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The Effect of Ownership Structure on Tobin's Q Ratio

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Abstract

This article is done to find the effect of ownership structure on Tobin's Q ratio. In many literature and financial context, the relationship between ownership structure and organization's performance and relative ratios are considered by many researchers. In this article, Tobin's Q ratio is used to estimate performance.

Tobin's Q ratio as independent variable is calculated with sum of market value of shares plus book value of debts to book value of assets.

"Ownership of legal shareholders", "Ownership of individual shareholders", "Ownership of largest shareholder" and "Ownership of shareholders more than 5 percent" are taken as ownership structure variables.

The research model is probed a relationship between ownership structures on Tobin's Q ratio that can be useful for anticipating future position and decides better when bank try to increase capital. Managers may use the results of this study to change view themselves when want to attract new shareholders according to the weight of each indicators in ownership structure of bank.

Keywords: Ownership structure; Tobin's Q ratio; Legal shareholders; Individual shareholders.

1. Introduction

One of the concerns of organizations, especially banks, is performance measurement. Measuring the financial performance of banks is important because the performance's results are the foundation of many national and international decision-making. Many of the stockholders tend to be aware of the bank [1,2,3]

Banks' shareholders maybe are individuals, organizations and companies with different interests, objectives and strategies. In addition, all shareholders of the bank are not able to accept the executive responsibility in bank. The presence of major stakeholders in decision-making is possible only in annual public meeting. The election of responsible directors and managers is very important. The conflict of interest between managers and shareholders has an agency problem which has to decrease. It can be used to monitor and control various mechanisms. One of the executive mechanisms is to focus on corporate governance [3,4,5]

In other side, capital structure and combination of shareholders constitutes a substantial part of an organization and therefore is significant in an organization's financial operations. More so, financing decisions of firms are very crucial for the financial wellbeing of the firm. Researchers have continued to analyze ownership structures and try to determine whether optimal capital structures exist [6]

Corporate governance concentrates on many elements such as shareholders and its ownership structure, and composition of board members, management and other stakeholders who are effective in decision-making. Corporate governance is very important in bank performance. So, in this study, it is tried to consider the effect of ownership structure on bank performance. For bank performance variable, Tobin's Q ratio is chosen based on prior studies [2,7]

Main research aims of this study are:

- **Considering four indicators for bank ownership structure which are "Ownership of legal shareholders", "Ownership of individual shareholders", "Ownership of largest shareholder" and "Ownership of shareholders more than 5 percent"**
- **Considering Tobin's Q ratio as performance indicator**
- **Finding the effect of ownership structure indicators on Tobin's Q ratio**

2. Definition

2.1. Corporate Governance

Corporate governance is a framework for all bank stockholders and includes rules, practices and processes which a bank is directed and controlled. Corporate governance help bank to resolve conflicts of interest between managers and the others [4,8]

The past two decades have however, witnessed significant transformations in corporate governance structures, leading to increased scholarly interest in the role of board of directors in driving corporate performance. Arising from many high profile corporate failures, coupled with generally low corporate profits across the globe, the credibility of the existing corporate governance structures has been put to question.

The prior studies have called for an intensified focus on the existing corporate governance structures, and how they ensure accountability and responsibility.

Corporate governance mechanisms include:

- **Ownership Structure**
- **Capital Structure**
- **The Board of Directors**
- **Managerial rights and rewards**
- **Competition in the product market**
- **Swallowing companies**

Generally, the corporate governance debate has largely centered on the powers of the Board of Directors vis-à-vis the discretion of top management in decision making processes [6,9]

2.2. Agency Theory and Conflict of Interest

Agency theory is the basis of corporate governance and agency problems are the result of separate ownership from control. According to agency theory, owners or shareholders with the aim of achieving maximum efficiency in the face of reasonable risk in a company by choosing a manager or managers try to reach on their objectives, unfortunately in many cases manager and shareholders objectives are different and so, it makes a conflict [9,10]

2.3. Ownership Structure

Ownership structure is major important point in corporate governance because they determine the incentives, rewards and rights of managers. Ownership structure is a combination of shareholders and is focus on the distribution of equity with regard to votes and capital.

Ownership Structure The composition of ownership of a firm comprises the actual identity of individual and institutional shareholders of a corporation as well as the proportion of shares owned by each shareholder (ownership concentration) [6,11,12]

2.4. Bank Performance

Performance can be shown with some ratios and tools. Banks need to find a system to evaluate performance. One of ratio that can be useful and practical to evaluate and decide is Tobin's Q ratio [13,14]

2.5. Tobin's Q Ratio

Tobin's Q ratio is a common ratio for performance that is calculated the market value and liabilities' book value divided assets' book value. This ratio is devised by James Tobin of Yale University [15,16]

3. Prior Studies

In table 1 is shown some prior studies in ownership structure and performance area.

Table1: Prior Studies in Study Field

Year	Authors	Title	Detail
2015	Golarzi, GH., Mehman, N., S. [1]	Ownership structure on the performance in the banks	In this study, the relationship between management and non-management ownership and risk and return are considered. The results suggested purchasing shares of the company which the managers' ownership is higher.
2013	Saiidi, A., Shirighahi, A. [3]	Performance and ownership, evidence from the Stock Exchange	The relationship between shareholders portion and Q-Tobin are considered. The results suggested decreasing portion of shareholders and increase number of shareholders.
2013	Mehrani, S., Hoseini, A., Heidari, H., Pouyanfar, A. [15]	Ownership structure on company value	The article is studied governmental, organizational, institutional and individual ownership on company value.
2013	Sadeghi, H., Rahimi, P. [14]	System of simultaneous equations in considering ownership structure	The establishment of corporate governance mechanisms is one of important subject in company management. In this study, relation between performance and portion of four large shareholders are discussed.
2011	Fazlzade, A., Mohammadzade, P., Tahbaz hendi, A. [8]	Effect of ownership structure for each industry	This study is practical and tries to discuss about industries. The study is considered the effect of concentration of ownership, institutional ownership, and institutional ownership concentration on ROA.
2011	Priya, P.V., Shanmughan, R. [2]	Foreign ownership structure and corporate performance: empirical evidence from India	Authors used Q- Tobin for performance variable and tried to find the effect of ownership cluster such as foreign ownership on performance.
2011	Ongore, V.O., [7]	The relationship between ownership structure and firm performance	This study is managed in Africa. The authors found negative relationship between ownership structure, concentration and governmental ownership with performance and positive relationship between dispersed ownership structure and organizational ownership with performance.
2010	Babaii, Z.M.A., Ahmadvand, ZH. [5]	The effect of ownership structure on the performance in the stock exchange companies	Most of the companies affected by the economic conditions of countries. A combination of both public and private sectors in structure ownership is effective in increasing profitability. In this study, the relationship between ownership and the number of major shareholders, ROE and P/E ratio are considered.
2009	Namazi, M., Kermani, E. [4]	Ownership structure on the performance in the stock exchange companies	In this research is discussed the effect of managerial organizational, institutional, foreign and private ownership on company performance.
2009	Florackis, C., Kostakis, A. & Ozkan, A. [10]	Managerial ownership and performance	This paper examines the nature of the relationship between ownership and management of companies. The results show a non-linear relationship between executive ownership and performance.

4. Hypotheses

Four hypotheses are considered in this study:

1. There is a significant relationship between ownership of legal shareholders and Tobin's Q ratio.
2. There is a significant relationship between ownership of individual shareholders and Tobin's Q ratio.
3. There is a significant relationship between ownership of largest shareholder and Tobin's Q ratio.
4. There is a significant relationship between ownership of shareholders more than 5 percent and Tobin's Q ratio.

5. Research Methodology

5.1. Research Type

This study is applied research in terms of aim and is Cross-correlation in terms of way.

5.2. Research Variables

There are 4 Independent variables as follow:

1. Ownership of legal shareholders is the sum of legal shareholders percent that is shown with LEG.

2. Ownership of individual shareholders is the sum of individual shareholders percent that is shown with IND.

3. Ownership of largest shareholder is the largest shareholder percent that is shown with LAR.

4. Ownership of shareholders more than 5 percent is the sum of shareholders more than 5 percent that is shown with MOR.

And also, Tobin's Q ratio is dependent variable that is shown with TOQ [15,16]

$$TOQ = \frac{MVE_i + BVD_i}{BVA_i}$$

TOQ is Tobin's Q ratio.

MVE_i is market value per year.

BVD_i is liabilities book value per year.

BVA_i is assets book value per year.

Control variables are:

Leverage or liabilities to assets (DEA),

P/E or price to earnings per share (POE),

ROE or return on equity (ROE),

Tangible assets to assets (TAN)

5.3. Data Collection

Data which is used in this study is gathered from annual financial reports of an Iranian Bank, one successful bank in performance and increasing capital and size continuously.

5.4. Research Analysis

The data are analyzed with SPSS, Eviews and Microsoft Excel software.

5.5. Research Model

The article is tried to consider hypotheses with this formula:

$$TOQ = \beta_1(\text{LEG}) + \beta_2(\text{IND}) + \beta_3(\text{LAR}) + \beta_4(\text{MOR}) + \beta_5(\text{DEA}) + \beta_6(\text{POE}) + \beta_7(\text{ROE}) + \beta_8(\text{TAN}) + \varepsilon_i$$

6. Results and Discussion

6.1. Descriptive Statistics

In table 2, descriptive statistics are calculated. All variables in 10 years (2005 – 2014) have considered. Minimum and maximum and also, mean and stead deviation of variables are shown.

Table 2: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
TOQ	10	.402	.900	.809	.145
LEG	10	63	82	75.470	6.945
IND	10	18	36	24.340	6.547
LAR	10	10.250	30	22.164	8.082
MOR	10	14.360	46.530	31.710	13.342
DEA	10	.242	.899	.791	.195
POE	10	3	8.150	5.247	1.431
ROE	10	.0463	.294	.220	.0728
TAN	10	3.531	16.567	7.045	3.754
Valid N (listwise)	10				

In table 3, one-sample Test is done based on test value, zero. The lower and upper level of each variable is in 95% confidence interval of the difference with significant 2-tailed of zero.

Table 3: One-Sample Test

Variables	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
TOQ	17.544	9	.000	.809	.705	.913
LEG	34.362	9	.000	75.465	70.500	80.430
IND	11.753	9	.000	24.335	19.650	29.020
LAR	8.672	9	.000	22.164	16.382	27.945
MOR	7.516	9	.000	31.710	22.165	41.254
DEA	12.815	9	.000	.791	.652	.931
POE	11.589	9	.000	5.247	4.223	6.271
ROE	9.571	9	.000	.220	.168	.272
TAN	5.933	9	.000	7.045	4.359	9.731

In table 4, the Correlations between variables are discussed. Correlations are significant at the 0.05 and 0.01 level (2-tailed) as follows.

Table 4: Correlations

Variables		TOQ	LEG	IND	LAR	MOR	DEA	POE	ROE	TAN
TOQ	Pearson Correlation	1	.721*	-.718*	-.167	-.189	.999**	-.435	.869**	-.925**
	Sig. (2-tailed)		.019	.019	.645	.600	.000	.209	.001	.000
	N	10	10	10	10	10	10	10	10	10
LEG	Pearson Correlation	.721*	1	-1.000**	-.360	-.367	.709*	-.580	.811**	-.754*
	Sig. (2-tailed)	.019		.000	.306	.297	.022	.079	.004	.012
	N	10	10	10	10	10	10	10	10	10
IND	Pearson Correlation	-.718*	-1.000**	1	.354	.360	-.706*	.596	-.811**	.758*
	Sig. (2-tailed)	.019	.000		.316	.306	.023	.069	.004	.011
	N	10	10	10	10	10	10	10	10	10
LAR	Pearson Correlation	-.167	-.360	.354	1	.941**	-.196	-.042	-.346	.150
	Sig. (2-tailed)	.645	.306	.316		.000	.587	.908	.328	.679
	N	10	10	10	10	10	10	10	10	10
MOR	Pearson Correlation	-.189	-.367	.360	.941**	1	-.218	-.018	-.462	.176
	Sig. (2-tailed)	.600	.297	.306	0.000		.545	.961	.179	.626
	N	10	10	10	10	10	10	10	10	10
DEA	Pearson Correlation	.999**	.709*	-.706*	0	-0.217	1.000	-.416	.868**	-.920**
	Sig. (2-tailed)	.000	.022	.023	0.587	.545		.232	.001	.000
	N	10	10	10	10	10	10	10	10	10
POE	Pearson Correlation	-.435	-.580	.596	-.042	-.018	-.416	1	-.599	.735*
	Sig. (2-tailed)	.209	.079	.069	.908	.961	.232		.067	.016
	N	10	10	10	10	10	10	10	10	10
ROE	Pearson Correlation	.869**	.811**	-.811**	-.346	-.462	.868**	-.599	1	-.900**
	Sig. (2-tailed)	.001	.004	.004	.328	.179	.001	.067		.000
	N	10	10	10	10	10	10	10	10	10
TAN	Pearson Correlation	-.925**	-.754*	.758*	.150	.176	-.920**	.735*	-.900**	1
	Sig. (2-tailed)	.000	.012	.011	.679	.626	.000	.016	.000	
	N	10	10	10	10	10	10	10	10	10

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

6.2. Estimation of Model

According to extracted results, the model of TOQ is shown as follow. In this model TOQ as dependent variable equal to some coefficient multiple independent variables plus a fix amount. This model is finalized at bank based on information in 2005 -2014. This model can predict the relationship between ownership structures and Tobin's Q ratio in bank for future.

Estimation Command:

==========

LS TOQ C LEG IND LAR MOR DEA POE ROE TAN

Estimation Equation:

==========

TOQ = C(1) + C(2)*LEG + C(3)*IND + C(4)*LAR + C(5)*MOR + C(6)*DEA + C(7)*POE + C(8)*ROE +C(9)*TAN

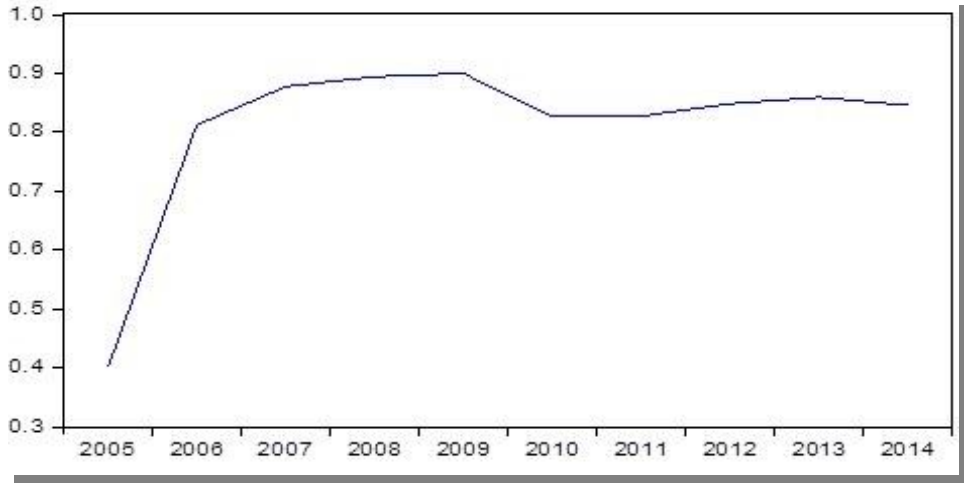
Substituted Coefficients:

==========

TOQ = 2.65136062528 - 0.0274607968473*LEG - 0.0289705115539*IND - 0.000145335432098*LAR + 0.000189453998636*MOR + 1.12481003785*DEA - 0.0288117514445*POE + 0.0313359548574*ROE + 0.0264537895335*TAN

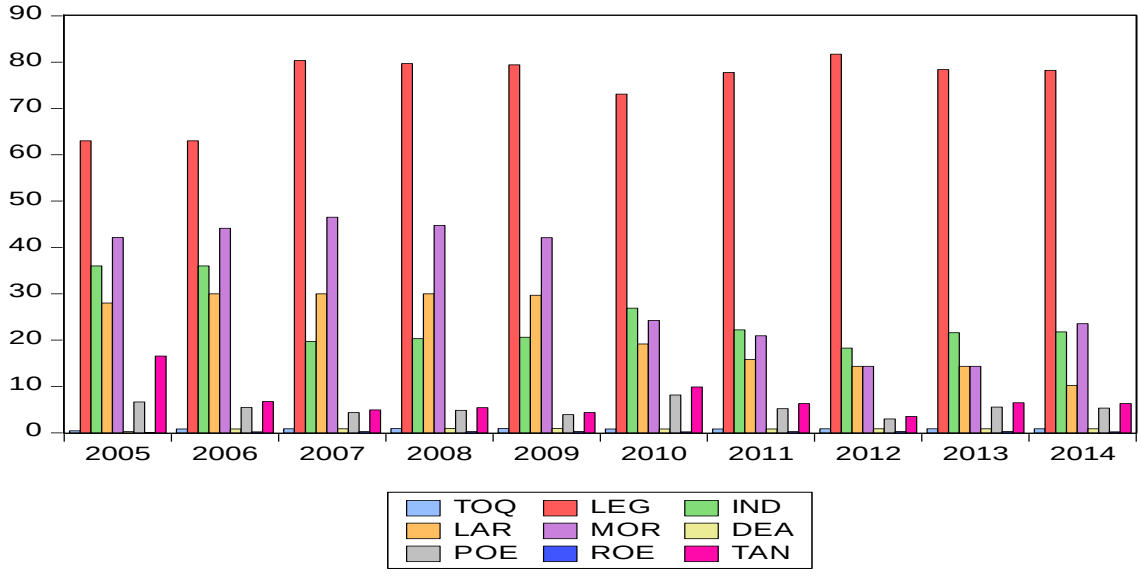
In figure 1: The TOQ curve is shown in 2005 up to 2014 as follow.

Figure1. TOQ Flow



And also all variables are shown in figure 2 as follow.

Figure2. Variables Flow



In table 5, results of estimation are calculated. This is clear that Prob (F-statistic) is about 0.0005 and less than 0.05, so, this model is accepted and there is a logical relationship between dependent and independent variables and also, all coefficients are significant.

According to results, R-squared is equal to 1 and this is shown that estimation can explain variables well and the changes of independent variable were presented with independent variables completely. If the model considers degree of freedom, Adjusted R-squared is close to one and is equal to 0.999. Amount of these R-squared and Adjusted R-squared show that the specified model makes the certainty properly for deciding and other analyses.

Durbin-Watson statistic is suitable to distinguish autocorrelation disturbance components in regression model. As the results are shown the auto correlation from first level does not exist in model.

Table5: Estimation Results

Dependent Variable: TOQ
Method: Least Squares
Date: 06/01/15 Time: 12:01
Sample: 1384 1393
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.651361	0.099201	26.72719	0.0238
LEG	-0.027461	0.000991	-27.69658	0.0230
IND	-0.028971	0.001058	-27.39454	0.0232
LAR	-0.000145	2.72E-05	-5.352816	0.0176
MOR	0.000189	2.28E-05	8.323951	0.0761
DEA	1.124810	0.006761	166.3663	0.0038
POE	-0.028812	0.000531	-54.22017	0.0117
ROE	0.031336	0.003966	7.900581	0.0802
TAN	0.026454	0.000422	62.67520	0.0102

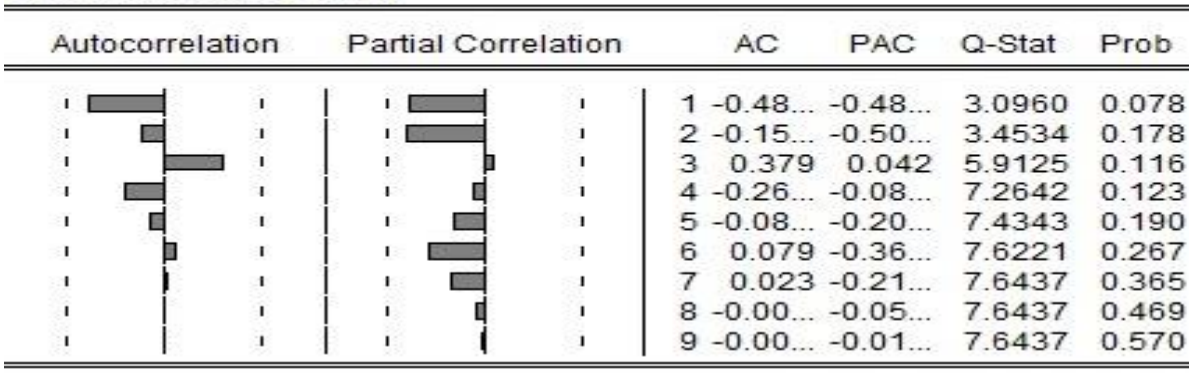
R-squared	1.000000	Mean dependent var	0.809573
Adjusted R-squared	0.999999	S.D. dependent var	0.145922
S.E. of regression	0.000117	Akaike info criterion	-15.76403
Sum squared resid	1.38E-08	Schwarz criterion	-15.49170
Log likelihood	87.82013	Hannan-Quinn criter.	-16.06277
F-statistic	1737122.	**Durbin-Watson stat**	**2.962153**
Prob (F-statistic)	**0.000587**		

6.3. Autocorrelation Test

As figure 3 is shown the Prob (F-statistic) is more than 0.05 and this point is reviewed there is not autocorrelation from higher than one in the finalized model of TOQ.

Figure 3: Autocorrelation Test

Date: 06/01/15 Time: 14:06
Sample: 1384 1393
Included observations: 10

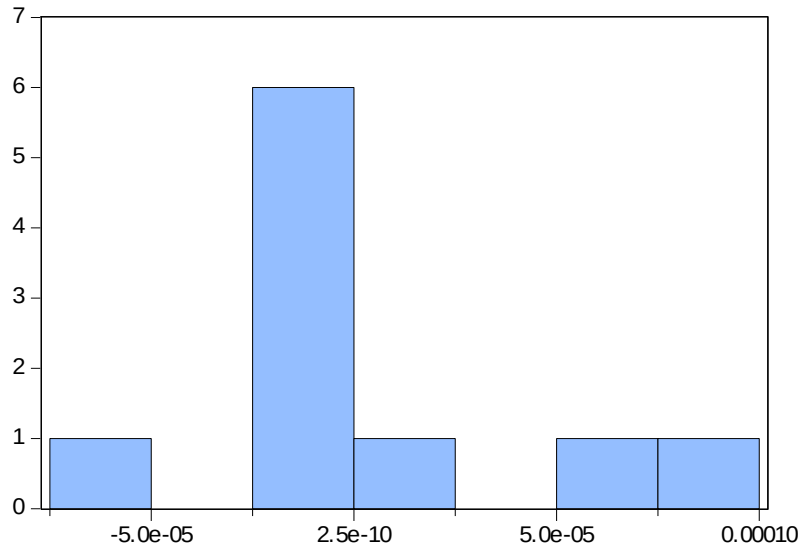


Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.48...	-0.48...	3.0960	0.078
		2	-0.15...	-0.50...	3.4534	0.178
		3	0.379	0.042	5.9125	0.116
		4	-0.26...	-0.08...	7.2642	0.123
		5	-0.08...	-0.20...	7.4343	0.190
		6	0.079	-0.36...	7.6221	0.267
		7	0.023	-0.21...	7.6437	0.365
		8	-0.00...	-0.05...	7.6437	0.469
		9	-0.00...	-0.01...	7.6437	0.570

6.4. Normality Test

According to normality test result, Jarque–Bera test and probability more than 0.05, it is concluded that the normality of distribution of residual sentences and also the skewness and kurtosis of model are shown in figure 4.

Figure 4. The Normality Test



Series: Residuals
Sample 1384 1393
Observations 10

Mean	3.55e-16
Median	-5.56e-06
Maximum	7.64e-05
Minimum	-6.74e-05
Std. Dev.	3.91e-05
Skewness	0.488531
Kurtosis	3.221426
Jarque-Bera	0.418201
Probability	0.811314

6.5. Heteroskedasticity Test

One of important hypothesis test is Heteroskedasticity Test for finding homogeneity of variance. If there is not the same variance in terms of disruption will be accrued the anisotropy of variance in model. In this model the results of Heteroskedasticity Test based on Breusch-Pagan-Godfrey and White and also arch types are shown that the Prob(F-statistic) is more than 0.05 and this point probe that the model does not have problem with variance.

1) Heteroskedasticity Test: Breusch-Pagan-Godfrey			
R-squared	0.892563	Mean dependent var	1.38E-09
Adjusted R-squared	0.033069	S.D. dependent var	2.17E-09
S.E. of regression	2.13E-09	Akaike info criterion	-37.59863
Sum squared resid	4.54E-18	Schwarz criterion	-37.32631
Log likelihood	196.9932	Hannan-Quinn criter.	-37.89737
F-statistic	1.038475	Durbin-Watson stat	2.962153
Prob(F-statistic)	0.644814		

2) Heteroskedasticity Test: White			
R-squared	0.722463	Mean dependent var	1.38E-09
Adjusted R-squared	-1.497830	S.D. dependent var	2.17E-09
S.E. of regression	3.42E-09	Akaike info criterion	-36.64958
Sum squared resid	1.17E-17	Schwarz criterion	-36.37726
Log likelihood	192.2479	Hannan-Quinn criter.	-36.94832
F-statistic	0.325391	Durbin-Watson stat	3.156509
Prob(F-statistic)	0.882317		

3) Heteroskedasticity Test: ARCH			
R-squared	0.028994	Mean dependent var	1.53E-09
Adjusted R-squared	-0.109721	S.D. dependent var	2.24E-09
S.E. of regression	2.36E-09	Akaike info criterion	-36.69870
Sum squared resid	3.90E-17	Schwarz criterion	-36.65487
Log likelihood	167.1441	Hannan-Quinn criter.	-36.79328
F-statistic	0.209021	Durbin-Watson stat	1.837788
Prob (F-statistic)	0.661386		

7. Conclusion

This article has been studied the effect of ownership structure on Tobin's Q ratio in Bank. Tobin's Q ratio as independent variable is calculated with sum of market value of shares plus book value of debts to book value of assets.

"Ownership of legal shareholders", "Ownership of individual shareholders", "Ownership of largest shareholder" and "Ownership of shareholders more than 5 percent" are taken as ownership structure and independent variables. Leverage or liabilities to assets (DEA), P/E or price to earnings per share (POE), ROE or return on equity (ROE) and Tangible assets to assets (TAN) are set as control variables in model.

The final model that is finalized, is TOQ = 2.6513- 0.0274*LEG - 0.0289*IND - 0.0001*LAR + 0.0001*MOR + 1.1248*DEA - 0.0288*POE + 0.0313*ROE + 0.0264*TAN

Really after analyses, four hypotheses in this model are considered as follow:

- There is a **negative relationship** between ownership of legal shareholders (LEG) and Tobin's Q ratio (TOQ).

- There is a **negative relationship** between ownership of individual shareholders (IND) and Tobin's Q ratio (TOQ).
- There is a **negative relationship** between ownership of largest shareholder and (LAR) Tobin's Q ratio (TOQ).
- There is a **positive relationship** between ownership of shareholders more than 5 percent (MOR) and Tobin's Q ratio (TOQ).

Finally, the model is shown a relationship between ownership structures on Tobin's Q ratio that can be useful for anticipating future position and decides better when bank try to increase capital. Managers may use the results of this study to change view themselves when want to attract new shareholders according to the weight of each indicators in ownership structure of bank.

References

[1] Golarzi, GH., Mehman, N., S., (2015), Ownership structure on the performance in the banks, international conference of management and accounting, Iran, Tehran

[2] Priya, P.V., Shanmughan, R., (2011), Foreign ownership structure and corporate performance: empirical evidence from India, global journal of finance and management, 3(1), P. 15-24

[3] Saiidi, A., Shirighahi, A., (2013), Performance and ownership, evidence from the Stock Exchange, Journal of stock exchange, year 5, No. 18, P. 153-172

[4] Namazi, M., Kermani, E., (2009), Ownership structure on the performance in the stock exchange companies, Review of Accounting and Auditing, 15, No. 53, P. 83-100

[5] Babaii, Z.M.A., Ahmadvand, ZH., (2010), The effect of ownership structure on the performance in the stock exchange companies , financial researches, year 10, No. 26, P. 41-60

[6] Njagi, C. W. (2013). The Relationship Between Capital Structure And Financial Performance Of Agricultural Firms Listed At Nairobi Securities Exchange (Doctoral dissertation, University of Nairobi).

[7] Ongore, V. O. (2011). The relationship between ownership structure and firm performance: An empirical analysis of listed companies in Kenya. African Journal of Business Management, 5(6), 2120-2128.

[8] Fazlzade, A., Mohammadzade, P., Tahbaz hendi, A., (2011), Effect of ownership structure for each industry, Journal of stock exchange, year 2, No. 7, P. 5-33

[9] Ongore, V. O., & K'Obonyo, P. O. (2011). Effects of selected corporate governance characteristics on firm performance: Empirical evidence from Kenya. International Journal of Economics and Financial Issues, 1(3), 99-122.

[10] Florackis, C., Kostakis, A. & Ozkan, A., (2009), Managerial ownership and performance, Journal of business research, 62: 1350-1357

[11] Mehran, H. (1995). Executive compensation structure, ownership, and firm performance. Journal of financial economics, 38(2), 163-184.

[12] Bhagat, S., & Black, B. (1999). The uncertain relationship between board composition and firm performance. The Business Lawyer, 921-963.

[13] Vafeas, N., & Theodorou, E. (1998). The relationship between board structure and firm performance in the UK. The British Accounting Review, 30(4), 383-407.

[14] Sadeghi, H., Rahimi, P., (2013), System of simultaneous equations in considering ownership structure, Journal of Financial Accounting, year 4, No. 4, P. 89-102

[15] Mehrani, S., Hoseini, A., Heidari, H., Pouyanfar, A., (2013), Ownership structure on company value, financial researches, financial researches, year 15, No. 1, P. 129-148

[16] Sadeghi, Sh.S.J., Kafash, P.Sh.M., (2009), Shareholders effect on productivity, Review of Accounting and Auditing, 16, No. 55, P. 51-66