

The Relation of Ownership Concentration to Return on Asset, Return On Equity and Firm Value

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Abstract: Regarding the studies performed on firm ownership structure, it is perceived that concentrated or diffused ownership can significantly affect the firm's performance with regard to country's economic structure. Therefore, in this research, we studied the ownership structure using the three criteria return on asset, return on equity and firm value. The results achieved from hypotheses test performed using combination regression and panel data method (minimum square method) for information of 601 firms listed in Tehran Stock Exchange for the period from 2010 to 2014 suggests that ownership concentration does not show a meaningful relation with return on asset and firm value; however, ownership concentration shows to have a meaningful positive relation with return on equity.

Keywords: firm value, return on assets, return on equity, ownership concentration

INTRODUCTION

Theories about firms have undergone a significant evolution through years. In the academic context, firms are studied from different point of views such as institutional governance, ownership structure, financial structure resource based approaches and knowledge based approach (Celenza & Rossi, 2013).

In the context of institutional governance, ownership structure holds a particular core place. Specifying firm's ownership structure and shareholders' composition is a controlling and governing tool. This governing feature determines firm's type of ownership in various aspects such as ownership distribution, ownership concentration, presence of minor or major institutional shareholders in firm's ownership composition and their ownership percentage as well. In this research, the firm's concentrated ownership structure will be explained. Ownership concentration is actually specified by the amount of shares possessed by the main shareholders (Earle et al., 2005). Or is entitled the situation in which a significant amount of firm's stock is possessed by the main shareholders and indicates what proportion of shares are held by a few people (Mohammadi et al., 2010).

Ownership concentration makes shareholders able to directly watch over their possessed shares. On the contrary, theories and research findings based on different approaches and frames of mind, recognize a positive or negative or a relation without statistical importance between ownership concentration and firm's performance. On the one hand, ownership concentration can play a positive role since by growing investor's ownership, they will show more interest in observing the managerial decisions, but on the other hand this can make a negative result as a high grade of ownership concentration, can point out less developed markets in which controlling can have a poor effect as a regulating mechanism. Additionally, a high grade of ownership can bring about the advantage of fewer shareholders that may provoke creating financial and commercial relationships which is in main shareholders' favor. Otherwise it is in contrast with the interests of directing company (Minguez Vera & Martin, 2007).

The relation between institutional governance and economic performance is the most controversial issues among policy-makers. Countries apply different mechanism to face this issue. Some systems emphasize on

ownership distribution and diffusion and some have a tendency to concentrated ownership and control. In the companies supporting ownership distribution (as in England and United States) there is a remarkable conflict of interests between directors and the majority of shareholders, while in the companies with the tendency to concentrated ownership (as in Japan and some European countries) there is a remarkable conflict of interests between leading shareholders and individual holders who are in minority. Hence, there is a fundamental divergence between institutional governance across countries about ownership, firm management and definition of leading shareholders (Rahnama ye roudposhti et al., 2006).

Financial performance refers to evaluating the firm's internal potential in utilizing their assets in order to thrive the business and produce wealth. Thus, we can refer to profitability indexes such as return on assets, return on common stockholder's equity, return on investment, dividend growth, return on equity, and firm value as the most significant criteria for financial performance (Abzari et al., 2009). Corporation ownership structure can be distributed (presence of a lot of minor shareholders) or concentrated (presence of a few major shareholders). Presence of a few major shareholders, means a concentrated controlling system and since ownership is considered as a substantial factor in institutional governance, the identity of controlling owners seems to be the main factor in firm performance (Pourmohammad, 2013). Therefore, a better firm performance and firm value for a corporate with major shareholders possessing big shares seems quite sensible versus a corporate with the main shareholders possessing small shares. So, in this research we study the effect of ownership concentration on return on asset, return equity and firm value.

Literature ReviewFor the first time, Demetz and Lehn experimented the relation between ownership and performance in corporations at American stock market. They calculated this formula to show that there is not any relation between concentration and performance and performance can be achieved by choosing all types of ownership structure. Demetz and Lehn studied the relation between capital concentration and profitability in 536 American corporations. Average profit after tax book value in the period from 1976-1980 was calculated as performance criterion and three other criteria were determined for capital concentration.

5 main shareholders' size of ownership (LA5)

20 main shareholders' size of ownership (LA20)

Herfindahl Index (LAH) that is calculated by addition the cube of each shareholder's tow stocks.

In addition to these three criteria, some other explanatory variables were used. These variable are as follows:

- 1. UYIL: General institutions that follow the public regulations as imaginary variable.
- 2. FIN: Financial institutions and banks as imaginary variable
- 3. CAP: Expenditure to sales ratio for the period 1976-1980
- 4. ADV: Advertisement cost to total costs ratio
- 5. RD: Research and development costs to total sales ratio
- 6. ASSET: Average total asset value
- 7. SE: Estimation error in the fitness model of average monthly return rate in stock market corporations to asset average weigh in the period 1976-1980.

The average variables above were considered as explanatory variables in a period from 1976 to 1980. Profitability index fitness on all three concentration criteria shows that there is no relation between level of concentration and firm profitability. L5 variables' coefficient represents the share amount of five biggest shareholders. L20 variables' coefficient represents the share amount of twenty biggest shareholders and LAH, Herfindahl Index, represents the effect of ownership concentration level on firm profitability. The coefficient of all three criteria is negative and lacks significance. Demetz and Lehn's research proved the economists' main teaching which states that the firm's level of ownership concentration. Yet, Shlrifer and Vishay (1986) showed in their research that main shareholders tend to monitor the company management and their presence makes for reduction in company agency expenses which ultimately leads in firm value and firm performance augmentation. (Shahira, 2003) in a study on 90 companies at Egyptian stock market showed that there is not a meaningful relation between ownership concentrations and P/BV and P/E indexes, but there is a meaningful relation between types of ownership and company's accounting performance.

He found out that when the managers and public sector are the main shareholders they leave a negative effect on firm's ROA.

(Thomsen et al. 2005) Granger causality test studied the relation between main ownership and largest firm's value in United State of America and England. The study included 876 biggest American and English companies in the period from 1988 to 1998. Company shares were calculated by the part of shares possessed by outer shareholders which consist more than %5 of total share, part of shares possessed by company's pension fund administrators and other holders of confidential information and also firm value was evaluated using Tobin's Q index. Since firm value may be subject to deviations we used the ROA accounting index. The results show that in the economies similar to American market, no influence of ownership was detected on firm value. However, in the European market a high level of main ownership had a significant negative effect on firm value and accounting profitability. In European market level of ownership is higher than the level of firm value maximization for minor shareholders, which is why the minor shareholders assess the personal interests resulting from control.

(Kapopoulos and Lazaretou, 2006) studied the relation between changes in ownership variable and profitability in Greece companies. The main purpose of the research was to detect whether the share proportion possessed by the main shareholders out of the company and the proportion of shares possessed by company managers is systematically in relation to firm performance. The findings indicated that the more concentrated was the ownership structure, the more positively grew firm profitability.

(Bozec and Bozec ,2007) studied 244 companies at Toronto Stock Exchange (TSX) and found that there is a negative relation between ownership concentration and company's strategic performance. Clark and Worjcik (2005) after experimenting German company's information, found a negative relation between these company's ownership concentrations and their return on equity.

Lee (2005) inspected the effect of ownership concentration on Korean firm's financial performance. He considered the two ownership concentration (shares distributed in possession of majority shareholders) and stockholder's identity (foreign and institutional shareholders) as representatives of capital structure. His findings indicate that increase of ownership concentration makes improvements in firm performance, but foreign and institutional ownership had an insignificant effect in this regard. They also concluded that there is a reverse U shaped relation between ownership concentration and firm performance, which means firm performance reaches its climax, when the ownership concentration is at an average level.

Magaritis and Psillaki (2010) experimented in their article the relation of ownership structure and capital with French companies using nonparametric analysis approach to compare the firm performance with the intended optimized level. The results suggested that concentrated ownership bring about more debt in capital structure. However, there is a meaningful relation between choice of ownership type and leverage type.

In Iran, (Ahmadvand, 2006) studied the effect of ownership on firm performance of companies at Tehran Stock Exchange. In their research the effect of ownership was studied with the two ownership aspects number of shareholders and their type of ownership on firm performance. The P/E coefficient and ROE ratio was chosen as the performance criteria, while also the factor of industry had been taken on in the research model. The study period was 2000-2006 Iranian calendar and the results showed that return on common stockholder's equity was influenced by the factor of industry. But the studied industries did not

show significant different results in P/E Index. Also the research findings indicate that with increasing the number of shareholders in corporate ownership structure, the return on common stockholder's equity increases and that fewer number of main shareholders in ownership structure, leads in lower P/E coefficient number.

Mohammadi et al. (2010) in their article titled "studying the effect of ownership structure (concentration and composition) on return and firm value of the companies at Tehran Stock Exchange", studied the relation between ownership concentration and firm value and return. Their results suggested that there is a positive linear relation between ownership concentration and firm return and also no meaningful relation was found between ownership concentration and firm value. (Ghanbari et al. 2015)in a study titled "ownership structure and firm value" studied 120 companies at Tehran Stock Exchange in the year from 2008 to 2013 and using correlation test and multiple regression test showed that there is a meaningful relation between ownership concentration and enterprise value.

Research hypotheses

In the present research, we study the relation of ownership concentration to variables return on assets, return on equity and firm value. Accordingly, research questions are posed as three hypotheses:

Hypotheses 1: there is a meaningful relation between ownership concentration and return on asset.

Hypotheses 2: there is a meaningful relation between ownership concentration and return on equity.

Hypotheses 3: there is a meaningful relation between ownership concentration and firm value.

Research Model and Variable Measurement

In the present research, we explain the relation between variables using multiple regression and panel data regression. Three type of dependent variables, independent variables and control variables are used here. Ownership concentration is the independent variable which is measured using Herfindahl-Hirschman Index. The dependent variables are as return on asset, return on equity and firm value. To evaluate firm value, we used Tobin's Q ratio. Debt ratio and firms size are considered as control variables. First each independent, dependent and control variables were calculated. Next the research hypotheses that is relation between ownership concentration and return on assets, return on equity and firm value were experimented using regression model. Regression models used to experiment research hypotheses are as follows:

$$ROA_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 DR_{it} + \beta_3 SIZE_{it} + \varepsilon_{it}$$
(1)

$$R_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 DR_{it} + \beta_3 SIZE_{it} + \varepsilon_{it}$$
(2)

$$TQ_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 DR_{it} + \beta_3 SIZE_{it} + \varepsilon_{it}$$
(3)

 ROA_{it} = return on assets for firm **i** in year **t**

 R_{it} = return on equity for firm **i** in year **t**

 TQ_{it} = Tobin's Q ratio for firm **i** in year **t**

 OC_{it} = ownership concentration of firm i in year t

 $DR_{it} = debt ratio of firm i in year t$

 $SIZE_{it}$ = firm size of firm \boldsymbol{i} in year \boldsymbol{t}

 $\beta_0 = \text{fixed value}$

 $\beta_1 \cdot \beta_2 \cdot \beta_3$ = regression coefficient, ϵ_{it} is the standard error.

Calculation of return on assets ratio:

Return on Assets is the ratio of Earning before Tax to Total Assets

$$ROA = \frac{Earning \ befor \ tax}{Total \ Assets} \tag{4}$$

Calculation of return on equity:

$$R_{it} = \frac{p_{it} + p_{it}(1 + \alpha + \beta) - (p_{it-1} + c\alpha)}{p_{it-1} + c\alpha} \times 100$$
 (5)

 R_{it} is return on equity, D_{it} is the annual cash dividend, P_{it} share market price in the end of year, P_{it-1} share market price in the beginning of year, α represents percentage of capital increase from demands and cash contributions. β is capital increase form reserves and accumulated profits. C represents par value paid by the shareholder form cash contribution or demands.

Calculation of firm value (Tobin's Q ratio)

$$TQ = \frac{MV+D}{A} \tag{6}$$

TQ = Tobin's Q

MV = market capitalization of common shares

D = debts book value

A = asset net value

Calculation of ownership concentration

In this research we used Herfindahl Index (HHI) to measure ownership concentration. Ownership percentage is chosen equal and greater than %5 in Herfindahl Index. The bigger value for this index indicated higher level of concentration and presence of fewer shareholders in firm ownership structure and vice versa.

$$\text{HHI} = \sum_{i=1}^{n} \text{SHARE}_{i}^{2} \tag{7}$$

HHI = Herfindahl Index

 $SHARE_i^2$ = share percentage possessed by the main shareholders

Calculation of control variables

$$DR = \frac{\text{Total debt}}{\text{Total assets}}$$
(8)

DR = debt ratio

In order to evaluate the control variable firm size $(\mbox{SIZE}_{\mbox{it}})$ we used natural logarithm of market capitalization.

Data analysis and hypothesis test method

In this research we used regression analysis, cross sectional regression and multiple regression to test the hypotheses. Table 1 contains the descriptive statistics for the studied data to be applied in linear regression that presents information of central tendency index (mean, median, maximum and minimum) and data distribution (standard deviation, skewness, kurtosis).

variable	return on assets	return on equity	Tobin's Q ratio	ownership concentration	debt ratio	firm size
statistic	ROA	RE	TQ	OC	DR	SIZE
Mean	0.189	51/751	1/566	0/580	0/549	5/979
Median	0.166	14/485	1/417	0/608	0/564	5/926
Maximum	0/676	739/09	4/653	0/961	0/980	8/730
Minimum	0/001	-169/130	0/501	0/018	0/013	3/829
standard deviation	0/126	96/776	0/629	0/217	0/193	0/750
Skewness	0/892	2/257	1/313	-0/614	-0/435	0/675
Kurtosis	3/730	10/708	5/326	2/793	2/742	3/856
jarque bera statistics probability	0/000	0/000	0/000	0/00	0/000	0/000
number of observations	530	530	530	530	530	530

Mean in one of the most substantial indexes of central tendency. Return on equity has the highest mean (51.751) and return on assets has the lowest mean (0.189) among the variables. Data distribution study showed that return on equity has the highest standard deviation (96.776) and return on assets has the lowest (0.126). Jarque bera test was implemented to study the variable normality.

Table 2 shows the results from hypothesis 1 analysis and estimation for a meaningful relation between ownership concentration and return on assets which is implemented by Eviews7 software.

Table 2 - hypothesis	1	analysis	and	estimation
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$ROA_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 DR_{it} + \beta_3 SIZE_{it} + \epsilon_{it}$							
Variable	estimated coefficient	standard error	t statistics		P-value		
Intercept	-0/025	0/057	-0/436		0/662		
ownership concentration	0/099	0/051	1/947		0/052		
debt ratio	-0/564	0/041	-13/462		0/000		
firm size	0/186	0/057	3/226		0/001		
coefficient of determination		R^2 adjusted = 0.371					
Durbin-Watson statistics	test statistics F =	42.370	F-test pro	bbability = 0.000			

Results in Table 2 show that F-test probability is 0.000 which is less than 0.05. Since F statistic shows the model overall validity, it can be concluded that this model is meaningful with %95 probability and has a high degree of validity. P-value calculated for the independent variable ownership concentration (0.052) is greater than 0.05 and its estimated coefficient (0.099) is positive. Therefore, it can be concluded that there is a meaningful relation between ownership concentration and return on assets but, it lacks significance. Accordingly, research's hypotheses 1 about a meaningful relation between ownership concentration and return on assets is rejected at level of significance %95 due to lack of significance. The first coefficient of determination adjusted is 0.371 in the table above shows that %37 of changes in dependent variable are explainable by variables of research's first model.

Table 3 shows the results from hypothesis 2 analysis and estimation for a meaningful relation between ownership concentration and return on equity which is implemented by Eviews7 software and estimated generalized least square (EGLS).

$R_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 DR_{it} + \beta_3 SIZE_{it} + \epsilon_{it}$							
Variable	estimated coefficient	standard error	t st	atistics	P-value		
Intercept	42.050	2.253	18.657		0.000		
ownership concentration	4.513	2.198	2	2.052	0.04		
debt ratio	-0.798	2.127	-0.375		0.707		
firm size	53.543	5.945	9.005		0.000		
coefficient of determination		R^2 adjusted = 0.463					
Durbin-Watson statistics	test statistics $F = 61.956$ F-test probability = 0.0						

Table 3 - hypothesis 2 analysis and estimation

As shown in Table 3, P-value calculated for the control variable debt ratio is 0.707 which is greater than 0.05, indicating lack of significance for the effect of debt ratio on return on equity. So, this variable in considered as redundant variable. After omitting this variable, the second model is re-estimated. Table 4 shows the results of the second model estimation after ignoring the redundant variable.

$\mathbf{R}_{it} = \mathbf{\beta}_0 + \mathbf{\beta}_1 \mathbf{O} \mathbf{C}_{it} + \mathbf{SIZE}_{it} + \mathbf{\varepsilon}_{it}$							
Variable	estimated coefficient	standard error	t sta	atistics	P-value		
Intercept	42.021	2.240	18	8.759	0.000		
ownership concentration	4.372	2.162	2	.021	0.043		
firm size	53.823	5.911	9.104		0.000		
coefficient of determination $(R^2) = 0.470$				R^2 adjusted = 0.464			
Durbin-Watson statistics	test statistics $F =$	74.337	F-test pro	bability $= 0.000$			

Table 4 - hypothesis 2 second time analysis and re-estimation

Results shown in Table 4 indicate that F-test probability equals 0.000 which is less than 0.05. Since F statistic shows the model overall validity, it can be concluded that this model is meaningful with %95 probability and has a high degree of validity. P-value calculated for the independent variable ownership concentration (0.043) is less than 0.05 and its estimated coefficient (4.372) is positive. Therefore, it can be concluded that there is a positive meaningful relation between ownership concentration and return on equity. That is an increase in ownership concentration, leads into increase in the dependent variable return on equity. Accordingly, research's hypotheses 2 about a meaningful relation between ownership

concentration and return on equity is accepted at level of significance %95. So, it can be stated that ownership concentration has a positive meaningful relation with return of equity. The fifth model's coefficient of determination adjusted is 0.464 in the table above shows that %46 of changes in dependent variable are explainable by variables in research's second model.

Table 5 shows the results from hypothesis 3 analysis and estimation for a meaningful relation between ownership concentration and firm value. In the other Tobin's Q ration is calculated by Eviews7 software.

$TQ_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 DR_{it} + \beta_3 SIZE_{it} + \varepsilon_{it}$							
Variable	estimated coefficient	standard error	t statistics		P-value		
Intercept	-0.067	0.065	-1.022		0.307		
ownership concentration	0.057	0.056	1.005		0.315		
debt ratio	-0.111	0.045	-2.467		0.014		
firm size	0.718	0.059	12.037		0.000		
coefficient of determination	R^2 adjusted = 0.513						
Durbin-Watson statistics	test statistics F =	75.305	F-test pro	bability $= 0.000$			

Table 5 - hypothesis 3 analysis and estimation

The results in Table 5 indicate that F-test probability equals 0.000 which is less than 0.05. Since F statistic shows the model overall validity, it can be concluded that this model is meaningful with %95 probability and has a high degree of validity. P-value calculated for the independent variable ownership concentration (0.315) is greater than 0.05 and its estimated coefficient (0.057) is positive. Therefore, it can be concluded that there is a positive relation between ownership concentration and Tobin's Q ratio, but this relation lacks significance. Accordingly, research's hypotheses 3 about a meaningful relation between ownership concentration and Tobin's Q which represents firm value is rejected at level of significance %95. The sixth model's coefficient of determination adjusted is 0.513 in the table above shows that %51 of changes in dependent variable are explainable by variables in research's third model.

Conclusion

Concisely, it can be stated from research findings that there is not a meaningful relation between ownership concentration and return on assets. This is in compliance with the findings in Shahira Shahid's research and in contrary with that of (Mohammadi et al. 2010). There is a positive meaningful relation between ownership concentration and return on equity. This is in agreement with the results of Mohammadi et al and results of Chen et al and at same time it is in contrast with Pajouhesh Mazloumi, Mah Averiver, Bolbol and Fateh Aldin. There is not a meaningful relation between ownership concentration and firm value. This result is in accordance with Mah Averiver findings and that of Va'ez et al, whilst it in contrast to the results achieved by Garsia and Sanchez, Ghanbari et al.

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