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The Impact of Concentration and Market Share on the Financial Leverage of Commercial Banks

An Analytical Study of Iraqi Private Banks

Dr. Ahmed Risian Albahadly
Email: ahmed.risian@uobasrah.edu.iq

Abstract

This study intends to investigate the drivers of financial leverage in Iraqi commercial banks and pinpoint the most significant influences on financial leverage using performance indicators for banks. Using time series cross-section data (Panel Data) for the years 2007 to 2021, this study was conducted on the thirteen Iraqi commercial banks listed on the stock exchange. Three models were utilized in this investigation. The results of the first model to assess the association between concentration and market share using return on assets (ROA) did not support concentration but did support the relationship between the bank's market share and financial leverage. As for the results of the second model, using the ROE as an indicator of performance, the results of the model indicated that there is a statistically significant direct relationship between concentration, market share, and financial leverage, which means that the performance of banks responds directly to concentration and growth in market share with financial leverage. As for the results of the third model, the performance indicator was not supportive of the market share, and the assessment of this model indicated that there is a direct statistically significant relationship between market concentration and the performance of banks, as measured by the ROD performance scale. This means that the performance of banks responds directly to market concentration with financial leverage. The three models differ in terms of the control variables that affect banking performance, with some being directly connected and others being inverse. Through the results of the three models, the study found that the controlling variable AT has a fixed inverse relationship in the three models. This is evidence that banks, whenever the financial leverage increases, the asset structure decreases, and vice versa.

Keywords: Market Share, Financial Leverage, ROD, ROE

1. Introduction

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In light of recent events, this paper examines market share and concentration and how they affect the financial leverage of Iraqi commercial banks. These developments had an impact on the banking industry through the international expansion of banks and the expansion of their activity outside the state. Due to the crucial role that commercial banks play in the growth of economic activities, it is now important to assess the level of competitiveness and profitability through financial leverage in the Iraqi banking sector, as well as the most significant economic factors that may have an impact on concentration and market share in light of the environment's high level of competition.

The first study by Mingo (1976) dealt with the concentration in commercial banks by determining the market power over price and non-price competition for customers in the banking markets. It discussed a basic hypothesis: that the market power resulting from concentration affects the bank's desire to compete. Whenever there is a certain increase in market concentration, it has a significant impact on prices. The study of Short (1979) was also one of the studies that dealt with concentration and its relationship to the performance of commercial banks. The study adopted a model that includes a set of variables related to the bank, such as government ownership, the growth rate in assets, and a set of economic variables, such as interest rate and inflation rate.

According to the study's findings, the concentration ratio and profit before taxes are directly correlated. According to Smirlock's (1985) research, the market share of deposits and concentration as determined by the SCP model are related to bank performance. The study used the ROA and ROE tools to gauge the bank's performance, but it came to the conclusion that it does not support the notion that the banking industry is concentrated, which would result in monopoly profits, and instead supports the efficiency structure hypothesis, or the market share of deposits.

Forbes and Molyneux study (1995) investigated the interpretation of the relationship between market power and the performance of European banks through a test conducted to examine the structure-behavior-performance model, i.e., the concentration ratio of assets for some banks, and the efficiency hypothesis, i.e., the market share of deposits and assets, and their relationship to the performance of banks. The results of the study indicated existence of a direct relationship between the concentration ratio and the performance of the bank. Samuel and Polius study (2000) applied the SCP model and the efficiency hypothesis to a sample of commercial banks using the ROA tool to measure the performance of banks as well as the market share of deposits and loans, where the study concluded that the profitability of commercial banks was affected by the efficiency of performance.

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Delong study (2001), which examined the occurrence of banking mergers between American banks between 1988 and 1995, explained the impact of banking concentration on generating value for shareholders. The findings indicated that while mergers within the banking sector of banking concentration improved shareholder value, those within the sector of banking diversification did not.

Acharya and Saunders (2006) study focused on determining the effect of diversification/concentration on bank returns through diversification/concentration of credit portfolios at the industry and economic sector levels. It included 105 Italian banks during the period 1993-1999. The study used the Herfindahl-Hirschman index to measure diversification/credit concentration, as well as the use of the ROA tool to measure the performance of banks. In addition, the performance of banks that rely on concentration in their portfolios is better than those that rely on diversification. Hayden and Western Hagen (2007) study raised two questions: Should banks diversify or concentrate? Does diversification lead to an increase in the level of performance of banks through the use of ROA and the Herfindahl-Hirschman index to measure diversification/concentration? The study included 983 banks during the period 1996-2002. The results of the study concluded that diversification generally does not increase banks' performance level; it also showed that the relationship between concentration in returns should be linear and take the form of a U.

Raymond and David study (2007) confirmed the existence of a positive relationship between financial leverage and ROE, and this relationship positively affected the ROA. Tabak and Cajueiro study (2011) investigated the impact of the concentration of the credit portfolio of banks on their level of performance and the degree of risk they face. The study included 96 Brazilian bank during the period 2003-2009 and relied on the Herfindahl-Hirschman index to measure credit concentration and used ROA and ROE tools to measure performance. Yiğit and Yılmaz (2012) showed the effect of sectoral and geographical diversification of credit portfolios on the performance of Turkish banks. The study used ROA and ROE tools to measure performance and the Herfindahl-Hirschman index to measure the diversification of credit portfolios. The results of the study stated that the change in the performance of banks is explained by the diversification of their credit portfolios, as the diversification of credit portfolios negatively affects both ROA and ROE, and concentration and diversification affect the level of risks facing banks.

Pfingsten and Jahn study (2013) identified the purpose of determining the relationship between the concentration of the credit portfolio on the one hand and the losses resulting from the execution of receivable loans, on the other. The study used the Herfindahl-Hirschman index to measure the concentration of credit facilities granted by banks to the industrial sector. The

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results showed that the concentration in the credit portfolio reduces the execution of debts, increases the banks control over the credit portfolios and reduces their risks.

Cheruiyot and Sahile study (2015) analyzed the hypothesis of market structure-performance (SCP) in the banking industry by testing market effectiveness (traditional efficiency) to determine how market concentration and efficiency affect the performance of banks. The study results confirm the market efficiency hypothesis and reject the (SCP) hypothesis in the banking industry.

Kočišová study (2016) analyzed the relationships between the structure and performance in the US banking market and their impact on competitiveness among banks. The study analyzed the relationship between performance and concentration as an interpreter of the structure-conduct-performance (SCP) hypothesis, as well as an analysis of the relationship between efficiency and market share as an interpreter of the efficient structure (ES) hypothesis. The results of the study found that there is a positive relationship between (SCP) and (ES) hypotheses, as well as a positive relationship between those indicators of performance and absolute concentration between efficiency and market shares in the banking sector.

Ho1: There is no statistically significant effect of concentration and market share on financial leverage.

Ho11: There is no statistically significant effect of market concentration on the financial leverage of banks.

Ho12: There is no statistically significant effect of the market share on the financial leverage of banks.

2. Standard Study Models

The study relied on standard models for the purpose of testing the degree of concentration CR3, HHI, and market share MS for Iraqi commercial banks through establishing a standard model to measure the special indicators of financial leverage used by banks like ROA, ROE, and ROD using the method of multiple linear regression for the time series sectional data (Panel Data). Some controlling explanatory variables were used as determinants of the performance of commercial banks BS, BG, TR, and AT. There was one main hypothesis studying the effect of concentration and market share on the financial leverage of commercial banks through the following equation:

$$H_{01} - \pi_{i,t} = \beta_0 + \beta_1 Conc_{i,t} + \beta_2 MS_{i,t} + \sum^{n} \beta_k Z_{itk} + €_{I,t}$$

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The main hypothesis is divided into two sub-hypotheses:

Ho11: There is no statistically significant effect of market concentration on the financial leverage of banks:

$$H_{o11} - \pi_{i,t} = \beta_0 + \beta_1 Conc_{i,t} + \sum^{n} \beta_k Z_{itk} + €_{I,t}$$

Ho12: There is no statistically significant effect of the market share on the financial leverage of banks:

$$H_{o12} - \pi_{i,t} = \beta_0 + \beta_1 MS_{i,t} + \sum^{n} \beta_k Z_{itk} + €_{I,t}$$

where:

$\pi i,t$ = Bank's performance (leverage) (i) per year (t)

$\beta 0$ = The value of the constant

$Conc_{i,t}$ = Market concentration of bank (i) in year (t)

$MS_{i,t}$ = Market share of bank (i) in year (t)

$B_{1,2,k}$ = Control variables

Z_{itk} = Coefficients of market concentration, market share and coefficient of the controlling variable k, respectively

$€_{I,t}$ = Random error

ROA= Return on assets

ROE = Return on equity

ROD = Return on deposit

MS= Market share

BS = Bank size

AT= Assets tangibility (bank asset structure)

BG = Bank growth rate

TR = Bank's tax rate

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Accordingly, the variables are divided into a dependent variable that expresses the financial leverage of commercial banks, independent variables that express concentration and market share, and control variables. Below is an explanation of how to measure them.

1- The Rate of Return on Assets (ROA)

The rate of return on assets measures how effective the management is in using the available resources, the potential of its ability to achieve returns from the available funds from various financing sources. It reflects the impact of the operating and financing activities of the facility, and the rate of return on assets was used with the financial leverage of commercial banks in many studies, including the study of Goldberg and Anoop (1996) and Samuel and Polius (2000).

2- The Rate of Return on Equity (ROE)

The rate of return on equity measures refers to what the owners gain from investing their money in the bank's activities. It indicates the efficiency of the bank's management, while its high level indicates the high risk resulting from the increase in financial leverage. It also represents the paid-up capital, consisting of ordinary shares, preferred shares, and various reserves, such as compulsory and optional reserves, in addition to retained earnings. (Easton and Sougiannis, 2002) and (Fumani and Moghadam, 2015).

3- The Rate of Return on Deposits (ROD)

This indicator is used to measure the rate of return on deposits, and it refers to how successful the bank's management is in generating profits through the deposits it receives (Syamsulhakim and Rachmawati, 2004) and (Ito, 2013).

4- Concentration from Asset (CONC)

This study calculated market concentration using CR3 by dividing the total assets of the three largest banks and dividing that by the total assets of the study sample banks, and using the HH Herfindahl-Hirshman measure of assets calculated from the sum of the square of the market share of assets for all Iraqi commercial banks with integrated financial data. (Beck and Levine, 2006), (Demirguc, 2008), and (Fiordelisi and Mare, 2014).

5- Market Share (MS)

This is considered a measure to identify the distinction between all economic units, both profitable and losing ones. Based on this, companies in their various sectors seek within a sharp competitive environment to seize opportunities and obtain the largest possible number of customers, which complies with their market share. Obtaining a market share requires a great

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effort to know the reasons for influencing the markets, including taking opportunities and investing them in order to reach the acquisition of markets and a larger market share with all available resources. Because of the need for commercial banks to seek a larger market share, which has a positive impact on their acquisition and market concentration, these banks have attached great importance to the market share and to the special strategies in reaching it within the competitive environment, which will bring them back high profitability. The market share of deposits for each bank is expressed through the total deposits of each bank divided by the total deposits of commercial banks in Iraq, and this measure was used in many studies, including the study of Young (1995), Rau (2000), and Wugayan and Pleshko (2010).

A group of control variables was added to the study model, which represents banks performance determinants, to reduce the model's random error value to show the relationship between the dependent and independent variables in their real form. These variables are:

A. Bank Size

The size of the company is a crucial determinant that has an effective role in determining the financial structure. There are many reasons for the relationship between the financial structure and the size of the company. Financing for small-sized companies is high compared to large companies, due to the asymmetry of information in small companies, especially the information needed by lenders and suppliers. In this case, small-sized companies will face great difficulties in financial loans and hindering external financing. In the field of commercial banks for depositors and lenders, they prefer to deal with large and well-established banks in the banking sector and consider it a kind of guarantee for their money with commercial banks. Here, the size of the bank is measured from the assets, which takes into account the possibility of the effect of the difference in size between banks on their performance. In this study, the size of the bank, which was expressed in the natural logarithm for the total bank assets, was adopted as the size variable was used in many studies, including the study of Opiela and Kishan (2000).

B. Bank Assets Structure

The structure of bank assets plays an essential role in determining their banking business as it has an impact on the financial structure. The rise in the value of tangible assets of banks indicates a rise in the value of their assets to depositors and lenders, especially the bank management. Banks that enjoy large investments in their tangible assets have a higher debt ratio than banks that do not use their tangible assets. Likewise, banks with a high level of

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tangible assets borrow their money at a lower interest rate. The reason is that the borrowed money is guaranteed by the value of its tangible assets. Therefore, debts are used more easily. The bank's management seeks to achieve an ideal asset structure by using the funds of depositors and shareholders in less risky investments. Here, the structure of the bank's assets was measured through fixed assets divided by the total assets. The asset structure variable was used in many studies, including the study of Vihriälä and Solttila (1994) and Sinkey and Blaško (2006).

C. Growth Rate of Bank

This determinant indicates that the short-term debt ratio could positively correlate with growth rates. It is noted that developing companies are starting to replace short-term financing with long-term financing. It should also be noted that growth opportunities are capital assets that add value to the company but cannot be guaranteed and do not generate current taxable income. Commercial banks depend on the returns of their investment projects, which is crucial in determining the borrowing rate. As the bank's profitability increases, its reliance on borrowing will decrease, and thus it plays an important role in determining the bank's growth rate. Here, the bank's growth rate was measured through the book value of the shares divided by the market value. The variable of growth rate of bank was used in several studies, including Durbin and Buckley (2006) study.

D. Tax Rate of Bank

Numerous empirical studies have demonstrated the effect of taxes on the financing structure of companies. Some are directly interested in tax policy and the study of the tax impact on corporate financing decisions and on the choice between debt and property rights. In general, taxes affect companies financial decisions. The bank tax rate variable was also used in several studies, including Dickens and Casey (2000) and Yue and Wu (2009).

3. Data

3.1 Statistical Technique

In order to test the hypotheses of the study, multiple regression was employed using the Panel Data method to test the power of the independent variables in interpreting and understanding the dependent variable. This method is used a lot in the field of financial management, where two methods are combined: Cross-Section and Cross-Section Chi-Square. As regard, the variable itself is measured for more than one period of time using the Panel Data method through the use of the Eviews statistical program, through which the researcher helps in the selection process for three types of regression models: Pooled Model, Fixed Model, and

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Random Model. For the purpose of testing the three models, the Husman application is applied. For testing the stability of the data, the Dickey-Fuller method and the Phillips-Perron method were used. This study adopted the formulation of a standard model to test the concentration and market share on the financial leverage of commercial banks listed in the Iraqi stock exchange through the independent variables: CR3, Conc, and MS. The dependent variable, on the other hand, represents the bank performance measure using the ROM, ROE, ROD tools where the control variables of BS, BG, TR, AT have been added.

3.1.1 Stability Tests

Before delving into the data analysis, estimating the study model, and testing the hypotheses, the validity of the data was verified through time series testing using Unit Root Tests to test the stability of the time series stationarity. It is clear from Table (1) that the absolute value of the parametric Augmented Dickey-Fuller Test (ADF) test, and the non-parametric Test Phillips-Perron Test (PP) is less than the tabulated value at 5%, which means rejecting the null hypothesis and accepting the alternative hypothesis, meaning that the time series data (2007-2021) are stable. As for testing the data of the study represented by the return on assets (ROA), return on equity (ROE), return on deposits (ROD), bank growth (BG), tax rate (TR) and market concentration (CR3), the results indicate the stability of the chain at the first level and in the three cases: with the presence of constant and trend, with constant, no constant. The table also indicates stability when taking the first difference of asset structure (AT) variables, bank size (BS), market share (MS) and for the three cases.**Table (1): The results of the stability test (Dickey-Fuller & the Phillips Perron) for the Panel data**

Variable	Difference	Test	With Constant & Trend		With Constant		No Constant	
			Test Value	Probability Value	Test Value	Probability Value	Test Value	Probability Value
ROA	I(0)	ADF	69.221	0.000	45.095	0.012	61.667	0.000
		pp	95.598	0.000	86.586	0.000	100.844	0.000
AT	I(0)	ADF	34.623	0.120				
		pp	53.811	0.001	47.045	0.007	25.004	0.519
	I(1)	ADF	75.881	0.000	96.840	0.000	144.665	0.000
		pp	114.454	0.000	147.657	0.000	178.284	0.000
BG	I(0)	ADF	45.454	0.011	55.579	0.001	81.139	0.000
		pp	58.413	0.000	55.083	0.001	72.657	0.000
BS	I(0)	ADF	34.312	0.127	41.609	0.027	21.947	0.692
		pp	26.718	0.424	74.061	0.000	21.982	0.690
	I(1)	ADF	65.790	0.000	79.747	0.000	117.263	0.000

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		pp	80.879	0.000	97.306	0.000	158.185	0.000
ROD	**I(0)**	**ADF**	39.979	0.029	39.388	0.045	50.226	0.003
		pp	73.655	0.000	87.440	0.000	94.940	0.000
ROE	**I(0)**	**ADF**	66.559	0.000	73.699	0.000	85.338	0.000
		pp	78.262	0.000	94.873	0.000	106.597	0.000
TR	**I(0)**	**ADF**	45.983	0.009	56.164	0.001	50.247	0.003
		pp	103.276	0.000	84.638	0.000	68.318	0.000
MS	**I(0)**	**ADF**	30.643	0.242				
		pp						
	I(1)	**ADF**	46.763	0.008	59.542	0.000	101.271	0.000
		pp	80.190	0.000	96.152	0.000	157.132	0.000
CR3	**I(0)**	**ADF**	41.964	0.025	41.964	0.025	59.166	0.000
		pp	53.295	0.001	122.062	0.000	122.742	0.000

3.1.2 Estimating the study models

The study data included panel data, so three possible models describe the data. These models are: the pooled model, the fixed model, and the random model. The three potential models were estimated to compare them and extract the most appropriate model by adopting statistical tests. Appendix Table (1) explains the results of parameter estimation for the first model, which includes the return on assets variable (ROA) as the dependent variable and (MS, CR3, BS, AT, BG, TR) as the independent variables as well as the statistical test, significance value and coefficient of determination for the first model.

To determine the most appropriate model to describe the data, statistical tests must be conducted to find out the most appropriate model. First, the Cross-section F and Cross-Section Chi-square test must be applied to test the comparison between the pooled model and the fixed model. If it appears that the pooled model is the best model, it is chosen; otherwise, a comparison is made between the fixed model of regression and the random model of regression by adopting the Hausman test by making a comparison between the pooled and fixed models. The findings in Appendix Table (2) showed the results of the comparison test between the pooled model and the fixed model. The null hypothesis, which indicates that the pooled model is the appropriate one, is tested against the alternative hypothesis, which indicates that the fixed model is the appropriate one. From the results of the table, and since the Prob value is greater than the significance level (0.05), this means rejecting the hypothesis that the pooled model is the appropriate one for the data. This means that the fixed model is more appropriate than the pooled model. After that, a comparison is made between the two fixed and random models. At this stage, the Hausman test will be used, where the null hypothesis will indicate that the

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random model is the appropriate one for the data, while the alternative hypothesis states that the random model is the appropriate one for data analysis.

Appendix Table (3) shows the results of the Hausman test to choose the appropriate model for analyzing tabular data. A comparison was made between the fixed and the random model. In this case, the null hypothesis states that the random model is the appropriate one for data analysis, while the alternative hypothesis states that the fixed model is the appropriate formula for data analysis. From the results of the table, since the value of Prob is greater than the level of significance 0.05, the null hypothesis will be rejected and the alternative one will be accepted. In other words, the fixed effects regression is the appropriate model for data analysis. Appendix Table (4) shows the results of parameter estimation for the second model, which includes the return on equity (ROE) variable as a dependent variable and MS, CR3, BS, AT, BG, TR as the independent variables, statistical test, the significance value and the coefficient of determination for the second model. To determine the most appropriate model for describing the data, statistical tests must be done to find out the most appropriate model and to test the comparison between the pooled model and the fixed model. If it turns out that the pooled model is the best model, it is chosen; otherwise, a comparison is made between the fixed model of regression and the random model of regression by adopting the Hausman test by conducting a comparison between the pooled and the fixed models. The null hypothesis, which indicates that the pooled model is the appropriate one, is tested against the alternative hypothesis, which indicates that the fixed model is the appropriate one. From the results of the table, and since the prob value is greater than the significance level (0.05), and since the significance level is less than the probability value, this means rejecting the hypothesis that indicates that the pooled model is the appropriate one for the data, and this means that the pooled model is more appropriate than the fixed one. A comparison then made between the two: fixed and pooled models. At this stage, the Hausman test is used. In this case, the null hypothesis will be that the pooled model is the appropriate one for the data, while the alternative hypothesis states that the pooled model is the appropriate one for data analysis. Appendix Table (6) shows the results of estimating the parameters of the third model, which includes the return on deposits (ROD) variable as a dependent variable and MS, CR3, BS, AT, BG, TR are the independent variables, statistical test, significance value, and coefficient of determination for the third model. To determine the most appropriate model for describing the date, statistical tests are conducted to find the most appropriate model for the comparison test between the pooled and fixed models. If it appears that the pooled model is the best model, it is chosen; otherwise, a comparison is made between the fixed model of regression and the random model of regression by adopting the Hausman test through conducting a comparison between the pooled and fixed models. Appendix Table (7) showed the comparison test results between the pooled and fixed models. The null hypothesis, which indicates that the pooled model is the appropriate one, is tested

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against the null hypothesis, which indicates that the fixed model is the appropriate one. The results of the table, since the Prob value is greater than the significance level (0.05) and the significance level is greater than the probability value, means rejecting the hypothesis that indicates that the pooled model is the appropriate one for the data, and this means that the fixed model is more appropriate than the pooled model. A comparison then made between the two fixed and random models. At this stage, the Hausman test will be used, and in this case the null hypothesis will be that the random model is the appropriate one for the data, while the alternative hypothesis states that the random model is the appropriate one for data analysis. Appendix Table (8) shows the results of the Hausman test to choose the appropriate model for analyzing the tabular data. A comparison is made between the fixed model and the random model. In this case, the null hypothesis states that the random formula is the appropriate model for data analysis, while the alternative hypothesis states that the fixed model is the appropriate one for data analysis. According to the results of the table, as the value of Prob is greater than the level of significance 0.05, the null hypothesis will be rejected and the alternative one will be accepted, meaning that the fixed effects regression model is the appropriate one for data analysis.

4. Analysis of the Results

4.1 First Model (ROA)

After conducting the Hausman test, the (P-value) for the two indicators was less than 0.05, which means that the appropriate estimating method for these models is the fixed model. After estimating the effect of concentration and market share on the financial leverage of commercial banks (the study sample), the results were as shown in Table (2).

Table (2): The results of estimating the parameters of the fixed effects of regression for the first model (ROA)

Model	Parameter	Coefficient	t-Statistic	Prob.	Adjusted R-squared	F-statistic	Prob.
Fixed Model	C	-0.068	-0.107	0.915	**0.562**	**13.689**	**0.000**
	MS	0.028	3.032	0.024			
	CR3	0.03	-3.09	0.029			
	BS	0.025	3.416	0.028			
	AT	-0.206	-3.376	0.007			
	BG	0.021	3.119	0.006			
	TR	-0.012	-3.134	0.014			

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The above table shows the results of the simultaneous inclusion of both concentration and market share indicators in leverage. It appears that these variables together with the control variables interpret the percentage of (56%). The Iraqi banks do not operate in a monopolistic environment that allows them to impose prices that suit them, which results in a social loss for poor pricing, which imposes high interest rates on loans and low prices on deposits in a way that contributes to increasing profits for the most concentrated banks and pushes them into high and non-competitive levels. The concentration of banks and their revenues is explained by social and economic factors that paved the way for these banks to obtain high market shares, such as early entry into the market, in addition to the influence of some laws and regulations. The results indicated that the relationship between the market share of deposits MS and the performance measure of banks is a direct correlation(3,032). It is worth mentioning that the increase in assets results mostly from the increase in the volume of liabilities from deposits, as it represents a large proportion of the assets and liabilities of banks due to the nature of commercial banks that are based on financial leverage, and the relationship of market concentration of assets. The measure of the performance of banks is an inverse correlation (-3,090), indicating a relatively strong correlation between banks' performance and concentration. However, the relationship between concentration and the performance measure of banks may indicate the absence of practices of market power that can positively affect the performance of banks, as this relationship was supported by the study of Uhde and Heimeshoff (2009).

As for the controlling variables, the t-statistic indicated that the relationship between the asset structure AT and the tax rate TR is an inverse correlation with the return on assets (ROA). So, the higher the return, the lower the bank's asset structure and the lower the tax. As for the relationship of bank size BS and growth rate BG is a direct correlation with return on assets (ROA). Accordingly, banks are affected by the return to expand their work and open new branches to increase the growth rate.

4.2 Second Model (ROE)

This included the simultaneous and then consecutive input of the independent variables represented in both concentration and market share through Table (3) to test the sub-hypothesis through the second model, which showed the results of estimating parameters through the pooled model. This model showed a relationship between market share and market concentration with the banks performance measure. Its performance is due to its operational ability to absorb these shares of deposits, and to the ability of banks to absorb deposits in investments that achieve remunerative returns.

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According to the control variables, the t-statistic indicated a relationship between the bank size bank BS and the structure of assets AT and the growth rate BG is an inverse relationship with the return on equity ROE. This result can be explained by the fact that commercial banks may have financed their investments with high-cost funds, which prompted them to accept low-profit margins, that is, the difference between interest on loans and interest on deposits. It is found that the relationship with the growth rate is an inverse correlation; that is, there is no improvement in economic performance and a decrease in domestic product volume, which affects optimism about the future. This, in turn, has an impact on the performance of banks. The demand for banking services and bank financing decreases in light of the economic recession, and vice versa when the economic situation recovers (Reza et al., 2021). As for the relationship of the tax rate TR with the return on the right of ownership (ROE), it is a direct correlation; the higher the return, the higher the tax.

Table (3): The results of estimating the parameters of the fixed effects of regression for the second model (ROE)

Model	Parameter	Coefficient	t-Statistic	Prob.	Adjusted R-squared	F-statistic	Prob.
Pooled Model	C	0.913	1.262	0.209	0.413	0.582	0. 000
	MS	0.404	3.569	0.010			
	CR3	0.000	3.187	0.012			
	BS	-0.089	-3.291	0.028			
	AT	-0.817	-3.361	0.015			
	BG	0.000	-3.130	0.027			
	TR	0.051	4.400	0.010			

4.3 Third Model (ROD)

Through reviewing the values of the parameters estimated for the third model, the results of the estimation indicated the variables of concentration and market share. The t-statistic of the parameter market share of deposits indicated an inverse relationship; this relationship can be considered as a positive indicator implying that the increase in the size of banks within the banking industry would reduce market concentration in a relatively strong way, which helps banks to keep deposits and the entry of new depositors, which helps them invest those funds in investments or in bank credit. As for the relationship of concentration of deposits, the values

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indicated that there is a direct relationship with statistical significance between them and the banks, so it reflects positively on the returns, the value of the bank, the prices of its shares in the market, and a greater acquisition of the share of the banking services that it provides. As for the control variables, the t-statistic indicated that the relationship among the bank size BS, the structure of assets AT, and the tax rate TR is an inverse relationship with the return on deposits ROD. This result can be explained by the fact that commercial banks may finance investments with high-cost funds, which prompted them to accept low-profit margins; that is, the difference between interest on loans and interest on deposits. It is found that the relationship with the growth rate is an inverse relationship, that is, there is no improvement in economic performance and a decrease in the volume of domestic product, which affects optimism about the future, which has an impact on the performance of banks, as the demand for banking services and bank financing decreases in light of the economic recession, and vice versa when the economic situation recovers.**Table (4): The results of estimating the parameters of the fixed effects of regression for the third model (ROD)**

Model	Parameter	Coefficient	t-Statistic	Prob.	Adjusted R-squared	F-statistic	Prob.
Fixed Model	C	0.277	3.545	0.001	0.422	12.468	0.000
	MS	-0.060	-3.552	0.002			
	CR3	0.000	3.176	0.041			
	BS	-0.018	-3.380	0.018			
	AT	-0.290	-4.278	0.000			
	BG	0.000	3.470	0.009			
	TR	-0.006	-3.553	0.012			

5. Conclusions

Following the estimation of all market structure and accounting performance indicators for Iraqi commercial banks listed on the Iraq Stock Exchange during 2007-2021, three performance models and the impact on financial leverage were modeled. In the first model, the impact of concentration and market share on financial leverage was tested, expressed as the rate of return on banking assets. In the second model, the effect of concentration and market share on financial leverage was tested, expressed as the rate of return on equity. In the third model, the effect of concentration and market share on financial leverage was tested, expressed as the rate of return on total bank deposits. Through the results of the first model, it was found that there is a direct relationship between market share with ROA while the concentration

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relationship is inverse. Therefore, the null hypothesis is accepted. This proves that banks are affected by their banking performance with the ROA measure tool regarding market share. As for banks, they have an inverse relationship with concentration, especially the financial leverage of banks. With regard to the control variables, there is a direct relationship except for the variables AT and TR, which have an inverse relationship. As for the second model, its results show that there is a direct relationship between concentration and market share with financial leverage using the ROE measure tool for banks, and the controlling variables in this model have an inverse relationship, except for the variable TR, which has an inverse relationship.

The results of the third model showed that the relationship of market share with financial leverage is an inverse relationship, while its relationship with concentration is a direct one. The relationship of the control variables was also an inverse relationship, except for the variable BG, which was a direct relationship. It was noted that the second model gave a statistically significant positive effect on the financial leverage; therefore, the Iraqi commercial banks should take into account the concentration and market share with the positive control variables, as the tax rate variable, because of its impact on the profitability of banks. It is necessary to focus on the factors with negative control variables of statistical significance and any changes in them, which may have an effect in the long term on the profitability of banks through the performance estimating tool that was used in this model, ROE, which gives acceptance of the null hypothesis. The first and third models reflected one another through the effect of measures on variables, such as concentration and market share. It was noticed that in the first model, the concentration was negative and the market share was positive, and in the third model it is found the opposite of the first model, i.e., the market share is negative and the concentration is positive. As for the control variables, the first model AT and TR are negative and the other variables BS and BG are positive. As for the control variables in the third model, it was found that BS, AT, and TR are negative, and only BG is positive; it means accepting the null hypothesis in the two models. On the other hand, performance indicators that indicate market concentration have a negative relationship, which increases the possibility of alliance among the most concentrated banks, and provides an inappropriate environment that results in social loss as a result of bad prices imposed by banks (high interest on loans and low on deposits) in a way that contributes to the profits of the most concentrated banks and pushes them to high and non-competitive levels. The most concentrated banks benefited from early entry, besides to some other factors, such as control variables that contributed to the acquisition of high market shares by these banks, but they also relied on raising their levels of efficiency in order to maintain their leading position in the market. The results also indicated that the market share is negative. The sign of the negative coefficient of the market share variable within the study models indicates that the banks with high market shares decreased their performance rates due

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to their inability to operate deposits in absorbing and investing those shares and reflecting them in high-performance rates, as well as the inability of banks to open investment horizons that achieve rewarding returns on deposits or perhaps the increasing competition within the banking industry that limits the exploitation of high market shares in influencing prices, which would have achieved a positive relationship between the market share variable and the banks' performance measure. Accordingly, the negative impact of the market share variable on the performance of banks may provide another evidence about competition within Iraqi commercial banks. The high market shares of some banks do not contribute to the exploitation of market power in influencing prices so as to achieve high returns for banks with high shares of deposits at the expense of other banks. They also indicate that, as a result of the competition, the concentrated banks had no role in exploiting their concentration to establish alliances that might contribute to obtaining market shares that would achieve high returns. One of the most important challenges that financial policy makers and legislators will face is how they benefit from supporting levels of competition and limiting the effects of market power on bank input and output prices. Therefore, the researcher recommends the need to work on developing more legislation and laws and updating them continuously so that they could be in line with the rapid developments in the banking industry as well as increase work in the direction of financial reforms and financial liberalization and remove obstacles and restrictions on the areas of investment and financing with the provisions of supervision and follow-up for this sector to ensure safety financial system. Reducing restrictions and increasing competition in the banking sector helps to highlight efficiency as an essential administrative requirement and contributes to eliminating inefficiency in the banking business, which leads to higher levels of competition within the banking industry and provides a suitable environment for banking work that ensures the achievement of appropriate prices for customers and achieves appropriate performance rates that result in economic and social benefits.

This study emphasizes the need to raise the levels of performance in the Iraqi commercial banks, which requires continuous development and modernization of banking services and the search for more effective regulatory solutions within a larger group of financial services as well as improve their methods of providing them and avoid adhering to the traditional system. The highest profitability is within the banking industry that is characterized by competition; as banks are the first to apply everything new in terms of financial and non-financial innovations and technology that get constantly higher profits. Through the results of the study, it can be said that maintaining financial stability, avoiding the consequences of potential banking failures within the banking industry, contributes to more financial and economic stability. According to concentration and stability perspectives, banks are more adapted to shocks or financial crises. Besides, studying the financial leverage rates and ownership elements of banks should be thoroughly studied to ensure benefit from them as influential elements in the

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performance of banks, which leads to believe that these banks achieve economic savings that allowed to pass to community members in the form of appropriate prices for them.

Appendix Table (1): Estimating the parameters of the first model according to pooled, fixed, and random models

Model	Parameter	Coefficient	t-Statistic	Prob.	Adjusted R-squared	F-statistic	Prob.
Pooled Model	C	0.148	0.314	0.754	0. 81	3.807	0.001
	MS	-0.082	-3.178	0.049			
	CR3	0.020	3.143	0.036			
	BS	-0.078	-3.392	0.026			
	AT	1.786	4.568	0.000			
	BG	0.040	3.117	0.007			
	TR	-0.109	-3.301	0.005			
Fixed Model	C	-0.068	-0.107	0.915	0.202	3.689	0.000
	MS	0.028	3.032	0.024			
	CR3	0.030	-3.090	0.029			
	BS	0.025	3.416	0.028			
	AT	-0.206	-3.376	0.007			
	BG	0.021	3.119	0.006			
	TR	-0.012	-3.134	0.014			
Random Model	C	0.129	0.282	0.778	0. 57	2.930	0.009
	MS	-0.068	-3.148	0.013			
	CR3	0.020	-3.134	0.024			
	BS	-0.014	-2.323	0.007			
	AT	1.623	4.267	0.000			
	BG	0.011	3.083	0.024			
	TR	-0.098	-3.250	0.013			

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Appendix Table (2): Comparison test between pooled model and fixed model to describe the first model

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.341	-12173	0.000
Cross-section Chi-square	40.02	12	0.000

Appendix Table (3): Hausman test results for the first model

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	30.137	6	0.000

Appendix Table (4): Estimating the parameters of the second model according to pooled, fixed, and random models

Model	Parameter	Coefficient	t-Statistic	Prob.	Adjusted R-squared	F-statistic	Prob.
Pooled Model	C	0.913	1.262	0.209	**0.413**	**0.582**	**0.744**
	MS	0.404	3.569	0.010			
	CR3	0.000	3.187	0.012			
	BS	-0.089	-3.291	0.028			
	AT	-0.817	-3.361	0.015			
	BG	0.000	-3.130	0.027			
	TR	0.051	4.400	0.010			
Fixed Model	C	1.933	0.876	0.062	**0.408**	**1.088**	**0.368**
	MS	-0.419	-4.292	0.001			
	CR3	0.000	4.528	0.018			
	BS	-0.176	-3.817	0.011			
	AT	-1.493	-3.675	0.016			
	BG	0.000	-3.190	0.030			
	TR	-0.005	-3.032	0.024			

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Random Model	C	1.227	0.463	0.145	**0.411**	**0.667**	**0.676**
	MS	0.292	3.320	0.020			
	CR3	0.000	3.276	0.003			
	BS	-0.116	-3.465	0.015			
	AT	-1.015	-3.436	0.023			
	BG	0.000	-4.181	0.007			
	TR	0.027	3.205	0.038			

Appendix Table (5): Comparison test between pooled Model and fixed model to describe the second model

Effects Test	**Statistic**	**d.f.**	**Prob.**
Cross-section F	1.334	-12173	0.203
Cross-section Chi-square	16.996	12	0.150

Appendix Table (6): Estimating the parameters of the third model according to pooled, fixed, and random models

Model	**Parameter**	**Coefficient**	**t-Statistic**	**Prob.**	**Adjusted R-squared**	**F-statistic**	**Prob.**
Pooled Model	C	0.135	2.321	0.021	0.413	11.598	0.000
	MS	0.011	3.183	0.005			
	CR3	0.000	3.360	0.015			
	BS	-0.006	-3.170	0.014			
	AT	-0.042	-3.866	0.028			
	BG	0.000	-3.548	0.042			
	TR	-0.013	-3.226	0.002			
Fixed Model	C	0.277	3.545	0.001	0.422	12.468	0.000
	MS	-0.060	-3.552	0.002			
	CR3	0.000	3.176	0.041			

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	BS	-0.018	-3.380	0.018			
	AT	-0.290	-4.278	0.000			
	BG	0.000	3.470	0.009			
	TR	-0.006	-3.553	0.012			
Random Model	C	0.158	2.661	0.009	0.403	11.906	0.000
	MS	0.013	3.218	0.007			
	CR3	0.000	3.526	0.008			
	BS	-0.008	-3.473	0.024			
	AT	-0.085	-3.703	0.000			
	BG	0.000	-3.360	0.020			
	TR	-0.010	-3.059	0.001			

Appendix Table (7): Comparison test between pooled model and fixed model to describe the third model

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.357	-12,173	0.000
Cross-section Chi-square	40.188	12	0.000

Appendix Table (8): Hausman test results for the third model

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	25.224	6	0.000

References

1. Acharya, V. V., Hasan, I., & Saunders, A. (2006). Should banks be diversified? Evidence from individual bank loan portfolios. *The Journal of Business*, *79*(3), 1355-1412.
2. Al-Wugayan, A., & Pleshko, L. P. (2010). A study of satisfaction, loyalty, and market share in Kuwait banks. In *Allied Academies International Conference. Academy for*

Studies in International Business. Proceedings (Vol. 10, No. 1, p. 2). Jordan Whitney Enterprises, Inc.

3. Beck, T., Demirgüç-Kunt, A., & Levine, R. (2006). Bank concentration, competition, and crises: First results. *Journal of banking & finance*, *30*(5), 1581-1603.
4. Blaško, M., & Sinkey Jr, J. F. (2006). Bank asset structure, real-estate lending, and risk-taking. *The Quarterly Review of Economics and Finance*, *46*(1), 53-81.
5. Buckley, L. J., & Durbin, E. G. (2006). Seasonal and inter-annual trends in the zooplankton prey and growth rate of Atlantic cod (Gadus morhua) and haddock (Melanogrammus aeglefinus) larvae on Georges Bank. *Deep Sea Research Part II: Topical Studies in Oceanography*, *53*(23-24), 2758-2770.
6. Casey, K. M., & Dickens, R. N. (2000). The effects of tax and regulatory changes on commercial bank dividend policy. *The Quarterly Review of Economics and Finance*, *40*(2), 279-293.
7. De Young, R. (1995). *Foreign-owned banks in the US: Earning market share or buying it?* (Vol. 95, No. 2). Comptroller of the Currency.
8. DeLong, G. L. (2001). Stockholder gains from focusing versus diversifying bank mergers. *journal of Financial Economics*, *59*(2), 221-252.
9. Demirguc-Kunt, A. (2008). Finance, financial sector policies, and long-run growth.-
10. Easton, P., Taylor, G., Shroff, P., & Sougiannis, T. (2002). Using forecasts of earnings to simultaneously estimate growth and the rate of return on equity investment. *Journal of Accounting Research*, *40*(3), 657-676.
11. Fiordelisi, F., & Mare, D. S. (2014). Competition and financial stability in European cooperative banks. *Journal of International Money and Finance*, *45*, 1-16.
12. Fumani, M. A., & Moghadam, A. (2015). The effect of capital structure on firm value, the rate of return on equity and earnings per share of listed companies in Tehran stock exchange. *Research journal of Finance and Accounting*, *6*(15), 50-57.
13. Goldberg, L. G., & Rai, A. (1996). The structure-performance relationship for European banking. *Journal of Banking & Finance*, *20*(4), 745-771.
14. Hayden, E., Porath, D., & Westernhagen, N. V. (2007). Does diversification improve the performance of German banks? Evidence from individual bank loan portfolios. *Journal of financial services research*, *32*(3), 123-140.
15. Heggestad, A. A., & Mingo, J. J. (1976). Prices, nonprices, and concentration in commercial banking. *Journal of Money, Credit and Banking*, *8*(1), 107-117.
16. Hutchison, D. E., & Cox, R. A. (2007). The causal relationship between bank capital and profitability. *Annals of Financial Economics*, *3*(01), 0750002.

GMJ Global Mainstream Journal of Business, Economics, Development & Project Management
Volume: 02
Issue: 02
ISSN ONLINE: 2834-2739
February, 2023
Texas, USA

17. Ito, T. (2013). Islamic rates of return and conventional interest rates in the Malaysian deposit market. *International Journal of Islamic and Middle Eastern Finance and Management*.
18. Jahn, N., Memmel, C., & Pfingsten, A. (2013). Banks' concentration versus diversification in the loan portfolio: New evidence from Germany. *Available at SSRN 2796948*.
19. Kishan, R. P., & Opiela, T. P. (2000). Bank size, bank capital, and the bank lending channel. *Journal of Money, credit and banking*, 121-141.
20. Kočišová, K. (2016). Market structure and banking sector performance. *Journal of Applied Economic Sciences (JAES)*, *11*(42), 708-711.
21. Molyneux, P., & Forbes, W. (1995). Market structure and performance in European banking. *Applied Economics*, *27*(2), 155-159.
22. Polius, T., & Samuel, W. (2000). Banking Efficiency in the Eastern Caribbean Currency Union: An Examination of the Structure-Conduct-Performance Paradigm and the Efficiency Hypothesis. *Money Affairs*, *15*, 75-92.
23. Polius, T., & Samuel, W. (2000). Banking Efficiency in the Eastern Caribbean Currency Union: An Examination of the Structure-Conduct-Performance Paradigm and the Efficiency Hypothesis. *Money Affairs*, *15*, 75-92.
24. Rachmawati, E., & Syamsulhakim, E. (2004, August). Factors affecting mudaraba deposits in Indonesia. In *Third International Islamic Banking and Finance Conference*.
25. Rau, P. R. (2000). Investment bank market share, contingent fee payments, and the performance of acquiring firms. *Journal of Financial Economics*, *56*(2), 293-324.
26. Reza, M. N. H., Jayashree, S., Malarvizhi, C. A. N., Rauf, M. A., Jayaraman, K., & Shareef, S. H. (2021). The implications of Industry 4.0 on supply chains amid the COVID-19 pandemic: a systematic review. *F1000Research*, *10*. doi: 10.12688/f1000research.73138.2
27. Sahile, S. W. G., Tarus, D. K., & Cheruiyot, T. K. (2015). Market structure-performance hypothesis in Kenyan banking industry. *International Journal of Emerging Markets*.
28. Short, B. K. (1979). The relation between commercial bank profit rates and banking concentration in Canada, Western Europe, and Japan. *Journal of banking & Finance*, *3*(3), 209-219.
29. Smirlock, M. (1985). Evidence on the (non) relationship between concentration and profitability in banking. *Journal of money, credit and Banking*, *17*(1), 69-83.
30. Solttila, H., & Vihriälä, V. (1994). Finnish banks' problem assets: Result of unfortunate asset structure of too rapid growth? *Bank of Finland Research Discussion Paper*, (23).

GMJ Global Mainstream Journal of Business, Economics, Development & Project Management
Volume: 02
Issue: 02
ISSN ONLINE: 2834-2739
February, 2023
Texas, USA

31. Tabak, B. M., Fazio, D. M., & Cajueiro, D. O. (2011). The effects of loan portfolio concentration on Brazilian banks' return and risk. *Journal of Banking & Finance*, *35*(11), 3065-3076.
32. Uhde, A., & Heimeshoff, U. (2009). Consolidation in banking and financial stability in Europe: Empirical evidence. *Journal of Banking & Finance*, *33*(7), 1299-1311.
33. Wu, L., & Yue, H. (2009). Corporate tax, capital structure, and the accessibility of bank loans: Evidence from China. *Journal of Banking & Finance*, *33*(1), 30-38.
34. Yılmaz Türkmen, S., & Yiğit, İ. (2012). Diversification in banking and its effect on banks' performance: Evidence from Turkey.