To Study the Relationship Between Long-Term Institutional Shareholders with Intellectual Capital of the Companies Listed on Tehran Stock Exchange

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Abstract: As a group of investors having access to vast financial sources, institutional shareholders play significant role in developing economically capital market. Nowadays, the role of institutional shareholders has been received increasingly attention in financial markets of other countries as a medium of cash transfer and saving to capital market and management of resources. The goal of the research is to study the relationship between long-term institutional shareholders and intellectual capital in the companies listed on Tehran Stock Exchange. Hence, 105 companies among Tehran Stock Exchange were selected and studied from 2009-2013. Pulic Model was used to study the components of intellectual capital and multivariate regression analysis was used to measure its relationship with long-term shareholders. According the findings, there is a negative relationship between long-term shareholders and the efficiency of relational capital and there is a positive significant relationship between long-term institutional shareholders with the efficiency of structural capital and human capital. Consequently, it can be said that institutional investors play active monitoring role on company decision about the performance of intellectual capital.

Key words: Efficiency of added value intellectual capital, efficiency of structural capital, efficiency of relational capital, efficiency of human capital, long term institutional shareholders

INTRODUCTION

Nowadays, developing competition between organizations and increased importance of an effective economy has led organizations to propel towards one of the most important resources, means intellectual capital. Certainly, applying properly the capital leads to increase the efficiency and effectiveness of intellectual capital and its impact on organizational performance or shareholders. Since, current age is called as knowledge age with respect to increasingly role of knowledge in economy, commerce and managerial processes, measuring and valuating companies' intellectual capital have been received attention ever increasingly. The revolution of information technology and the emerge of information society, increased importance of knowledge and knowledge-oriented economy, changing patterns, making network society and also innovation as the most important determinant factors of competitive advantage have provided ever increasingly the grounds for increasing the importance of intellectual capital in companies indicating knowledge-oriented assets. Because shareholders are regarded as main practitioners of financial markets and their influence on corporate governance has been increased in different countries after

applying privatization policies, it can been concluded that institutional investors have more importance in many managerial systems (Al-Najjar and Taylor, 2008). As a group of investors having access to great financial resources, institutional shareholders play significant role in developing economically capital markets. Nowadays, the role of institutional shareholders as a medium of cash transfer and saving to capital market and management of resources on financial markets has been received attention ever increasingly in other countries. Therefore, the research studies the relationship between institutional shareholders and intellectual capital in the companies listed on Tehran Stock Exchange.

Theoretical principles
Independent variable
Components of intellectual capital: Pulic (2000a, b) put the model of intellectual capital measurement in 1979, developed it in same year and completed it in 2000. Pulic (2000a, b) used the coefficient of VAIC (value added intellectual capital) to measure intellectual capital in Australian companies. The elements of intellectual capital are measured and calculated with help of following formula (Pulic' model):

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$$VAIC_i = CEE_i + HCE_i + SCE_i$$

Where:

$VAIC_i$ = Coefficient of intellectual capital for company i

CEE_i = Coefficient of communicative capital for company i

HCE_i = Coefficient of human capital for company i

SCE_i = Coefficient of structural capital for company i

Output implies the income resulting from selling products and services and input means all the costs used to produce goods and services, except salary and depreciation costs. Since, these costs are regarded as a type of investment in human resources and consequently it contributes to make structural and intellectual added value through modifying processes and regulations. Deprecation cost is a element of non-cash costs:

$$Added\ value = Operational\ profit + Salary\ cost + Depreciation\ cost$$

The coefficient of added value intellectual capital consists as follows:

Structural capital: Organizational dimension in intellectual capital is defined as organizational (structural) capital. Organizational capital is defined as all properties that are able to make organization innovation including mission, vision, main values, strategies, work systems and internal processes of a company. Organizational capital is one of the most fundamental principles to create learning organizations. It should be noted that if the organization invests strongly on technology but the employees cannot use the technology, the investment and consequently organizational capital will be vain (Bontis, 2002). At the end, this point should be added that these three capitals can influence altogether on organizational performance. Then, the existence of a relationship between them can have high importance. Organizations do not must think about improving and promoting separately theses capitals. Following equation is used to calculate the components of intellectual capital:

$$SCE_i = \frac{SC_i}{VA_i}$$

Where:

SCE_i = Efficiency coefficient of structural capital for company i

VA_i = Total added value of company i

SC_i = Structural capital of company i

Following equation is used to calculate structural capital:

$$SC_i = VA_i - HC_i$$

Where:

SC_i = Structural capital of company i

VA_i = Total added value of company i

HC_i = Total invested amounts for salary in company i

Human capital: Human capital is regarded as one of the most important and in other words, the most important intellectual or knowledge assets in organization, since these properties is a source of innovation. These properties, implicit knowledge are placed in the employees working in an organization which is considered as one of influential and crucial factors on company's performance. Human capital is a cumulative composition of general and professional knowledge of employees, leadership capabilities, problem-solving abilities and risk-taking. Successful companies invest on the employees to increase and improve insight, abilities and experiences for competing in today's changing environment (Bozbura, 2004). The experience indicates that there is a direct relationship between increased abilities and capabilities of the employees and financial results and also between human capital and company's performance (Becker *et al.*, 2001). Following equation is used to calculate the components of intellectual capital.

VAHU (efficiency coefficient of human capital): The coefficient indicates added value made by the employees. It calculates through dividing added value by salary cost of the employees and implies that if one Rial is spent for salary cost, how many Rial added values are obtained by following equation:

$$HCE_i = \frac{VA_i}{HC_i}$$

Where:

HCE_i = Efficiency coefficient of human capital for company i

VA_i = Total added value of company i

HC_i = Total invested amounts for salary cost in company i

Relational capital: Relational capital (customer) consists of the sum of assets which are managed and organized company' relations such as company' relation with customers, shareholders, suppliers, competitors, government, society and state agencies. In fact, the

capital is a reflection of the company including brands, scales of customer loyalty, reputation of company and suppliers and customer feedback system (Bozbura, 2004):

$$CEE_i = \frac{VA_i}{CE_i}$$

Where:

CEE_i = Efficiency coefficient of relational capital for company i

VA_i = Total added value of company i

CE_i = Net book value of assets of company i

Dependent variable

Institutional shareholders: Institutional shareholders are considered as a high important part in ownership structure of companies. There are two perspectives about institutional shareholders: short-term shareholders and long-term shareholders. Short-term shareholders discuss that institutional shareholders lead the managers are motivated to maximize company income in direction of company management and long-term shareholders assume that institutional shareholders as a complementary mechanism lead to reduce manager's incentives for applying decisions in companies. Low flow of big investors' portfolio indicates the motivation of these shareholders for maintaining stock and persuading managers to improve operations and increased shareholders' wealth, hence institutional shareholders play active monitoring role on company' decision about intellectual capital. Almazan *et al.* (2005) found that there is a direct relationship between long-term institutional ownership level and surveillance level on manager and taken approaches behalf him.

Long-term institutional shareholders focus on long-term performance of company and have more motivations for having a representative in board of directors of investable companies.

Research background: Muhammad Arsalan and Rashid Zaman studied the effect of the intellectual capital components on the performance of financial incomes of gas and oil sector from 2007 until 2011 in Pakistan country. Added value coefficient of intellectual capital was used in the research to measure financial performance. The results indicate that there is a positive significant relationship between added value coefficient of intellectual capital with financial performance and profitability and intellectual capital efficiency contributes greatly to measure the performance of added value coefficient, so that the efficiency of structural capital and

human capital play significant role to facilitate financial performance of gas and oil sector in Pakistan, compared with tangible assets.

Al-Dujaili (2012) studied the effect of intellectual capital on organizational innovation among 32 employees working at textile and automobile industries in Iraq and found that there is positive significant relationship between human and structural capitals with organizational innovation while there is not a significant relationship between customer capital and organization innovation.

Hadani *et al.* (2011) conducted a research entitled "institutional shareholders, shareholders' activities and earning management. The research considers the effect of shareholders' activities and the surveillance of big institutional owners on earning management. The analysis indicated that there is a direct relationship between number of shareholders and earning management level while there is a diverse relationship between the levels of institutional investors and earning management. The findings of the research led to make explicit the vague results of previous research in relationship of the effect of shareholders' activities on performance.

MATERIALS AND METHODS

The research is an applied and correlation research. Data analysis is regarded as a practical stage of main pillars of any scientific research; all research activities are directed by it to obtain the results. Multivariate linear regression model was used to test the hypotheses in the research. Totally, 105 companies were tested for 5 years based on pooled data. F-test Limer was used to calculate the models from 2009 until 2013. It should be noted that EVIEWS was utilized to calculate the variables and drawing the tables.

Research hypotheses:

- There is a significant relationship between long-term institutional shareholders and relational capital
- There is a significant relationship between long-term institutional shareholders and human capital
- There is a significant relationship between long-term institutional shareholders and structural capital

Research model:

$$VAIC_{it} = \beta_0 +_+ \beta_1 LT + \beta_2 MVEBVE_{it} + \beta_3 ROA_{it} + \beta_4 SIZE_{it} + \varepsilon_{it}$$

$$CEE_{it} = \beta_0 +_+ \beta_1 LT + \beta_2 MVEBVE_{it} + \beta_3 ROA_{it} + \beta_4 SIZE_{it} + \varepsilon_{it}$$

$$HCE_{it} = \beta_0 +_+ \beta_1 LT + \beta_2 MVEBVE_{it} + \beta_3 ROA_{it} + \beta_4 SIZE_{it} + \varepsilon_{it}$$

$$SCE_{it} = \beta_0 +_+ \beta_1 LT + \beta_2 MVEBVE_{it} + \beta_3 ROA_{it} + \beta_4 SIZE_{it} + \varepsilon_{it}$$

Where:

VAIC$_{it}$	=	The performance of intellectual capital of company i in year t
TRA	=	Ownership percentage of short-term institutional investors
LT	=	Ownership percentage of long-term institutional investors
MVEBVE	=	Logarithm of capital market value divided by its book value
ROA$_{it}$	=	Profit before interest and tax divided by total assets
Size$_{it}$	=	Natural logarithm of total assets
ε_{it}	=	Unknown element

RESULTS AND DISCUSSION

First sub-hypothesis: There is a significant relationship between long-term institutional shareholders and relational capital efficiency.

For testing the hypotheses, it is needed to distinguished tests of F-limer, if necessary Hausman test are conducted to determine the type of pattern estimation method. Table 1 provides the results.

In F-test, H$_0$ hypothesis indicates that pooled data has been used while H$_1$ indicates that panel data has been used. According to significance level in Table 1, the result of the test indicates that using panel data is more appropriate in regard of first main hypothesis.

Huasman test was used after selecting panel data method by F-limer test. The test indicates that random effects have been used in H$_0$ hypothesis while constant effects have been used in H$_1$ hypothesis. According to Table 1, reported significance level is <5%, it indicates that H$_1$ is supported and H$_0$ is rejected at 95% confidence level. Then, constant effect method is more appropriate.

The hypothesis studies the effect of long-term institutional shareholders on relational capital efficiency. According to the obtained results from Table 2, coefficient of long-term institutional shareholders variable (-0.205) and its significance level (0.000), it can be claimed that there is a negative significant relationship between long-term institutional shareholders and relational capital efficiency at 5% acceptable error level. Also, according to obtained results form Table 2 and F-statistics (183.278) and error level (0.000), it can be claimed that the research pattern enjoys desirable significance. Also, adjusted determination coefficient for the pattern indicates that 97% of changes of dependent variable are justifiable by independent variable independent variable and control variables. Additionally, according to Watson-Durbin statistics (1.64), it can be claimed that there is not first order autocorrelation among the remaining of the pattern.

Table 1: Results of distinguished tests

Type of test	Statistics	Error level	Accepted method
F-limer	0.000	39.808	Panel data
Huasman	0.037	10.188	Panel data with constant effects

Table 2: Results of testing first sub-hypothesis

Variables	β coefficient	SE	t-statistics	Significance level
Intercept	0.165	0.067	2.442	0.015
Long-term institutional shareholders	-0.205	0.031	-6.827	0.000
Return of assets	1.771	0.029	59.843	0.000
Market value/book value	0.078	0.014	5.515	0.000
Company size	0.037	0.011	3.471	0.000
F-statistics	183.278	Significance level (p-value)		0.000
Adjusted determination coefficient (%)	97.410	Watson-Durbin statistics		1.640

$CEE_{it} = \beta_0 + \beta_1 LT_{it} + \beta_2 ROA_{it} + \beta_3 MVEBVE_{it} + \beta_4 SIZE_{it} + \varepsilon_{it}$

Results of testing second sub-hypothesis: Second sub-hypothesis has been developed as follows: there is a significant relationship between long-term institutional shareholders and human capital efficiency.

For testing the hypotheses, it is needed to distinguished tests of F-limer, if necessary Hausman test are conducted to determine the type of pattern estimation method. Table 3 provides the results.

In F-test, H$_0$ hypothesis indicates that pooled data has been used while H$_1$ indicates that panel data has been used. According to significance level in Table 2, the result of the test indicates that using pooled data is more appropriate in regard of third sub-hypothesis.

According to the results of Table 4 and Watson-Durbin statistics (0.56), there is first order autocorrelation. Returned corrected first order has been used as explanatory variable to solve autocorrelation problem. Final results have been shown in Table 5.

The hypothesis considers the effect of long-term shareholders on human capital efficiency. According to obtained results from Table 5, coefficient of long-term shareholders variable (1.639) and its significance level, it can be claimed that there is a positive relationship between long-term shareholders and human capital efficiency at acceptable 5% error level but not significant. According to the results from Table 5, F-statistics (570.893) and error level (0.000), it can be said that there is totally a desirable significance in the research pattern. Also, adjusted determination coefficient indicates that 87% of changes of dependent variable are justifiable by independent variable and control variables. Additionally, according to Watson-Durbin statistics (1.94), it can be claimed that there is not first order autocorrelation among the remaining of the pattern.

Table 3: Results of distinguished tests

Type of test	Statistics	Error level	Accepted method
F-limer	0.328	1.065	Pooled data

Table 4: Results of testing second sub-hypothesis

Variables	β coefficient	SE	t-statistics	Significance level
Intercept	-72.299	6.286	-11.501	0.000
Long-term institutional shareholders	-3.882	1.697	-2.286	0.023
Return of assets	74.132	4.784	15.507	0.000
Market value/book value	-5.006	2.287	-2.188	0.029
Company size	13.193	1.081	12.211	0.000
F-statistics	134.501	Significance level (p-value)		0.000
Adjusted determination coefficient (%)	50.470	Watson-Durbin Statistics		0.440

$HCE_{it} = \beta_0 + \beta_1 LT_{it} + \beta_2 ROA_{it} + \beta_3 MVEBVE_{it} + \beta_4 SIZE_{it} + \epsilon_{it}$

Table 5: Results of testing second sub-hypothesis

Variables	β coefficient	SE	t-statistics	Significance level
Intercept	-87.118	16.911	-5.151	0.000
Long-term institutional shareholders	1.639	3.353	0.488	0.625
Return of assets	45.889	3.847	11.927	0.000
Market value/book value	-13.451	2.714	-4.956	0.000
Company size	15.272	2.508	6.087	0.000
AR (1)	0.928	0.025	36.812	0.000
F-statistics	570.893	Significance level (p-value)		0.000
Adjusted determination coefficient (%)	87.180	Watson-Durbin Statistics		1.940

$HCE_{it} = \beta_0 + \beta_1 TRA_{it} + \beta_2 ROA_{it} + \beta_3 MVEBVE_{it} + \beta_4 SIZE_{it} + \epsilon_{it}$

Table 6: Results of distinguished tests

Type of test	Statistics	Error level	Accepted method
F-limer	0.071	1.244	Pooled data

Table 7: Results of testing third sub-hypothesis

Variables	β coefficient	SE	t-statistics	Significance level
Intercept	1.285	0.048	26.871	0.000
Long-term institutional shareholders	0.097	0.024	4.043	0.000
Return of assets	-0.148	0.049	-3.009	0.003
Market value/book value	-0.096	0.037	-2.559	0.009
Company size	-0.340	0.008	-4.424	0.000
F-statistics	25.391	Significance level (p-value)		0.000
Adjusted determination coefficient (%)	15.690	Watson-Durbin Statistics		1.290

$SCE_{it} = \beta_0 + \beta_1 LT_{it} + \beta_2 ROA_{it} + \beta_3 MVEBVE_{it} + \beta_4 SIZE_{it} + \epsilon_{it}$

Table 8: Results of testing third sub-hypothesis

Variables	β coefficient	SE	t-statistics	Significance level
Intercept	1.348	0.063	21.308	0.000
Long-term institutional shareholders	0.121	0.034	3.493	0.000
Return of Assets	-0.157	0.061	-2.561	0.011
Market value/book value	-0.071	0.042	-1.676	0.092
Company size	-0.045	0.011	-4.338	0.000
AR (1)	0.197	0.033	6.018	0.000
F-statistics	27.207	Significance level (p-value)		0.000
Adjusted determination coefficient (%)	23.820	Watson-Durbin Statistics		1.660

$SCE_{it} = \beta_0 + \beta_1 LT_{it} + \beta_2 ROA_{it} + \beta_3 MVEBVE_{it} + \beta_4 SIZE_{it} + \epsilon_{it}$

Results of testing third sub-hypothesis: Third sub-hypothesis has been developed as follows: there is a significant relationship between long-term institutional shareholders and structural capital efficiency.

For testing the hypotheses, it is needed to distinguished tests of F-limer, if necessary Hausman test are conducted to determine the type of pattern estimation method. Table 6 provides the results.

In F-test, H_0 hypothesis indicates that pooled data has been used while H_1 indicates that panel data has been used. According to significance level in Table 6, the result of the test indicates that using pooled data is more appropriate in regard of third sub-hypothesis.

According to the results of Table 7 and Watson-Durbin statistics (1.29), it can be said that there is a first order autocorrelation. Returned corrected first order has been used as explanatory variable to solve autocorrelation problem. Final results have been shown in Table 8.

The hypothesis studies the effect of long-term institutional shareholders on structural capital efficiency. According to the results obtained from Table 8, coefficient of long-term institutional shareholders variable (0.121) and its significance level (0.000), it can be said that there is a positive significant relationship between long-term institutional shareholders and structural capital

efficiency at acceptable 5% error level. Based on the results gained from Table 8, F-statistics (27.207) and error level (0.000), it can be concluded that the research pattern has desirable significance. Also, adjusted determination coefficient indicates that 23% of changes of dependent variable are justifiable by independent variable and control variables. Additionally, based on Watson-Durbin statistics (1.66), it can be concluded that there is not first order autocorrelation among the remaining of the pattern.

CONCLUSION

According to its components, intellectual capital can lead to make social responsibility. Since, similar studies have not been conducted in this regard and it is regarded as a new topic, in terms of benchmark and concept, the research can contribute to other studies with more innovation. In fact, the research studies the relationship between long-term institutional shareholders and intellectual capital. The conclusions and statistical studies have been developed as follows:

Results of testing first sub-hypothesis: There is a significant relationship between long-term institutional shareholders and intellectual capital.

The goal of testing first sub-hypothesis is to study the relationship between long-term institutional shareholders and relational capital efficiency in the companies listed on Tehran Stock Exchange. Pulic (1998)' model was used to calculate intellectual capital. The results of first sub-hypothesis indicates that there is a negative significant relationship between long-term institutional shareholders and relational capital efficiency. It implies that if institutional shareholders keep their long-term stocks, relational capital efficiency level will be reduced and vice versa. These results are incompatible with the results of the researches conducted by Heydarpour and Foladi and also Morad Zadeh and A'dili about the positive effect of institutional shareholders on intellectual capital efficiency. Also, these results are compatible with personal interest hypothesis about the effect of institutional shareholders on intellectual capital performance.

Results of testing second sub-hypothesis: There is a significant relationship between long-term institutional shareholders and human capital efficiency.

The goal of testing second sub-hypothesis is to study the relationship between long-term institutional shareholders and human capital efficiency in the companies listed on Tehran Stock Exchange. For doing this, Pulic's Model was used to calculate intellectual capital. The results of second sub-hypothesis indicates that there is a positive relationship between long-term institutional shareholders and human capital efficiency but not significant. The results agree with the results of the researches done by Heydar Pour and Foladi and also Moradzadeh and A'dili about positive effect of institutional shareholders on intellectual capital efficiency. The results also are compatible with active surveillance hypothesis about the effect of institutional shareholders on intellectual capital performance.

Results of testing third sub-hypothesis: There is a significant relationship between long-term institutional shareholders and structural capital efficiency.

The goal of testing third sub-hypothesis is to study the relationship between long-term institutional shareholders and structural capital efficiency in the companies listed on Tehran Stock Exchange. Pulic (1998)' Model was used to estimate intellectual capital. The results of third sub-hypothesis indicates that there is a positive significant relationship between long-term shareholders and structural capital efficiency. These results agree with the results of the researches done by Heydar pour and Foladi and also Morad Zadeh and A'dili about the positive effect of institutional shareholders

about intellectual capital performance. According to active surveillance hypothesis, the presence of institutional shareholders can lead to improve company performance. Because institutional shareholders grant motivation and skill of management performance evaluation to big and elite shareholders, it can be done with lower cost than trivial shareholders. According to the hypothesis, it is possible that institutional shareholders manage actively their investment because of the importance of invested wealth.

REFERENCES

Al-Dujaili, M.A., 2012. Influence of intellectual capital in the organizational innovation. Int. J. Innov. Manage. Technol., 3: 128-135.

Al-Najjar, B. and P. Taylor, 2008. The relationship between capital structure and ownership structure: new evidence from Jordanian panel data. Managerial Finance, 34: 919-933.

Almazan, A., J.C. Hartzell and L.T. Starks, 2005. Active institutional shareholders and costs of monitoring: Evidence from executive compensation. Financial Manage., 34: 5-34.

Becker, B.E., M.A. Huselid and D. Ulrich, 2001. The HR Scorecard: Linking People, Strategy and Performance. Harvard Business Press, USA., ISBN: 13-9781578511365, Pages: 235.

Bontis, N., 2002. Managing Organizational Knowledge by Diagnosing Intellectual Capital: Framing and Advancing The State of the Field. In: The Strategic Management of Intellectual Capital and Organizational Knowledge, Choo, C.W. and N. Bontis (Eds.). Oxford University Press, New York, USA.

Bozbura, F.T., 2004. Measurement and application of intellectual capital in Turkey. Learn. Organiz., 11: 357-367.

Hadani, M., M. Goranova and R. Khan, 2011. Institutional investors, shareholder activism and earnings management. J. Bus. Res., 64: 1352-1360.

Pulic, A., 1998. Measuring the performance of intellectual potential in knowledge economy. Paper Presented in 1998 at the 2nd McMaster World Congress on Measuring and Managing Intellectual Capital by the Austrian Team for Intellectual Potential.

Pulic, A., 2000a. MVA and VAIC™ analysis of randomly selected companies from FTSE 250. Austrian Intellectual Capital Research Center, Graz, Austria.

Pulic, A., 2000b. VAIC an accounting tool for IC management. Int. J. Technol. Manage., 20: 702-714.