

The relationship between the ownership concentration and intellectual capital in listed companies in Tehran Stock Exchange

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Abstract

The purpose of this paper is investigate the relationship between ownership concentration and intellectual capital in listed companies in Tehran Stock Exchange. In this study used a sample of 65 companies in group pharmaceutical industries, in the years 2008 until 2013. The results show that there isn't a significant relationship between ownership concentration and intellectual capital in companies listed on the Stock Exchange: Group pharmaceutical industry with high investment opportunities. But, there is a significant relationship between ownership concentration and intellectual capital in companies listed on the Stock Exchange: Group pharmaceutical industry with low investment opportunities.

Keywords: Ownership concentration, intellectual capital, human capital, relational capital.

1. Introduction

There is several definitions from intellectual Capital, Each intellectual (knowledge, information, spiritual property, and experience) which can create wealth (Stewart, 1997). A concept used for classification of all intangible organizational resources and diagnosis of their interrelationships (Bontis et al, 1999). International Journal of Scientific Management and Development Intangible property includes human capitals such as skills, talent, and knowledge, information capital such as database, information systems, and technological infrastructures, organizational capital such as culture, leadership style, and knowledge share. (Shahveisi et al, 2015). The role of intellectual capital (IC) in creating value has become crucial in achieving a competitive advantage in the marketplace (Yusoff, 2002). This role is highlighted by Drucker's (1993, p.54) statement that "knowledge has become the key economic resource and the dominant and perhaps even the only source of competitive advantage". Intellectual capital as a source of competitive advantage has attracted much attention among academics and managers. (Firer and Wiliams, 2012). The importance of intellectual capital and its management to the organisation is not really a new phenomenon (Smith, 2000). Awareness of its value has grown substantially in recent years. Over the last decade, there has been growing recognition that these types of assets have become the most valuable and fastest growing part of our economy (Brinker, 1998). Whereas in 1982, tangible assets represented 62% of a company's market value, by 1992 this figure had dropped to 38% (Dzinkowski, 2000). Cahill (2000) stated that between 50% and 90% of the value of a company creates comes not from management of traditional assets, but from the management of IC (Cahill, 2000). Today it is clear that intellectual assets and their effective management, in fact, may be the only form of sustainable competitive

advantage (Aniwattananpong, 2000). As the burgeoning demand for knowledge-based products and services is changing the structure of the global economy, the role of intellectual capital in achieving competitive advantage is becoming an important management issue in all sectors. (Firer and Williams, 2005).

According to agency theory, the separation of ownership and control may induce conflicting incentives, leading to agency costs (Jensen & Meckling, 1976). Consistent with this view, we believe that ownership types could, to some extent, determine the performance of investments in IC. Previous research suggests that the ownership structure has a significant effect on a company's efficiency and performance (Saleh et al, 2009). So, this research is trying to answer the following question: Is there a significant relationship between the concentration of ownership and intellectual capital?

2. Review of literature

Meritum project (2000) was financed by European financial commission. Aim of this project, in fact, was giving a series of guidance for measuring and management of intellectual capital in order to improve decision-making for managers and share-holders. (Sanchez et al, 2005) also did similar research with Malaysian. The research was done in Taiwan and information technology and relations between intelligence capital and performance were analyzed in a series of scientific models and confirmed the results of Malaysian research, Weng et al (2005) did the same research in banking industry for measuring intellectual capital. Polik, by using added value intellectual coefficient, has measured intellectual capital in Austrian banks during 1993 -1995 and Croatian banks during 1996-2000. Results of these two researches had cleared significant difference in grading banks based on performance criteria and traditional accounting. Polik study showed that, in many service institutions, intellectual capital is not thought at level of physical and financial capital. An intensive incompatibility was observed duly in new measuring models and he presented accounting system. (Ghahremani Saliandeh and Moghadam, 2015).

On the other hand, the role of ownership concentration as a governance mechanism exemplifies how differences in institutions have implications for the nature of the governance problem. Currently, the relevance of law for corporate governance attracted much attention. Following the pioneering work by LaPorta et al (1997), a growing literature argues that cross-country differences in corporate governance, and more broadly in financial systems, are shaped by the quality of legal rules protecting outside investors. One prominent finding of this new Law and Finance literature, which is summarized by La Porta et al. (Burkart and Panunzi, 2001).

3. Development of hypothesis

Based on the above study we consider the following hypotheses:

H1. There is a significant relationship between ownership concentration and intellectual capital in companies listed on the Stock Exchange: Group pharmaceutical industry with high investment opportunities.

H1-1: There is a significant relationship between ownership concentration and human capital in companies listed on the Stock Exchange: Group pharmaceutical industry with high investment opportunities

H1-2: There is a significant relationship between ownership concentration and structural capital in companies listed on the Stock Exchange: Group pharmaceutical industry with high investment opportunities

H1-3: There is a significant relationship between ownership concentration and relational capital in companies listed on the Stock Exchange: Group pharmaceutical industry with high investment opportunities

H2. There is a significant relationship between ownership concentration and intellectual capital in companies listed on the Stock Exchange: Group pharmaceutical industry with low investment opportunities.

H2-1: There is a significant relationship between ownership concentration and human capital in companies listed on the Stock Exchange: Group pharmaceutical industry with low investment opportunities

H2-2: There is a significant relationship between ownership concentration and structural capital in companies listed on the Stock Exchange: Group pharmaceutical industry with low investment opportunities

H2-3: There is a significant relationship between ownership concentration and relational capital in companies listed on the Stock Exchange: Group pharmaceutical industry with low investment opportunities

4. Methodology

In terms of goal this research is applied and considering the nature is descriptive and correlational research. In this study independent variable is ownership concentration and intellectual capital is dependent variable. In addition, we used the pharmaceutical industry for sample selection. In this research to collect data of Tehran Securities Exchange Technology Management Company website and the Tehran Stock Exchange website. Eventually selected 65 companies in pharmaceutical industry. In this research we consider the following model (1) for test main hypotheses:

$$VAIC_{it} = \beta_0 + \beta_1 CONS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 ROA_{i,t} + \varepsilon_{i,t} \quad (1)$$

And, we consider the following models (2), (3) and (4) for test subsidiary hypotheses:

$$HCE_{it} = \beta_0 + \beta_1 CONS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 ROA_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$SCE_{it} = \beta_0 + \beta_1 CONS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 ROA_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$CEE_{it} = \beta_0 + \beta_1 CONS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 ROA_{i,t} + \varepsilon_{i,t} \quad (4)$$

The method of measuring the variables of this model includes:

$CONS_{i,t}$: Ownership concentration firm i in year t,

$SIZE_{i,t}$: Firm size firm i in year t,

$LEV_{i,t}$: Total debt to total assets in firm i in year t,

$ROA_{i,t}$: Return on assets firm i in year t,

$\varepsilon_{i,t}$: Error regression model.

5. Empirical results

Table 1 shows the descriptive statistics data 65 Firm. The results show that in group pharmaceutical industry with high investment opportunities average VAIC is 17.12 and median is 5.21 and standard deviation in this variable is 40.43 and average HCE is 16.03 and median is 4.04 and standard deviation is 40.34. In addition, average firm size is 5.87 and median is 5.93 and standard deviation is 0.44 and average LEV is 0.55 and median is 0.55 and standard deviation in this variable is 0.19. Also, average ROA is 0.21 and median is 0.21 and standard deviation in this variable is 0.1. And, in table 2 shows the descriptive statistics in group pharmaceutical industry with low investment opportunities average VAIC is 3.5 and median is 3.48 and standard deviation in this variable is 3.06 and average HCE is 2.78 and median is 2.65 and standard deviation is 2.83. In addition, average firm size is 5.86 and median is 5.91 and standard deviation is 0.30 and average LEV is 0.66 and median is 0.67 and standard deviation in this variable is 0.13.

Table 1
Descriptive Statistics in high investment opportunities

Statistics	VAIC	HCE	SCE	CEE	CONS	SIZE	LEV	ROA
Average	17.12	16.03	0.73	0.35	0.4	5.87	0.55	0.21
Median	5.21	4.04	0.76	0.32	0.42	5.93	0.55	0.21
Maximum	216.37	214.9	1.7	0.92	0.82	6.62	1.31	0.49
Minimum	-6.62	-7.26	0.05	-0.49	0.14	4.7	0.09	0.0
Standard deviation	40.43	40.34	0.23	0.21	0.18	0.44	0.19	0.1
Skewness	3.33	3.34	0.17	-0.44	0.43	-0.90	0.39	0.19
Kurtosis	13.67	13.69	7.49	48.5	2.43	3.57	5.15	2.75
N	65.0	65.0	65.0	65.0	65.0	65.0	65.0	65.0

Table 2
Descriptive Statistics in low investment opportunities

Statistics	VAIC	HCE	SCE	CEE	CONS	SIZE	LEV
Average	3.5	2.78	0.53	0.17	0.86	5.86	0.66
Median	3.48	2.65	0.63	0.20	0.49	5.91	0.67
Maximum	18.37	17.97	2.21	0.46	4.11	6.48	1.01
Minimum	-9.42	-9.86	-1.46	-0.66	0.09	5.13	0.46
Standard deviation	3.06	2.83	0.50	0.16	1.03	0.30	0.13
Skewness	0.73	0.82	-1.95	-2.12	2.42	-0.26	0.65
Kurtosis	14.60	17.99	11.77	12.58	7.59	2.44	3.09
N	65.0	65.0	65.0	65.0	65.0	65.0	65.0

Table 3 shows the Pearson correlation matrix in group pharmaceutical industry with high investment. The

correlation between the variables in level $\text{sig} \leq 0.01$ and $\text{sig} \leq 0.05$. According to the results this test there is a positive correlation between the variables of HCE and SCE and HCE with SIZE at the level of 0.01. Also, there is a negative correlation between the variables of SCE with CONS and LEV at the level of 0.01 and the level of 0.05.

Table 3

Pearson correlation matrix in high investment opportunities

		HCE	SCE	CEE	CONS	SIZE	LEV	ROA
VAIC	Pearson Correlation							
	Sig. (2-tailed)							
	N							
HCE	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	66						
SCE	Pearson Correlation	.343**	1					
	Sig. (2-tailed)	0						
	N	66	72					
CEE	Pearson Correlation	0	-.301*	1				
	Sig. (2-tailed)	1	0					
	N	66	72	72				
CONS	Pearson Correlation	.292*	-.285*	-.366**	1			
	Sig. (2-tailed)	0	0	0				
	N	65	71	71	71			
SIZE	Pearson Correlation	.347**	.548**	-.319**	.479**	1		
	Sig. (2-tailed)	0	0	0	0			
	N	66	72	72	71	72		
LEV	Pearson Correlation	-.579**	-.334**	.340**	0	0	1	
	Sig. (2-tailed)	0	0	0	1	0		
	N	66	72	72	71	72	72	
ROA	Pearson Correlation	.512**	.444**	.468**	0	0	-.745**	1
	Sig. (2-tailed)	0	0	0	1	0	0	
	N	66	72	72	71	72	72	72

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

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

Table 4 shows the Pearson correlation matrix in group pharmaceutical industry with low investment. According to the results this test there is a positive correlation between the variables of VAIC and HCE at the level of 0.01. Also, there is a negative correlation between the variables of VAIC with CONS and LEV at the level of 0.05.

Table 4

Pearson correlation matrix in low investment opportunities

		VAIC	HCE	SCE	CEE	CONS	SIZE	LEV	ROA
VAIC	Pearson Correlation	1							
	(2-tailed)Sig.								
	N	71							
HCE	Pearson Correlation	**986.	1						
	(2-tailed)Sig.	0							
	N	71	71						
SCE	Pearson Correlation	**361.	0	1					
	(2-tailed)Sig.	0	0						
	N	71	71	72					
CEE	Pearson Correlation	**551.	**524.	0	1				
	(2-tailed)Sig.	0	0	0					
	N	71	71	72	72				
CONS	Pearson Correlation	*212.-	*246.-	*229.-	0	1			
	(2-tailed)Sig.	0	0	0	0				
	N	65	65	66	66	66			
SIZE	Pearson Correlation	*242.	**329.	**342.	*295.-	0	1		
	(2-tailed)Sig.	0	0	0	0	0			
	N	71	71	72	72	66	72		
LEV	Pearson Correlation	*234.-	*299.-	0	0	**408.-	0	1	
	(2-tailed)Sig.	0	0	0	0	0	0		
	N	71	71	72	72	66	72	72	
ROA	Pearson Correlation	*294.	*270.	0	*209.	*312.	0	**625.-	1
	(2-tailed)Sig.	0	0	0	0	0	1	0	
	N	71	71	72	72	66	72	72	72

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

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

Chow test applied to panel data set or combination. The results show that (Table 5) in model 1 F-statistic is 18.65, df is 10.50 and p-value is 0.000. Then, the null hypothesis is rejected and data is panel. In model 2 F-statistic is 2.241 df is 10.50 and p-value is 0.029. Then, the null hypothesis is rejected and data is panel. Also, in model 1-1 F-statistic is 18.63, df is 10.50 and p-value is 0.000. Then, the null hypothesis is rejected and data is panel. In model 1-2 F-statistic is 1.73, df is 11.55 and p-value is 0.090. Then, the null hypothesis is accepted and data is pooled. In model 1-3, F-statistic is 3.540 df is 11.55 and p-value is 0.000. Then, the null hypothesis is rejected and data is panel. Also, in model 2-1 F-statistic is 1.955, df is 10.50 and p-value is 0.0591. Then, the null hypothesis is accepted and data is pooled. In model 2-2 F-statistic is 3.431, df is 10.50 and p-value is 0.001. Then, the null hypothesis is rejected and data is panel and in model 2-3 F-statistic is 1.809, df is 10.51 and p-value is 0.0826. Then, the null hypothesis is accepted and data is pooled.

Table 5

Chow- Test

H_0	Model	df	F-statistic	p-value	Result
Pooled data	Model1	10,50	18.651964	0.0000	Rejected
Pooled data	Model 2	10,50	2.241760	0.0299	Rejected
Pooled data	Model 1-1	10,50	18.634452	0.0000	Rejected
Pooled data	Model 1-2	11,55	1.732292	0.0903	Accepted
Pooled data	Model 1-3	11,55	3.540787	0.0009	Rejected
Pooled data	Model 2-1	10,50	1.955030	0.0591	Accepted
Pooled data	Model 2-2	10,51	3.431033	0.0017	Rejected
Pooled data	Model 2-3	10,51	1.809300	0.0826	Accepted

Hausman test will determine use of the fixed effects model or random effect. According to the probability of more than 5%. So the hypothesis H1 (fixed effects model) is rejected. Table 6 shows in model 1 p-value is 0.000 and χ^2 is 29.80 and df is 4. So, the null hypothesis is rejected. So, we used fixed effects model and in model 2 p-value is 0.5989 and χ^2 is 2.759 and df is 4. So, the null hypothesis is accepted. So, we used random effect model. Also, model 1-1 p-value is 0.000 and χ^2 is 29.63 and df is 4. So, the null hypothesis is rejected. So, we used fixed effects model and in model 1-3 p-value is 0.643 and χ^2 is 2.727 and df is 4. So, the null hypothesis is accepted. So, we used random effect model. In addition, in model 2-2 p-value is 0.198 and χ^2 is 6.003 and df is 4. So, the null hypothesis is accepted. So, we used random effect model

Table 6
Husmuns Test

H_0	Model	p-value	df	χ^2	Result
Fixed effects model	Model1	0.0000	4	29.802587	Rejected
Fixed effects model	Model2	0.5989	4	2.759071	Accepted
Fixed effects model	Model1-1	0.0000	4	29.635141	Rejected
Fixed effects model	Model1-3	0.6043	4	2.727969	Accepted
Fixed effects model	Model 2-2	0.1989	4	6.003053	Accepted

One of the assumptions of the regression model is heterogeneity of variance test. We chose Breusch-Pagan test. In model 1 p-value is 0.0002 and χ^2 is 13.43. So, the null hypothesis is rejected. So, there is heterogeneity of variance. In model 2 p-value is 0.003 and χ^2 is 8.61. So, the null hypothesis is rejected. So, there is heterogeneity of variance. Also, in model 1-1 p-value is 0.000 and χ^2 is 13.43. So, the null hypothesis is rejected. So, there is heterogeneity of variance. But, in model 1-2 and model 2-3 the null hypothesis is accepted. So, the variance is equal.

Table 7
Heterogeneity of variance test

H_0	Model	p-value	χ^2	Result
The variance is equal	Model1	0.0002	13.43	Rejected
The variance is equal	Model2	0.0033	8.61	Rejected
The variance is equal	Model1-1	0.0002	13.42	Rejected
The variance is equal	Model1-2	0.3700	0.80	Accepted
The variance is equal	Model1-3	0.0345	4.47	Rejected
The variance is equal	Model2-1	0.0255	4.99	Rejected
The variance is equal	Model2-2	0.0005	12.31	Rejected
The variance is equal	Model2-3	0.5502	0.36	Accepted

Table 8 shows R-squared in model is 0.826 and adjusted R-squared is 0.777 and F-statistic is 16.96. So, 82 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there isn't a significant relationship between ownership concentration and intellectual capital in companies listed on the Stock Exchange: Group pharmaceutical industry with high investment opportunities.

Table 8
Results hypothesis 1

variable	Coefficient	S.td	F-statistic	Sig	VIF
C	-26.04412	5.848018	-4.453495	0.0000	-----
CONS	-0.564965	5.410437	-0.104421	0.9173	1.47
SIZE	5.503638	0.673531	8.171325	0.0000	1.96
LEV	0.894809	1.314189	0.680883	0.4991	3.24
ROA	48.13544	6.002314	8.019481	0.0000	3.15
R-squared	0.826118				
Adjusted R-squared	0.777431				
F-statistic	16.96794				
prob	0.0000				
Durbin-Watson stat	1.656217				

Table 9 shows R-squared in hypothesis 2 is 0.767 and adjusted R-squared is 0.703 and F-statistic is 11.821. So, 76 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there is a significant relationship between ownership concentration and intellectual capital in companies listed on the Stock Exchange: Group pharmaceutical industry with low investment opportunities.

Table 9
Results hypothesis 2

variable	Coefficient	S.td	F-statistic	Sig	VIF
C	-4.079192	1.222947	-3.335543	0.0016	-----
CONS	-3.156173	1.201955	-2.625867	0.0114	1.28
SIZE	2.202202	0.411927	5.346101	0.0000	1.06
LEV	-6.324488	2.853281	-2.216567	0.0312	1.97
ROA	12.46447	3.305547	3.770775	0.0004	1.80
R-squared	0.767982				
Adjusted R-squared	0.703016				
F-statistic	11.82144				
prob	0.0000				
Durbin-Watson stat	1.861422				

Table 10 shows R-squared in model is 0.820 and adjusted R-squared is 0.770 and F-statistic is 16.36. So, 82 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there isn't a significant relationship between ownership concentration and human capital in companies listed on the Stock Exchange: Group pharmaceutical industry with high investment opportunities

Table 10
Results hypothesis 1-1

variable	Coefficient	S.td	F-statistic	Sig	VIF
C	-26.89910	5.540525	-4.854974	0.0000	-----
CONS	-0.631866	5.284894	-0.119561	0.9053	1.47
SIZE	5.537263	0.609418	9.086153	0.0000	1.96
LEV	1.034079	1.257761	0.822159	0.4149	3.24
ROA	45.93051	5.838499	7.866835	0.0000	3.15
R-squared	0.820895				
Adjusted R-squared	0.770745				
F-statistic	16.36896				
prob	0.00000				
Durbin-Watson stat	1.659592				

Table 11 shows R-squared in model is 0.511 and adjusted R-squared is 0.481 and F-statistic is 17.25. So, 51 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there is a significant relationship between ownership concentration and structural capital in companies listed on the Stock Exchange: Group pharmaceutical industry with high investment opportunities

Table 11
Results hypothesis 1-2

variable	Coefficient	S.td	F-statistic	Sig	VIF
C	-1.209560	0.230066	-5.257458	0.0000	-----
CONS	-0.245699	0.055102	-4.458990	0.0000	1.51
SIZE	0.396583	0.052223	7.594073	0.0000	1.85
LEV	-0.491905	0.131642	-3.736683	0.0004	3.14
ROA	-0.030573	0.351185	-0.087057	0.9309	3.07
R-squared	0.511244				
Adjusted R-squared	0.481622				
F-statistic	17.25916				
prob	0.0000				
Durbin-Watson stat	1.745290				

Table 12 shows R-squared in model is 0.373 and adjusted R-squared is 0.335 and F-statistic is 9.82. So, 37 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there is a significant relationship between ownership concentration and relational capital in companies listed on the Stock Exchange: Group pharmaceutical industry with high investment opportunities

Table 12
Results hypothesis 1-3

variable	Coefficient	S.td	F-statistic	Sig	VIF
C	0.904336	0.124554	7.260565	0.0000	-----
CONS	-0.210811	0.087521	-2.408682	0.0188	1.51
SIZE	-0.147357	0.027668	-5.325954	0.0000	1.85
LEV	0.136429	0.067891	2.009525	0.0486	3.14
ROA	1.436047	0.208365	6.891967	0.0000	3.07
R-squared	0.373119				
Adjusted R-squared	0.335126				
F-statistic	9.820795				
prob	0.0000				
Durbin-Watson stat	1.687143				

Table 13 shows R-squared in model is 0.761 and adjusted R-squared is 0.695 and F-statistic is 11.425. So, 76 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there is a significant relationship between ownership concentration and human capital in companies listed on the Stock Exchange: Group pharmaceutical industry with low investment opportunities

Table 13
Results hypothesis 2-1

variable	Coefficient	S.td	F-statistic	Sig	VIF
C	-4.452256	0.738721	-6.026977	0.0000	-----
CONS	-1.691868	0.973508	-1.737910	0.0884	1.28
SIZE	1.747629	0.252647	6.917280	0.0000	1.06
LEV	-4.527891	1.506783	-3.005005	0.0041	1.97
ROA	11.39082	2.526620	4.508325	0.0000	1.80
R-squared	0.761862				
Adjusted R-squared	0.695184				
F-statistic	11.42589				
prob	0.0000				
Durbin-Watson stat	1.907654				

Table 14 shows R-squared in model is 0.684 and adjusted R-squared is 0.597 and F-statistic is 7.899. So, 68 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there is a significant relationship between ownership concentration and structural capital in companies listed on the Stock Exchange: Group pharmaceutical industry with low investment opportunities

Table 14
Results hypothesis 2-2

variable	Coefficient	S.td	F-statistic	Sig	VIF
C	-0.382165	0.360486	-1.060137	0.2941	-----
CONS	-0.500878	0.269402	-1.859222	0.0688	1.28
SIZE	0.343265	0.030976	11.08159	0.0000	1.06
LEV	-1.142819	0.597092	-1.913975	0.0612	1.92
ROA	0.843138	0.639940	1.317526	0.1936	1.76
R-squared	0.684400				
Adjusted R-squared	0.597765				
F-statistic	7.899800				
prob	0.0000				
Durbin-Watson stat	2.044767				

Table 15 shows R-squared in model is 0.496 and adjusted R-squared is 0.468 and F-statistic is 31.58. So, 49 percent of the dependent variable depends on the following variables and hypothetically accepted. Thus, there isn't a significant relationship between ownership concentration and relational capital in companies listed on the Stock Exchange: Group pharmaceutical industry with low investment opportunities.

Table 15
Results hypothesis 2-3

variable	Coefficient	S.td	F-statistic	Sig	VIF
C	4.884617	2.467676	1.979440	0.0532	-----
CONS	-0.000995	0.582087	-0.001710	0.9986	1.28
SIZE	-0.513738	0.371860	-1.381537	0.1731	1.06
LEV	-1.687383	1.084205	-1.556332	0.1258	1.92
ROA	8.309749	2.442415	3.402267	0.0013	1.76
R-squared	0.496579				
Adjusted R-squared	0.468189				
F-statistic	31.58068				
prob	0.0000				
Durbin-Watson stat	1.771376				

For greater certainty, we need to test the normality of residuals. As the histogram chart shows the remaining of the abnormal distribution the first main hypothesis. Skewness is 0.245 and Kurtosis is 3.177. Also Jarque-Bera is 0.738. So, results show that with certainty remaining of the abnormal distribution.

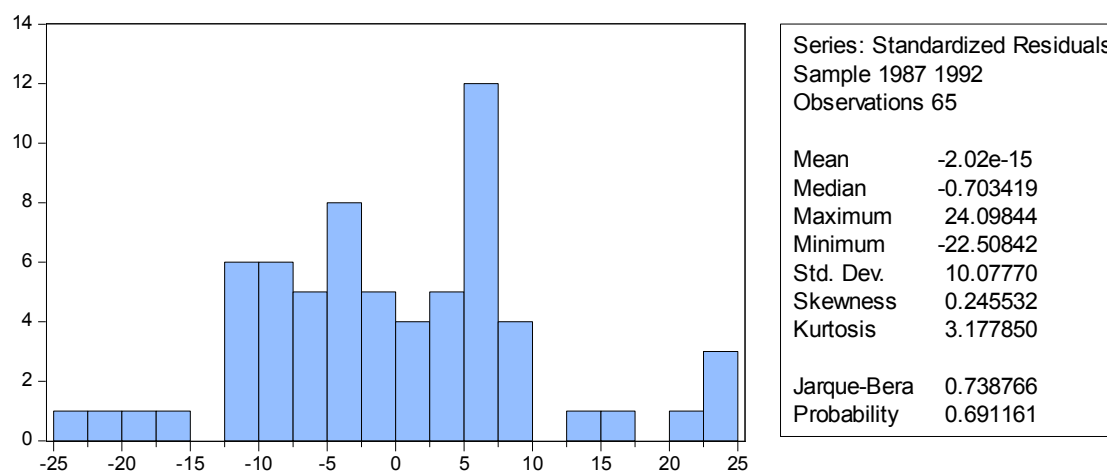


Chart 1. Test results normal distribution

In addition, the histogram chart shows the remaining of the abnormal distribution the second main hypothesis. Skewness is -0.289 and Kurtosis is 2.826. Also Jarque-bera is 0.610. So, results show that with certainty remaining of the abnormal distribution.

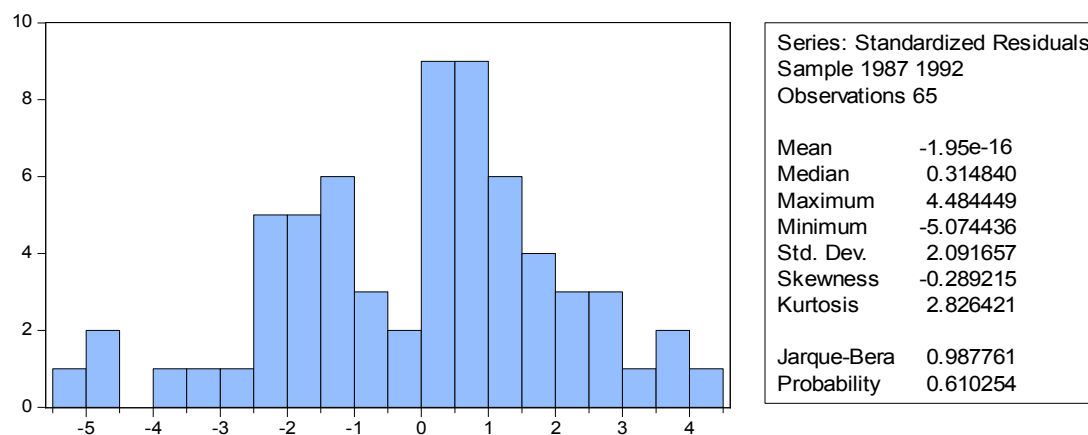


Chart 2. Test results normal distribution

6. Conclusion

In this study mentioned the relationship between the ownership concentration and intellectual capital in listed companies in Tehran Stock Exchange: pharmaceutical industries during the years 2008-2013. The results of this the study showed there isn't a significant relationship between ownership concentration and intellectual capital in companies listed on the Stock Exchange: Group pharmaceutical industry with high investment opportunities. Also, there isn't a significant relationship between ownership concentration and human capital. But, there is a significant relationship between ownership concentration and structural capital in companies and ownership concentration and relational capital in companies listed on the Stock Exchange: Group pharmaceutical industry with high investment opportunities. Also reviews show that there is a significant relationship between ownership concentration and intellectual capital in and, there is a significant relationship between ownership concentration and human capital and, there is a significant relationship between ownership concentration and structural capital. But, there isn't a significant relationship between ownership concentration and relational capital in companies listed on the Stock Exchange: Group pharmaceutical industry with low investment opportunities. One of the main problems in this study is lack of access to integrated information and also differences accounting methods in measuring and reporting events. This research offers other researchers review property types that is possible take shape the ownership structure such as managerial ownership and foreign ownership and, also it is suggested review a similar investigation according to industry comparison in different countries.

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