



## The Effect of Ownership Concentration on the Capital Adequacy of Banks

Zahra Esmaeili\*, Zekvan Imani, Ali Homayoon

Department of Accounting, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran

### ABSTRACT

Capital adequacy ratio is one of the basic criteria in assessing the financial condition of the banks. The ratio is affected by changes in other financial variables of bank. On the contrary, it can affect these variables and thus the overall behavior of the bank. The aim of this study is to investigate the effect of ownership concentration on capital adequacy and liquidity in banks. For this purpose, the required data are extracted from the audited financial statements of banks for the period 2007 to 2014. This research is a correlation and the main method of statistical test is regression analysis. Logit regression technique is used for the research hypotheses. The results of testing the research hypotheses show that there is a significant negative relationship between the concentration of ownership and capital adequacy of banks. Concentration of ownership increases the probability of being placed in the classification of banks with lack of capital adequacy. In other words, ownership concentration reduces the capital adequacy.

**Keywords:** Ownership Concentration, Capital Adequacy

### INTRODUCTION

The recent financial crisis has far-reaching impact on risk-taking behavior by banks and on economic stability and global welfare. In response to the recent financial crisis, the Basel Committee has developed new persistent capital rules aimed at preventing financial crises in the future. The new rules are known as "Basel III" and a commencement to be a replacement of Basel II in 2013 and then a complete replacement in 2018. Basel II is focused on capital adequacy and liquidity, while Basel III includes capital persistence as an additional factor. Therefore, enacting more severe and more effective regulations, in response to the standards of capital adequacy, the rules legislators have limited risk-taking of banks.

Restrictions imposed by lawmakers have been followed by many discussions among policy makers, lawmakers and financial economists. Opponents of restrictions and regulations development argue that self-regulation through the effective and orderly corporate governance will lead to ensure risk-taking by financial institutions. Given the importance of the issue of ownership concentration, and in order to ensure risk-taking and the integrity of the financial system of Iran and protect the interests of depositors, creditors, shareholders and other beneficiaries, assessing the financial health of banks from different dimensions, and identifying the factors that influence capital adequacy in banks seem necessary.

Concentration of ownership refers to the state, in which a considerable amount of firm's shares belongs to major shareholders (majority) and shows how many percent of the firm's shares are in the hands of a few. In Iran, as in Czech, more concentration of ownership has been

\* Corresponding Author: esmaeeli\_2011@yahoo.com

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followed by more efficiency. In other words, minifying ownership has a negative impact on performance. On this basis, the researchers concluded that due to the lack of protection system for minority shareholders, the implementation of the plan of transferring ownership of state-owned firms to the public (equity shares) may reduce GDP and even lead to the unfair distribution of income. Concentration of ownership is the size of large shareholders in a firm<sup>1</sup>. Large shareholders have more incentive to monitor management, because the costs associated with management supervision is less than the expected costs of shareholding in the firm.

Problems arisen on the repayment of bank loans in 1970s and 1980s revealed the importance of the issue that banks must have sufficient capital in the face of risks derived from non-fulfillment of commitments by borrowers. Therefore, to deal with this unpleasant experience, the amendment of the regulations governing the proper size of banks' capital became the center of attention in banking supervision associations. Understanding this necessity forced Switzerland Basel Committee on Banking Regulation and Supervision (Basel Committee, briefly) to consider the importance of preventive regulations in terms of potential funding and set appropriate standards of banks capital adequacy on its agenda. Hence, in the following years, Basel Committee acquired an important situation in the world banking and professional circles. In 1988, the committee announced the measurement system of appropriate minimum liquidity in a statement called Basel Capital Accord (Basel I). Thereafter, the system was introduced and implemented widely, not only between member states, but also in other countries of the world and could create major developments in banking supervision methods and literature. In the late 1990s, after the manifestation of the Basel Capital Accord weaknesses, the way was paved for reviewing and revising it and in June 1999, the first draft of Revised Capital Framework known as Basel II was published to replace the previous statement at the end of 2006.

Capital adequacy ratio is one of the most important ratios to measure the performance health and financial stability of any financial institution, and especially banks. Due to the features the banks have and as they are obliged to refund the depositors' main deposit to them, they must have adequate capital to cover the risk arising from their activities. The banks should also ensure that damage is not transferred to depositors. As such, banks must always have minimum optimal capital to cover their operational risks. According to the Basel Committee rules, minimum required capital must be 12% of risk-weighted assets. Risk-weighted assets refer to the risk of each asset according to the nature of the asset and the extent of the risk associated with it. For example, the risk of fund (cash) and account balances of bank with the central banks of each country is equal to zero. However, the risk of facilities granted to natural and private legal persons is equal to 100%. According to the regulations of the Central Bank of the Islamic Republic of Iran, the minimum optimal capital adequacy ratio is 8 percent for Iranian banks.

In this study, the role and the impact of ownership concentration on banks' capital adequacy will be evaluated. In other words, this study seeks to answer the question whether there is a significant relationship between ownership concentration and the capital adequacy of banks.

## **LITERATURE REVIEW**

Concentration of ownership refers to the state, in which a considerable amount of firm's shares belongs to major shareholders (majority) and shows how many percent of the firm's shares are in the hands of a few. Concentration of ownership is the size of large shareholders in

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a firm. Large shareholders have more incentive to monitor management, because the costs associated with management supervision is less than the expected costs of shareholding in the firm. Berle and Means for the first time in 1932, following the conducted studies, found that there is an inverse relationship between shareholders distribution and institutions' performance<sup>2</sup>. Despite their research results were challenged by Demsetz in 1983, their study was the beginning of many discussions and research, which were later carried out by scholars in various countries with different economic foundations and development levels. Demsetz and Lehn (1985), through their findings, empirically supported the view that the holders of higher stocks have the motivation of tolerating data collection fixed costs and interference in management monitoring. In contrast, scattered ownerships have little incentive to monitor management<sup>3</sup>. In situations where shareholders have less interest in the firm, they have no incentive to monitor managers or have little incentive<sup>4</sup>, because the costs of monitoring will be more than the benefits of monitoring managers. La Porta et al (1999) argue that small shareholders know the large shareholders as a sign of a better regulatory environment. Their argument is consistent with the view that concentration of ownership is a corporate governance feature<sup>5</sup>. Based on the agency framework developed by<sup>6</sup>, it is expected that the presence of large shareholders leads to less opportunistic earnings management. If higher concentration of ownership increases management monitoring, it can be said that higher ownership concentration reduces the capacity of managers to change the accounting earnings and increases the information content of earnings<sup>3</sup>. Van Roy (2003) investigated the relationship between changes in capital adequacy and credit risk of banks using the information contained in active banks in seven countries of Canada, France, Italy, Japan, Sweden, the United Kingdom and the United States, in the period 1988 to 1995 and showed that there is an inverse relationship between changes in capital adequacy ratio and the ratio of banks' credit risk<sup>7</sup>. Mathuva (2009) examined the relationship between capital adequacy and the ratio of cost - income and Kenya Commercial Bank's profitability. The research results indicate that, profitability of banks has a positive correlation between the ratio of main capital and the ratio of risk weighted capital and has a negative correlation between the ratio of equity capital and the ratio of cost – income<sup>8</sup>. Buyuksalvarci, and Abdiglu (2011) using panel data analysis, reviewed the effect of the determinants of capital adequacy ratio on the financial position of Turkish banks and showed that the variables of loans losses reserve and return on assets have positive effect, the variables of loans and return on equity have negative impact, and the variables of bank size, deposits, liquidity, and net profit margin have no significant effect on capital adequacy ratio<sup>9</sup>. Chalermchatvichien et al (2014) examined the impact of ownership concentration on capital adequacy, liquidity and capital stability in East Asia's banks. In this study, the impact of ownership concentration on risk-taking by banks was examined during the years 2005-2009. The research results indicate that the concentration of ownership has an important role in determining the stability of the capital. More concentrated ownership improves the liquidity of banks<sup>10</sup>.

## METHODOLOGY

Methodology of the present study is correlational in terms of nature and content. Using secondary data extracted from the financial statements of listed banks on Tehran Stock Exchange, the correlation relationship is analyzed. This study is conducted within the framework of deductive - inductive reasoning. In this study, first, the correlation between variables is tested, and if there is a correlation between the variables, multiple regression models

are estimated. The present research is also among library and causal - analytical studies, and based on analysis of panel data (panel data). The research is an applied one in terms of purpose and descriptive-analytic in terms of methodology.

The population of the study consists of all banks are listed on the Tehran Stock Exchange, which contains 23 active banks in the monetary market of Iran. In this study, purposeful elimination method is applied to estimate the sample size and for sampling. The research sample consists of seven state-owned banks and private banks. For this purpose the required data are extracted from the audited financial statements of the banks for the period 2007 to 2014.

According to the goals set in order to answer the research questions the hypotheses are presented as the following:

### **Research Hypotheses**

**First Hypothesis:** There is a significant relationship between ownership concentration and capital adequacy of banks.

**Second Hypothesis:** There is a significant difference between capital adequacy of firms and more and less ownership concentration.

### **RESEARCH MODEL AND VARIABLES**

$$CA_{i,t} = \alpha_0 + \beta_1 OWNCON_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 RG_{i,t} + \beta_5 AGE_{i,t} + \varepsilon_{i,t}$$

**Ownership Concentration (OWNCON<sub>i,t</sub>):** It is the sum of the stock percentage of major shareholders above 5 per cent. To calculate the institutional ownership concentration Herfindahl – Hirschman index is used, which is an economic indicator used to measure the monopoly on the market:

$$(OCON) = \sum_{(Pi / p * 100)}^2$$

P is the total percent of shares and Pi is the sum of stock percentage higher than 3% belong to the shareholders (stock percentage of each of owners above 3% are squared and then are added up). It is the product between 0 and 10000, and the higher the ratio, the greater the concentration of ownership in the firm will be.

**Capital Adequacy Ratio (C.A<sub>i,t</sub>):** It is calculated through the ratio of base capital to risk weighted assets. In accordance with the bylaws of capital adequacy ratio of the state banks and non-state banks in Iran banking network, this ratio should be at least 8%. Therefore, in this study, the variable of capital adequacy ratio is a binary variable or zero and one variable. The banks whose capital adequacy ratio is at least 8% opt number one, and if the index is less than 8%, number zero is chosen.

$$(\text{Weighted Assets} - \text{Risk} / \text{Capital}) \geq 8\%$$

**Bank Size (SIZE<sub>i,t</sub>):** It is determined by calculating the natural logarithm of total assets of the bank.

**Leverage (LEV<sub>i,t</sub>):** It is the ratio of debt-to-equity of banks,

**Revenue Growth (RG<sub>i,t</sub>):** It is the current year's income minus previous year's income divided by revenue of previous year

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**Bank Age ( $AGE_{i,t}$ ):** It is calculated through the natural logarithm of bank activity period from the date of establishment license issuance to the given period.

### RESULTS

The study on the descriptive results of research variables shows that the mean of the ownership concentration in banks of the study is equal to 6055. In addition, the mean of the variable of capital adequacy is 0.75.

**Table 1. Descriptive Statistics**

Variable	Mean	Median	Max	Min	SD
Ownership Concentration	6055	6647	10000	980	3626
Capital Adequacy	0.75	1	1	0	0.437
Bank Size	19.292	19.470	21.095	17.001	1.160
Leverage	0.913	0.930	0.970	0.698	0.057
Revenue Growth	0.287	0.220	1.044	-0.228	0.262
Bank Age	3.197	3.367	4.127	1.792	0.602

### Collinearity Test

Colinearity shows the position, in which one independent variable is a linear function of other independent variables. If linearity is high in a regression equation, there is a high correlation between the independent variables and may be despite of high  $R^2$ , the model does not have high reliability. Even though the model looks good, it does not have significant independent variables and these variables affect each other. Tolerance test and Variance Inflation Factor (VIF) are used for the assessment of colinearity. Tolerance factor coefficient should not be greater than one (close to 1 (between 0 and 1)). In addition, variance inflation factor is the inverse of tolerance and should be less than 10. The more the value of these two tests, respectively decreases and increases, the more the variance of regression coefficients will increase and makes it difficult to predict the regression. The results of colinearity test indicate that the variance inflation factor of the variables entered into the original research model is less than 10 and tolerance is also close to 1. Therefore, there is no colinearity between the independent variables of regression model. As a result, the estimation of regression models will not be a problem (Table 2).

**Table 2. Collinearity Test**

Variable	Tolerance	Variance Inflation
(Constant)	-	-
Ownership Concentration	0.514	1.947
Bank Size	0.594	1.683
Leverage	0.917	1.090
Revenue Growth	0.880	1.136
Bank Age	0.401	2.496

**Review of Research First Hypothesis Test**

**Research Hypothesis:** Concentration of ownership has a significant impact on the capital adequacy of banks.

The study of the regression model estimation shows that the significance level of the statistic value of likelihood ratio (25.168) is less than 5% and the significance level of Hosmer-Lemeshow test (7.042) is also greater than 5%. Therefore, the overall significance of the regression model is confirmed and the data have the required adequacy to fit the model. As shown in Table 3, it can be seen that the significance level of Z statistic value (2.009-) of the variable of ownership concentration is less than 5% and meaningful. As a result, the hypothesis  $H_0$  is rejected and the hypothesis  $H_1$  is accepted. This means that there is a significant negative relationship between concentration of ownership and capital adequacy in studied banks. In other words, concentration of ownership increases the probability of being placed in the classification of banks with lack of capital adequacy and reduces the capital adequacy. In addition, the fitted regression model of the classification of banks indicates that the sensitivity of the model in determining firms with capital adequacy is 92.86 percent, while it is 64.29 for banks with lack of capital adequacy. Generally, it can be expressed that 85.71% of the banks are correctly classified in the fitted model.

**Table 3. Test Results of Regression Model of Research Hypothesis**

Variable	Regression Coefficient	Standard Error	Z Statistic	Significance Level	Result
(Constant)	59.479	18.829	3.159	0.002	-
Ownership Concentration	-2.376	1.183	-2.009	0.045	$H_0$ Rejection
Bank Size	-2.188	0.793	-2.760	0.006	-
Leverage	-6.279	7.361	-0.853	0.394	-
Revenue Growth	-3.231	1.902	-1.699	0.089	-
Bank Age	3.691	1.742	2.119	0.034	-
Determination Coefficient of McFadden			39.962		
Likelihood Ratio			25.168 (0.000)		
Hosmer-Lemeshow test			7.042 (0.532)		
Correct Predictor Percentage of Capital Adequacy (1)			% 92.86		
Correct Predictor Percentage of Lack of Capital Adequacy (0)			% 64.29		
Correct Predictor Percentage of Overall Model			% 85.71		

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**Second Hypothesis:** There is a significant difference between capital adequacy of firms and more and less ownership concentration.

**Table 4. Results of Second Hypothesis (Dependent Variable: Capital Adequacy)**

Variable	Ownership Concentration	Mean	SD	T Statistic	Significance Level	Confidence Level		Result
						Min	Max	
Capital Adequacy	Low	0.82	0.39	1.229	0.225	-0.09	0.376	No Difference (H <sub>0</sub> Acceptance)
	High	0.68	0.48					

Comparing capital adequacy based on ownership concentration shows that the mean of capital adequacy of firms with low ownership concentration is 0.82, and the mean of capital adequacy of firms with high ownership concentration is 0.68. In addition, the review on t test results (1.229) shows that there is no significant difference between the mean of capital adequacy of firms with low ownership concentration and the mean of capital adequacy of firms with high ownership concentration at 5 percent error level (sig = 0.225). Therefore, with 95% confidence level, the hypothesis H<sub>0</sub> is accepted and the hypothesis H<sub>1</sub> is rejected.

### CONCLUSION

In this study, the effect of ownership concentration on the capital adequacy of banks is discussed. The results obtained from research hypothesis test in multivariate regression test are confirmed. So that in accordance with the results of research hypothesis testing the concentration of ownership has a significant effect on the capital adequacy of banks.

Therefore, it is suggested to managers of banks and credit institutions to pay the necessary attention to the concentration of ownership and capital adequacy ratio and always maintain a good proportion between the concentration of ownership and its capital adequacy ratio to ensure the stability and sustainability of their activities.

The results of the second hypothesis test, comparing the two communities, are not confirmed. This means that there is no significant difference between capital adequacy of firms and more and less ownership concentration. The results of the first hypothesis test are consistent with results of the study carried out by<sup>10</sup> that the "concentration of ownership has an important role in determining capital adequacy and stability".

In this study, a significant negative relationship between major shareholders' controlling degree the bank's capital adequacy is found. This means that the higher the major shareholders' vote right, and consequently, the higher the concentration of ownership and its controlling degree, the less the capital adequacy ratio of banks will be. The findings of the study will attract the attention of banks and financial and credit institutions to the ownership concentration in order to increase the efficiency of the country banking system with respect to the capital adequacy ratio.

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