

The Impact of Capital Structure on Banks Performance: A Case Study of Iran

Shahryar Zaroki¹, Laleh Rouhi^{*2}

¹ Department of Economics, Assistant Professor, University of Mazandaran, Babolsar, Iran

² Department of Management, Master of Business Administration (Financial), Babol Branch, Islamic Azad University, Babol, Iran

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ABSTRACT

Decisions on capital structure was one of the hardest and most challenging issues facing the banks, but also is the most vital decision about continued their survival. In this study, we investigated the relationship between capital structure on the banks performance of the listed banks in Tehran Stock Exchange for the 2008 to 2013 period. For this purpose, were used of three indicators of return on assets, return on equity and earnings per share as measures of bank performance. The results of estimating the model with fixed effects method implies that the capital structure has a positive impact on earnings per share and has a negative effect on return on assets, but no significant effect on return on equity. Also, bank size has a significant and positive effect on all three performance criteria and also asset growth has a significant and positive effect only on return on equity.

KEYWORDS: Capital Structure, Banks Performance, Panel Data, Iran

1. INTRODUCTION

In research conducted from the perspective of strategic management, bank policies codification and implementation the decisions made have been identified as factors affecting the performance of banks. What that encourages funders to use their resources to put in a certain activity, is the optimal performance that activity, which followed them increase the value of the banks and thus increase shareholder wealth. Therefore, financing decisions are the main areas of joint stock banks financial management decisions in order to increase shareholder wealth. So for determine whether the managers to what extent they have been successful in achieving this objective, were evaluating performance indicators. Financing and investment banking decisions are decisions that are made with foresight. The banks in financing decisions to assess the risk of any financial instrument and selected tools that will have maximize positive impact on profits and shareholder returns. The use of debt, according to savings tax and low cost relative to investment securities are considered financial decisions (Arab Salehi and Karimi, 2009). To achieve the best performance in banks, we needed to review the capital structure of banks. Hence, is very complex determining the structure of company's capital and financial managers are facing with many difficulties to determine the optimal capital structure. Optimal capital structure is a structure in which, is the minimum amount the weighted average cost of capital and increase the value of the company. Creating a balance between amount of debt and company's capital so that to maintain and increase current interests of shareholders; is a main priority of financial management. It is important for managers to achieve this balance, so that, have benefit from the sources of financing through the debt, and from advantages of financing through equity. Financing tax benefits through the debt creates an incentive in managers that have benefit of this type of financing. Also, failure to pay cost benefit and low risk in financing method, through the stock is also characteristic of this method (Muhammad Muzaffar, et al., 2013).

Since the banking industry is in the position of one of the most important economic institutions, fiscal and monetary countries, so with smallest change in micro and macro policies, is undergoing severe changes. Hence knowledge of activities environment of these institutions and financial institutions, according to the specific circumstances of each country, necessarily caused base on economic development and to drive the cycle of production and economic stability. necessary of micro and macro fundraising and success in retain customers and their assets in banks and also optimal use of these funds in an appropriate and profitable investments that caused benefit the entire community, has been established for all developed and developing countries. So considering the crucial role of banks in the economy of each country is of great importance the need to assess the impact of the capital structure these institutions on its performance and creating an optimal balance between debt and equity to increase their performance. Accordingly, in this study seek to examine this issue in Iran and the answer to this question that does it effective the capital structure on bank's performance? Also this paper Examines through relationship between capital structure and accounting measures of economic performance, to examine the impact of capital structure effect on the performance of banks in the Iranian economy, using panel data in banks listed on the Iran Stock Exchange.

2. LITERATURE REVIEW

Evaluating companies are carried out through financial and non-financial criteria. Financial criteria divided into two categories: internal financial criteria (operating profit) and external financial criteria (stock prices). Non-financial criteria include internal non-financial criteria (delivery times) and external non-financial criteria (customer satisfaction). Some of the financial criteria that used to measure the company include: return on assets, stock returns, return on equity, market value, earnings per share, that in this research depending on the type of company (bank) has been used to criteria of

return on equity, return on assets and earnings per share. Also the capital structure was the topics of interest in the area of financial management and one of the main tasks of financial managers in the companies is to determine the best company financial resources, in other words the capital structure. Decisions regarding capital structure should be in order to increase the value of the company. To maximize the value of the company should be decisions about the best investment and their composition and how they are funded. Financing can be through the use of debt and created leverage or brought shareholders. Existence of debts in the financial structure of companies on the one hand due to the effects of taxation which leads to increased profit accounting and consequently increase the return on equity and the other hand increase in benefit expense and risk of non-payment of debt in maturities, which leads to increases the financial risk and reduce the price of the stock market, that accordingly will be reduced stock returns. Hence, it is one of the major concerns for financial managers to determine the optimal combination of capital structure.

With regard to the subject of in this research, in the following, we will explain the bank performance indicators and capital structure, then will describe the relationship between the two.

Bank Performance Indicators

In experimental studies in evaluation of the bank's performance issue has been used by several factors. In this study use of three indicators of return on assets, return on equity and earnings per share that the following will be discussed describes each one.

Return on Assets (ROA)

ROA measures a company's ability to generate profit in relation to the total amount of investment in the company (Bazgir, 2005). This ratio is obtained by dividing the net profit after tax on average of company assets.

Return on Equity (ROE)

The profitability of a company is calculated by dividing net income on shareholders' assets. Originally ROE shows a company by money that shareholders have invested in that company, how much profit it can make. Also return on equity known as return on net worth. Return on equity can be useful for the comparative company profitability of other companies in the same industry. Shareholders can use in several ways from the following formula:

The profitability of a company = Shareholders assets / net income

1. Shareholders wishing to observe that yields common in the above formula, by deducting preferred stock dividends from net income and deducting preferred stock rights from shareholders equity, amend as follows:

Return on common shareholders' equity = (Net income - preferred dividends) / common shareholders' equity

2. Return on equity calculated by dividing the net profit on average of shareholders equity. Average of shareholders equity calculated by adding shareholders' equity at the beginning of the period to shareholders equity at the end of the period divided by two.

3. Shareholders can also calculate the change in the return on equity for a period, once through the shareholders equity at the beginning of the period and once through the shareholders equity at end of the period as a divisor. Calculate the return on equity of both the beginning and end, allowing an investor to determine the change in profitability during a period.

Earnings Per Share (EPS)

To purchase one share of the bank, a person is shareholder in the bank. Often interesting for many of the shareholders to know that over time, has how changes the value of the property (shares which are purchased). The first factors that affect the value of the shares are its price, which will be determined in stock market on the basis of supply and demand. But in addition this, annual profit divided by the Bank and also changes in shareholders' equity in the time of the capital increase, is also effective as a result of the final calculation of investment.

Capital Structure

To the combination of debt and shareholders' equity called capital structure. Decisions relating to the company's capital structure are consists of two aspects of needed capital and the combination of financial resources (Neveu, 1997). Composition of Capital structure which is caused by various combinations of different sources of financing affects the cost of capital and company financial risk. Thus to determine the capital structure is very important for owners and company managers. Capital structure in the banks, as well as companies consists of two parts of debts and shareholders' equity. One of the major differences in capital structure in bank and company are in ratio of debts and shareholders' equity to total assets. However, this ratio is different in the case of commercial and specialized banks. The low ratio of shareholders' equity to assets creates some risks for banks. That is why in this context, by the government and international organizations is considered to be a special rate to a minimum, that the banks can in uncertain environmental conditions acting on their obligations towards the depositors.

The issue of capital structure is the controversial issues in the field of corporate finance. Different researchers have different opinions and theories, are trying to find a way to determine the optimum capital structure that do the minimum cost of company's capital and maximize its value. Different capital structures are resulting from a combination of different sources of financing by companies. This issue is also true for banks, but their main focus is somewhat different. The banks are the most important financial institutions and financial markets in each country. Their main task is to collect funds of Investors and lending money to people who are in need of funds for business. Given this basic task, banks have always been concerned about the pay off debts and liquidity and the success of banks in their ability to identify, assess,

monitor and manage these risks will depend on sophisticated methods. Also in Iran the field of banking, due to defects capital markets, has a key role in mobilizing deposits to investment purposes. Therefore, any defect in the structure of this sector and inefficient performance, also provides grounds to interfere in other sectors (Pajouyan and Shafi'i, 2003). On the other hand, the banks environment, are growing and highly competitive environment and the banks to continue survival forced to compete with a number of factors at the national and internationally level and expand its operations through new investments (Noorani and et al., 2013). As a result, banks and nonprofit organizations like any organization are seeking to achieve profitability to ensure their survival. To increase bank profits are possible by increasing income and reducing costs and to increase the profitability of the bank should be to maximum efforts to obtain financing through the acquisition cheap of funds. Sources of financing are crystalline in the capital structure that ultimately effect on the return on equity. Due to the unique financial characteristics of banks and the environment in that they operate, there are strong reasons for a separate study on the determinants factors of banks capital structure.

Dehghanzadeh and Zeraatgari (2013) were evaluated in research to examine the relationship between capital structure with return on assets and return on equity of 193 companies listed in Tehran Stock Exchange for the period 2006 to 2011. The results show there is a negative significant relationship between the rate of return on assets and capital structure. This means that under normal conditions the choice of capital structure have effects on the rate of return on assets and companies with a higher rate of return on assets, take advantage of lower debt in its capital structure. Also, there is no significant relationship between capital structures with the rate of return on equity.

Sajjadi and colleagues (2010) were evaluated in research to investigate the effects of six factors: type of industry, company size, and company age of industry, capital to assets ratio, a leverage size and cost of advertising on the profitability of the companies listed in Tehran Stock Exchange. He for profit using the three criteria of return on assets, return on assets adjusted and return on equity and concluded that if the defined criteria of profitability, return on assets and return on assets adjusted, the variables such as the size, the ratio of debt to total assets and ratio of capital to assets influence on profitability. But type of industry, company age and advertising costs has not effect on profitability. Also, if the criterion of profitability to be considered return on investment, type of industry and company size has an effect on profitability. But the company age, the ratio of capital to assets, a leverage size and cost of advertising has not effect on profitability.

Salim and Yadav (2012) were studied to review capital structure and function of 237 member companies of Bursa Malaysia in the period 1995 to 2011 and concluded that there is negative significant relationship between the ratio of total debt to total assets and ratio of long-term debt to total assets with the rate of return on assets.

Ebaïd (2009) examine the capital structure and corporate performance in the period 1997-2005 for Egypt. His main objective was to investigate the relationship between the level of debt and financial performance. He used three performance indicators of return on assets, return on equity and gross profit margin; he found that if the use of the return on assets index, short-term debt and total debt had a many negative impact on financial performance but long-term debt have not impact on financial performance. He also concluded that the use of indicators of the rate of return on assets, return on equity and gross profit margin, none of these debts will have little impact on financial performance.

Abor (2007) in research on small and medium enterprises in Ghana and South Africa in the six-year period (2003-1998) came to these results that in both countries, the ratio of total debt and short-term debt ratio have significant and negative relationship with gross profit margin. Long-term debt ratio is a positive significant relationship with the gross profit margin. In Ghana, the total debt ratio, the ratio of long-term debt and short-term debt ratio is a negative significant relationship with the rate of return on assets. In South Africa, between the ratio of total debt, and ratio of long-term debt, with the rate of return on assets is a negative significant relationship and is a positive relation between the ratios of short-term debt with the rate of return on assets.

3. DATA AND METHODOLOGY

In the present study, according to Muhammad Muzaffar and colleagues study (2013) noted the regression model as follows:

$$BPI_{it} = \alpha_i + \beta_1 TDT C_{it} + \beta_2 BS_{it} + \beta_3 BAG_{it} + \varepsilon_{it} \quad (1)$$

In which banking performance index (BPI) as the dependent variable and the ratio of total debt to capital ($TDT C$), bank size (BS) and bank asset growth (BAG) is considered as explanatory variables. α_i was represents unobservable effects in sections (banks) and ε_{it} is a disorder in the regression equation. Also i is represents banks (Eghtesad novin, Tejarat, Parsian, Sina, Saderat, Mellat, Karafarin and Pasargadae) as sections and t is represents period of research that is included between 2008 to 2013 period. Regression equation (1) based on the three criteria of performance index of the banking system has been evaluated in three modes:

First case:

$$ROA_{it} = \alpha_i + \beta_1 TDT C_{it} + \beta_2 BS_{it} + \beta_3 BAG_{it} + \varepsilon_{it} \quad (2)$$

Second case:

$$ROE_{it} = \alpha_i + \beta_1 TDT C_{it} + \beta_2 BS_{it} + \beta_3 BAG_{it} + \varepsilon_{it} \quad (3)$$

Third case:

$$EPS_{it} = \alpha_i + \beta_1 TDT C_{it} + \beta_2 BS_{it} + \beta_3 BAG_{it} + \varepsilon_{it} \quad (4)$$

That mentioned relations:

ROA: It was bank profitability return on assets and was calculated as follows:

$$ROA = \frac{\text{Profit After Tax Deductions}}{\text{Average of Assets}}$$

ROE: It was return on equity index that used to calculate the bank profitability by determining the amount of profit generated by the bank by the money that has invested shareholders. This index is calculated with the following formula:

$$ROE = \frac{\text{Profit After Tax Deductions}}{\text{Average of Shareholders' Equity}}$$

EPS: Concepts derived from this word of the fundamental principles of decisions in the stock market. In fact, this term is expressing companies profit in a specific fiscal period per share. This index is calculated with the following formula:

$$\text{Earnings per share (EPS)} = \frac{\text{Net income}}{\text{Number of Shares}}$$

TDTC: It was represents the ratio of total debt to bank's capital.

BS: It was represents the bank size. Researchers have used various methods to measure these variables. According Titman and Twite Quoted (2003) company size is calculated as the natural logarithm of total book value of assets. Company size is controller economies of scale and Changes in inventories in large and small companies.

BAG: It was represents growth of banking assets and according to many empirical studies have been used the following formula to calculate it:

$$\text{Asset Growth} = \frac{\text{Current Year Assets} - \text{Last year Assets}}{\text{Last Year Assets}}$$

Process of estimated model is based on panel data econometrics. In this way, at first, model is estimated using two methods of integration and fixed effect. Then, using the Chow test, at first procedure was done between integration and fixed effects methods. Opposite and null hypothesis of in this test is as follows:

Null hypothesis: integration method is more efficient.

Opposite hypothesis: fixed effect method is more efficient.

After calculation the F statistic and given the amount of F statistics in table, they investigate to null and first hypothesis of test. If the calculation of the F-statistic is larger than F in table the null hypothesis was not accepted and chosen fixed effective method. Otherwise, it had chosen integration method. The final step is to determine the appropriate method between fixed effects and random effects using the Hausman test. Opposite and null hypothesis of in this test include:

Null hypothesis: random effect method is more efficient.

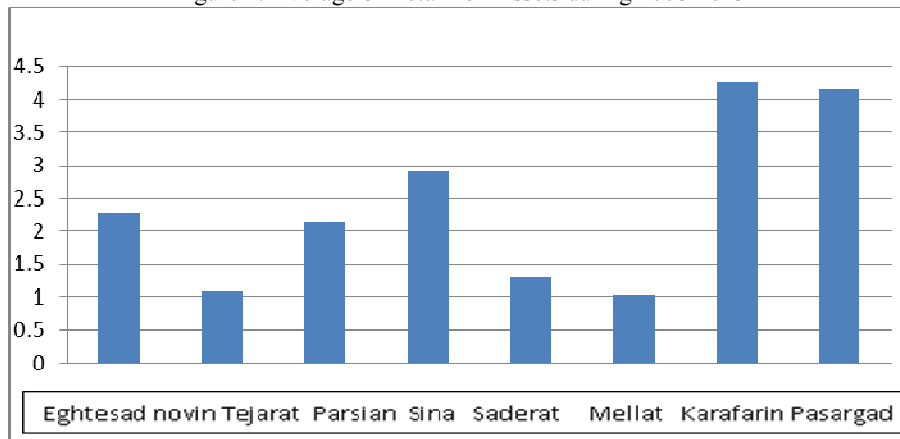
Opposite hypothesis: fixed effect method is more efficient.

Hausman test function is an asymptotic distribution χ^2 and number of degrees of freedom is equal to the number of explanatory variables in the model. According to the Hausman test, if the χ^2 calculation is larger than the critical value (or level of computational statistics is smaller than 0.05) the null hypothesis was not accepted and fixed effect method is more efficient. If the χ^2 calculation is smaller than the critical value (or level of computational statistics is larger than 0.05) the null hypothesis was accepted and random effects is more efficient.

4. DESCRIPTIVE ANALYSIS OF DATA

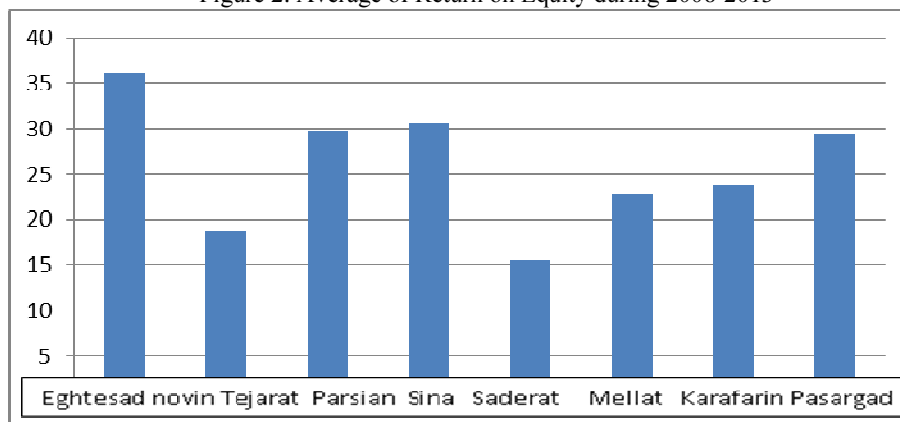
In this section we calculate the mean of variables during the 2008-2013 periods and have been reported in Figures 1, 2, 3 and 4 to describe.

Figure 1: Average of Return on Assets during 2008-2013



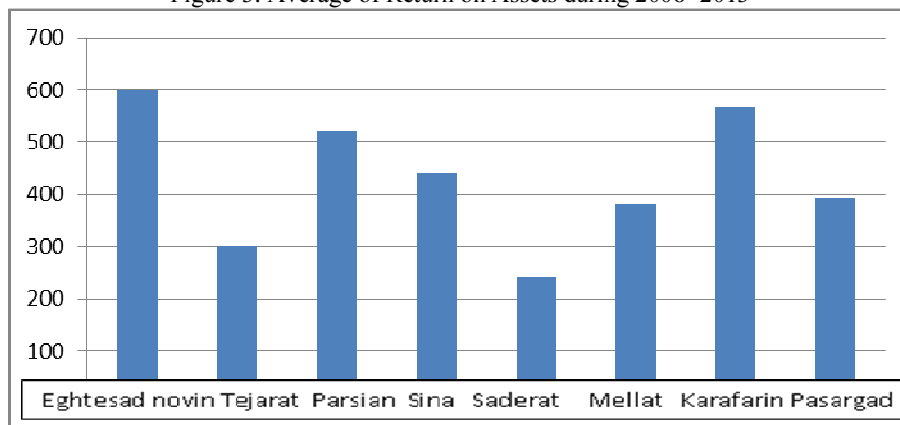
In Figure 1 plotted return on assets of banks expressed during the 2008-2013 period. According to Figure 1, it can be stated that this amount in the 2008 to 2013 period for Karafarin Bank which has the highest average and for the Mellat Bank has the lowest compared to other banks. Also in Figure 2 plotted return on equity index for banks during the 2008-2013 periods. According to Figure 2, it can be stated that this amount in the 2008 to 2013 period for Eghtesad novin Bank which has the highest average and for the Saderat Bank has the lowest compared to other banks.

Figure 2: Average of Return on Equity during 2008-2013



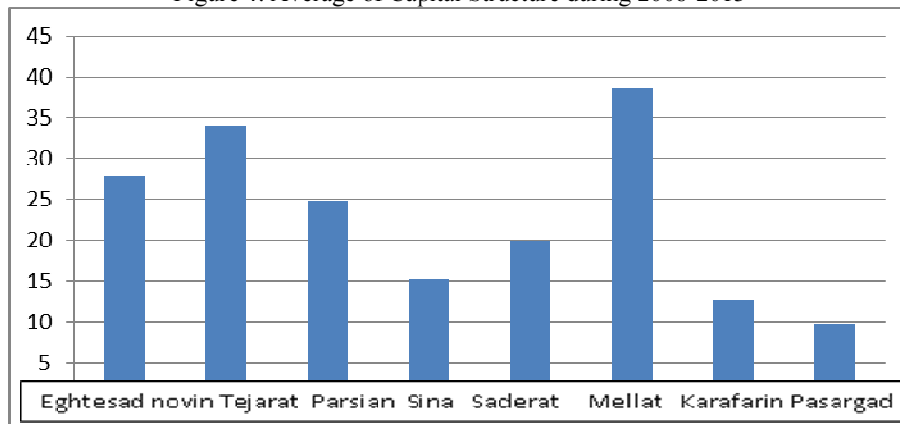
Also in Figure 3 plotted earnings per share index for the banks, as a measure of cortical function of banks during the 2008-2013 periods. According to Figure 3, it can be stated that this amount in the 2008 to 2013 period for Eghtesad Novin Bank which has the highest average and for the Saderat Bank has the lowest compared to other banks.

Figure 3: Average of Return on Assets during 2008 -2013



Finally, Figure 4 shows the capital structure for banks during the 2008-2013 periods. According to Figure 4, it can be stated that this amount in the 2008 to 2013 period for Mellat Bank which has the highest average and for the Pasargad Bank has the lowest compared to other banks.

Figure 4: Average of Capital Structure during 2008-2013



In table 1 calculated average of eight bank control variables. An average of banks total asset based on the bank asset growth index (BAG) is 26.06 percent and the banks of Pasargad, Saderat and Sina have higher average of total average and other banks averages have lower than the overall average. Also in terms of rank, Pasargad Bank with an average of 32.00% is in the highest position and Parsian Bank with an average 19.20% is in the lowest position.

Average of all banks based on the banks size (BS) is 19.21 and the banks of Mellat, Saderat, Parsian and Tejarat has higher average figure from total average and other banks have lower averages than total average. Also in terms of rank, Mellat Bank with an average of 20.46% is in the highest position and Karafarin Bank with an average 17.84% is in the lowest position.

Table 1: Average of Control Variables during 2008-2013

Bank Name	BAG(percent)	BS
Eghtesad Novin	25.90	18.90
Tejarat	19.60	20.05
Parsian	19.20	19.45
Sina	31.50	17.87
Saderat	30.30	20.00
Mellat	24.20	20.46
Karafarin	25.80	18.87
Pasargad	32.00	19.07
Average of 8 Banks	26.06	19.21

5. EMPIRICAL RESULTS

As mentioned in the previous section in estimated model to select the appropriate method between the three methods of integration, fixed effects and random effects should be used Chow and Hausman tests. Results in these two test pattern (in all three cases) have been reported in Table 2. According to calculations made in this table, the Chow test shows that in the three estimates of the model the size of computational F statistic was larger than the size of the F-statistic in table and thus, fixed effects method is preferred on integration method.

Table 2: Results of the Chow and Hausman Tests

First Estimate	F-statistic in Chow Test	16.79
Second Estimate	Hausman test	-Statistic χ^2 16.70
	Probability	0.0008
	F-statistic in Chow Test	9.02
Third Estimate	Hausman Test	-statistic χ^2 33.64
	Probability	0.000
	F-statistic in Chow Test	8.062
	Hausman Test	-Statistic χ^2 10.86
	Probability	0.0125

Also according Hausman test, probability level of χ^2 statistic is less than 0.05. So in all estimates the null hypothesis is not acceptable and fixed effect method chosen as efficient method. Accordingly results of the model estimation in three states with fixed effects are as tables (3), (4) and (5).

According results of the model estimation in the first case (reported in Table (3)) the coefficient of determination is equal to 0.93. This means that 93% of the changes in banks' return on assets are explained by the explanatory variables. In other words, since the value of the coefficient of determination is nearly constant value1, therefore model is of high ability. However, according to Probability level for F statistics were obtained for analysis of variance observed that probability level of computational F statistics is less than 0.05. Therefore estimated coefficients of the explanatory variables totaling are all significant and so can be interpreted the model coefficients. As specified in this table asset growth and bank size have positive impact and capital structure have a negative impact on the return on assets of studied banks. The size of the coefficient indicates that with one percent increase in the bank size, Increase ROA to amount of 0.54 and also by increasing one percentage of ratio total debt to capital (capital structure), reduced return on assets to amount of 0.0002. Since the estimated coefficient of bank assets growth is not significant at a confidence level of 90 percent; cannot be argued about the estimated coefficient on this variable. Finally, with regard to the results it can be stated that bank size has a significant and positive effect on banks return on assets and capital structure has a significant and negative effect on banks return on assets.

Table 3: Results of Estimation in First Case Using a Fixed Effect

Dependent Variable: ROA			
Explanatory Variables	Coefficient	Standard Deviation	Prob.
Capital Structure	-0.0002	0.00008	0.012
Asset Growth	0.002	0.003	0.50
Bank size	0.542	0.127	0.0001
R^2	0.93		
F-statistic (Prob.)	45.97 (0.000)		

The coefficient of determination obtained by model estimation in second case (reported in Table (4)) is equal to 0.78 and this means that 78% of changes in return on equity are explained by the explanatory variables. Also regression total significance test shows that probability level of computational F statistics is less than 0.05, therefore estimated coefficients of the explanatory variables totaling are all significant and so can be interpreted the model coefficients. According to the results reported in Table (4) can say that the three variables of assets growth, bank size and capital structure have a positive effect on banks return on equity that estimated coefficient of capital structure is not significant in the 90% confidence level. Coefficients show that, with an increase of one percent in bank's asset growth and bank size the return on equity in order to increase amount of 0.135 and 0.84 units. Finally, according to the results it can be stated that asset growth and bank size has a significant and positive impact on the banks' return on equity, but capital structure has not impact.

Table 4: Results of Estimation in second Case Using a Fixed Effect

Dependent Variable: ROE			
Explanatory Variables	Coefficient	Standard Deviation	Prob.
Capital Structure	0.001	0.001	0.367
Asset Growth	0.135	0.02	0.000
Bank size	0.840	0.475	0.086
R^2			0.78
F-statistic (Prob.)	12.78 (0.000)		

The coefficient of determination obtained by model estimation in third case (Table 5) is equal to 0.76 this means that 76% of changes in earnings per share are explained by the explanatory variables. Also F test shows that the estimated coefficients in this case is totaling significant. Assets growth, capital structure and bank size have positive impact on earnings per share, that course, asset growth in terms of statistically has not significant effect. Coefficients show that, with an increase of one percent in bank size and the ratio of total debt to capital to be increase earnings per share in order the amount of 59.01 and 0.103 units. Overall, according to the results can say that the bank size and capital structure have significant and positive impact on earnings per share in the banks.

Table 5: Results of Estimation in third Case Using a Fixed Effect

Dependent variable: EPS			
Explanatory Variables	Coefficient	Standard Deviation	Prob.
Capital Structure	0.201	0.725	0.78
Asset Growth	59.01	8.99	0.000
Bank size	0.103	0.02	0.000
R^2			0.76
F-statistic (Prob.)	11.31 (0.000)		

6. CONCLUSION

Determine the company's capital structure is very complex and financial managers are facing with many problems in determining the optimal capital structure. Optimal capital structure is a structure in which weighted average cost of capital to the minimum quantity and increase the value of the company. Creating a balance between debt and company capital in a manner that preserves and enhances the existing interests of shareholders, is one of the priorities of financial management. Banking industry is most important institution in the place of economic, monetary and financial that with slightest changes in the macro and micro policies is undergoing severe changes. Understanding the environment activities of financial institutions, according to the specific circumstances of each country, necessarily makes the foundations of economic development and to quicken the cycle of production and economic stability. The obtained results of the estimated model in three modes for 8 banks over the period 2008 to 2013 with using panel data showed that the ratio of total debt to capital which is an indicator of capital structure has a significant effect on return on assets and earnings per share, but has not significant effect on Return on equity. Also based on estimated coefficients mark can say that by increasing the ratio of total debt to capital, respectively decreased and increased the return on assets and earnings per share. Banks size has a significant impact on return on assets, Return on equity and earnings per share. So that with banks getting larger and return on Assets will increase return on equity and earnings per share. Also assets growth has a significant effect on Return on equity and with increases its, increase the return on equity of banks.

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