) commercial banks for the period (2013-2020). The Herfindahl-Hirschman indicator was used to measure the variable of banking competition, as well as the rate of return on equity ROE, the rate of return on assets ROA, and the net interest margin NIM to measure the variable of profitability, and some other indicators affecting the competition and profitability of commercial banks were also measured. .

Through standard results and using the Ordinary Least Squares estimator (OLS), this paper found that increasing the competition index in the banking sector leads to a decrease in the profitability of banks in terms of the return on assets index and the return on equity index, while it is more efficient in terms of the net interest margin index.

It also appears that small banks achieve higher profitability than large banks, and the reason for this may be that they do not engage in high-risk activities, and banks can achieve more profits by increasing the ratio of total loans to total assets, which may lead the bank to bear liquidity risks in return. Seeking to increase profits. Thus, the bank's management can, by controlling the ratios of loans and assets, achieve acceptable profitability ratios within the limits of the bank's objectives.

This paper appears important in urging the Iraqi government and the monetary authority to enhance banking work and spread banking culture for the purpose of integrating the majority of individuals into the

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banking system to enhance financial stability and support the role of banks in economic activity and its reflection on the development of financial markets and attracting investments in order to increase growth economic, and this shows the importance of the study through its relevance to the development of the banking sector and financial markets.

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