

## TO STUDY THE RELATIONSHIP OF SHORT - TERM INSTITUTIONAL SHAREHOLDERS WITH INTELLECTUAL CAPITAL IN THE COMPANIES LISTED ON TEHRAN STOCK EXCHANGE

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**Abstract:** The goal of the research is to study the relationship of short - term institutional shareholders and added value intellectual capital efficiency components (human capital efficiency, communicative capital efficiency and structural capital efficiency), Hence 105 companies listed on Tehran Stock Exchange were studied from 2009 to 2013. Pulic model was used to calculate intellectual capital components and multivariate regression analysis was used to measure the relationship between intellectual capital and short - term institutional shareholders. The findings of the research indicated that there is a negative relationship between and short - term institutional shareholders and communicative capital efficiency, a positive significant relationship between and short - term institutional shareholders and structural capital efficiency and finally there is not a significant relationship between human capital efficiency and short - term institutional shareholders. Therefore, it can be concluded that institutional shareholders apply active monitoring role on company decision about intellectual capital performance.

**Keywords:** added value intellectual capital efficiency, human capital efficiency, communicative capital efficiency and structural capital efficiency, short - term institutional shareholders

### 1. INTRODUCTION

Intellectual capital is the main factor of value creation in companies and companies are moving towards value creation through intellectual capital in the organization. In fact, previous managers' view on the company's value creation by physical assets have changed (Madrinos *et al.*, 2011: 132-151). In the present era with growing knowledge - oriented economy, the intangible assets of companies and their intellectual capital are key factors to achieve sustainable competitive advantage (Teece, 2000). Because of this, attention to the intangible items in various areas

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including economy, accounting and strategic management, has been grown rapidly. Knowledge is a competitive advantage which has been paid attention in business strategy of organization, in such way the creation of knowledge leads to continuous innovation and finally, continuous innovation will lead to a competitive advantage (Nonako, 1991). Nowadays, enterprises consider knowledge management to improve business performance and to ensure the success and business sustainability (Sveiby, 1997). This requires attention to the potentials and the capacities of human resources to organization can react rapidly to the changes of business environment and economic conditions for achieving to competitive advantage through performance and continuous improvement. One of the main challenges of managers is to utilize knowledge potential and intellectual capital to create value. Therefore, managers must design tasks that human resources can use its knowledge to create value.

The perspective of intellectual capital measurement focuses on how to make new measurement mechanisms for reporting non – financial or qualitative variables of intellectual capital along with traditional, quantitative or financial data (Johansson *et al.*, 2010). In comparison with traditional financial accounting, the measurement of intellectual capital includes important issues such as human capital, customer satisfaction and innovation. Therefore, intellectual capital is more comprehensive for the organizations want to aware well their performance value. The difference of these two approaches is significant: while financial accounting tends to the past, the measurement of intellectual capital is a future – oriented approach. The measurement of intellectual capital contains soft facts (qualities), while financial accounting measures hard facts (quantities). Measuring intellectual capital focuses on value creation, while financial accounting reflects return of previous operations and liquidity flow. It has been founded gradually that traditional financial measurement is inadequate to direct strategic decisions and it should be completed or even replaced with intellectual capital measurement. In this case, managers can notify well existing condition (strengthens and weakness) their intellectual capital management.

## **2. THEORETICAL FRAMEWORK AND RESEARCH BACKGROUND**

### **2.1. Dependent Variable**

#### ***2.2.1 Components of Intellectual Capital***

Pulic introduced VAIC (value added intellectual capital) in 1979; developed it in same year and completed it in 2000 year. Pulic used VAIC to measure intellectual capital in Australian Stock Exchange. The elements of intellectual capital were measured and calculated using following model (Pulic Model):

Formulating the elements of intellectual capital consists of algebraic expressions as follows:

$$VAIC_i = CEE_i + HCE_i + SCE_i$$

Where:

VAIC<sub>i</sub>: intellectual capital coefficient for company i

CEE<sub>i</sub>: communicative capital coefficient for company i

HCE<sub>i</sub>: human capital coefficient for company i

SCE<sub>i</sub>: structural capital coefficient for company i

In his model, added value is calculated from the difference of outputs and inputs.

$$\text{Value added} = \text{outputs} - \text{inputs}$$

Output means the income obtained from the sale of goods and services and inputs means all used costs to produce goods and services, except staff salary costs and depreciation. Because cost payments is a type of investment in human resources and consequently it contributes to make intellectual and structural added value owing to modifying processes and regulations. Depreciation cost is considered as non - cash costs of companies.

$$\text{Added value} = \text{operational cost} + \text{salary cost} + \text{depreciation cost}$$

Intellectual capital value added coefficient has following components as follows:

### **Structural Capital**

Organizational dimension in intellectual capital is defined in form of organizational (structural) capital. Organizational capital is defined as total assets that reflect the ability of organizational innovation. Mission, landscape, main values, strategies, work systems and internal processes of a company can be included among these types of the asset. Organizational capital is one of the underlying principles for the creation of a learning organization. It should be noted that if the organization is investing heavily on technology, but employees do not have the ability to use this technology, this investment and consequently its organizational capital will not be effective (Bontis, 1999). Finally, it should be noted that these three capitals together can impact on organizational performance. So the existence of such relationships between them is very important. Organizations should not only think separately of improving these capitals. Following formula is used to calculate the components of intellectual capital.

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

Where:

SCE<sub>i</sub>: structural capital efficiency coefficient for company i

VA<sub>i</sub>: total value added of company i

SC<sub>i</sub>: structural capital of company i

Following Formula is used to calculate SC<sub>i</sub> (structural capital) in above formula.

$$SC_i = VA_i - HC_i$$

Where:

SC<sub>i</sub>: structural capital of company i

VA<sub>i</sub>: total value added of company i

HC<sub>i</sub>: total invested amount for wage in company i

### Human Capital

Human capital is one of the most important types of intellectual or knowledge assets in organization, because these properties are creativity source. The type of assets is considered as implicit knowledge in the people into an organization that it is regarded as one of the critical factors influencing the performance of each company. Human capital is an accumulative combination of general and professional knowledge of staff, leadership abilities, problem solving and risk – taking. In successful companies, to enhance and improve the insight, capabilities and experience for competing in today’s changing environment, investments are made on staff (Bozbura, 2004). The results have indicated that increased employees’ abilities and capabilities have direct effect on financial results of company and there is a direct relationship between human capital and performance (Becker *et al.*, 2001).

Following formula is used to calculate human capital.

**Human Capital Efficiency Coefficient (VAHU):** the coefficient represents made added value by employees and it is calculated dividing added value by salary cost. It means that if one Rial is added to salary, how much Rial added value will be obtained. Human capital efficiency coefficient is calculated using following relation:

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

Where:

HCE<sub>i</sub>: human capital efficiency coefficient of company i

VA<sub>i</sub>: total value added of company i

HC<sub>i</sub>: total invested amount for wage for company i

## Communicative Capital

Customer capital is consisted of the set of all assets which manages and organizes company' relations with environment. The capital includes company's relation with customer, shareholders, suppliers, competitors, government, state institution and society. Communicative capital is a reflection of company. Communicative capital consist of brands, customer loyalty criteria, fame, suppliers feedback systems of customer and so on (Bozbura, 2004).

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

Where:

CEE<sub>i</sub>: communicative capital efficiency coefficient of company i

VA<sub>i</sub>: total value added of company i

CH<sub>i</sub>: book value of net assets of company i

## 2.2. Independent Variable

### 2.2.1. Institutional Shareholders

Institutional shareholders are a very important section in ownership structure of companies. There are two perspectives in relationship with institutional Shareholders: long - term shareholders and short - term shareholders. To raise current incomes, short - term shareholders' perspective is that institutional shareholders make motivations for managers in towards company's management. Long - term shareholders' perspective assume that institutional shareholders as a complementary mechanism lead to reduce managers' motivation for applying decisions in companies. Low turnover of large investors' portfolio indicates investors are motived to maintain the stocks and managers are encouraged to improve operation and increased shareholders' wealth. Hence institutional shareholders play active monitoring role on company's decisions about intellectual capital. Almanzan *et al.* (2005) found that if long - term institutional ownership increased, control level on him and taken approaches on behalf of him will be raised. Institutional shareholders are inherently oriented short - term persons and focus radically on current incomes, not long - term incomes which are measured by stock price (Bushee, 1998: 305 - 334, Porter 1992: 146 - 155).

Institutional investors are active observers on taken approaches and decisions on behalf of management (Hassas, Yeganeh, Moradi & Eskandar, 2008: 107 - 122).

- (1) **Short - term Institutional Shareholders:** Institutional shareholders are inherently oriented short - term persons and focus radically on current incomes, not long - term incomes which are measured by stock price (Bushee, 1998: 305 - 334, Porter 1992: 146 - 155).

We use following approach to calculate the variable.

Those institutional investors with ownership percentage of bigger or equal to 5% of total shares who sale their stock before passing a fiscal year from starting investment.

### **2.3. Research Background**

Mohammad Arsalan and Rashid Zaman (2015) studied the effect of intellectual capital components on the performance of financial incomes of oil and gas sector in Pakistan from 2007 to 2011. Added value intellectual capital was used to calculate financial performance. The results indicated that there is a positive significant relationship between added value intellectual capital coefficient with financial performance and profitability and intellectual capital efficiency contributes greatly to measure the performance of added value coefficient, as structural capital efficiency and human capital efficiency play significant role in facilitating financial performance of oil and gas section of Pakistan in comparison with tangible assets.

Ahmed Al - Dujaili studied the effect of intellectual capital on organizational innovation among 32 staff in automobile and textile industries in Iraq country. He found that there is a positive significant relationship between human capital and structural capital with organizational innovation, while there is not a significant relationship between customer capital and organizational innovation.

Hadani, Goranova and Khan (2011) conducted a research entitled, institutional investors, shareholders' activities and earning management. The research studied the effect of shareholders' activities and the surveillance of big institutional owners on earning management. The results of the research indicated that there is a direct relationship between number of shareholders and earning management level, while there is a reverse relationship between institutional investors and earning management. The findings led to clarify vague results of previous researches about the effect of shareholders' activities on company's performance.

### **3. RESEARCH METHOD**

The research is an applied and correlative research. Data analysis as practical phase is regarded as one of the fundamental pillars of any scientific research that by which, all activities of a research is controlled and directed to achieve the results. Multivariate regression model has been used to test the hypotheses. Limer F - test was used to calculate the models of the research from 2009 to 2013. Totally, 105 companies were tested using Pooled data for 5 years. It should be noted that EVIEWS software has been used to estimate the research variable. All provided statistical operations have been conducted using the software.

### 3.1 Research Hypothesis

**3.1.1 Main Hypothesis:** there is a significant relationship between short - term institutional shareholders and intellectual capital.

#### Sub - Hypothesis

- (a) There is a significant relationship between short - term institutional shareholders and communicative capital.
- (b) There is a significant relationship between short - term institutional shareholders and human capital.
- (c) There is a significant relationship between short - term institutional shareholders and structural capital.

### 3.2. Research Model

$$VAIC_{it} = \beta_0 + \beta_1 TRA + \beta_2 LT + \beta_3 MVEBVE_{it} + \varepsilon_{it}$$

$$CEE_{it} = \beta_0 + \beta_1 TRA + \beta_2 MVEBVE_{it} + \varepsilon_{it}$$

$$HCE_{it} = \beta_0 + \beta_1 TRA + \beta_2 MVEBVE_{it} + \varepsilon_{it}$$

$$SCE_{it} = \beta_0 + \beta_1 TRA + \beta_2 MVEBVE_{it} + \varepsilon_{it}$$

Where:

VAIC<sub>it</sub>: the performance of intellectual capital of company i in year t

TRA: ownership percentage of short - term institutional investors

MVEBVE: logarithm of capital market value divided by its book value

ε<sub>it</sub>: unknown element

## 4. EMPIRICAL RESULTS

### 4.1. Results of Testing First Sub - Hypothesis

There is a significant relationship between short - term institutional shareholders and communicative capital efficiency.

At first, for testing the hypotheses, it is necessary that diagnostic tests of Limer F and if necessary Hausman test, are conducted to determine type of data collection. Table 1 presents the results.

**Table 1**  
**Results of diagnostic tests**

<i>Type of test</i>	<i>Statistics</i>	<i>Error level</i>	<i>Accepted method</i>
Limer F test	0.000	39.745	Panel data
Hausman	0.035	10.287	Panel data with constant effects

F-test compares hypothesis  $H_0$  (using pooled data) with  $H_1$  (using panel data). According to significance level in table 1, the result indicates that the usage of panel data is more appropriate in case of first main hypothesis.

Hausman test was conducted after selecting panel data method with Limer F – test. The hypothesis indicates that  $H_0$  has used accidental effect and  $H_1$  has used constant effects. According to the results of table 1, reported significance level is lesser than 5 percent and it implies that  $H_1$  is supported and  $H_0$  is rejected at 95% confidence level and the usage of constant effect method is the best method.

**Table 2**  
Results of testing first sub – hypothesis

$CEE_{it} = \beta_0 + \beta_1 TRA_{it} + \beta_2 ROA_{it} + \beta_3 MVEBVE_{it} + \beta_4 SIZE_{it} + e_{it}$				
Variable	$\beta$ coefficient	Standard error	t-statistics	Significance level
Intercept	0.156	0.067	2.302	0.021
Short – term institutional shareholders	-0.158	0.34	-4.561	0.000
Logarithm of asset market value to book value	0.068	0.015	4.585	0.000
F-statistics	177.001	Significance level (P – Value)		0.000
Adjusted determination coefficient	97.32%	Watson – Durbin Statistics		1.61

The hypothesis studies the effect of short – term institutional shareholders on communicative capital efficiency. According to the results of table 2, the coefficient of short – term institutional shareholders variable (-0.158) and its significance level (0.000), it can be claimed that there is a negative significant relationship between short – term institutional shareholders and communicative capital efficiency at 5% error level. According to the results of table 2, F – statistics (177.001) and error level (0.000), it can be claimed that totally the research pattern has desirable significance. Also, adjusted determination coefficient for this pattern indicates that 97 percent of changes of dependent variable are explainable through the changes of independent variable and control variables. Additionally, according to Watson – Durbin statistics amount (1.61), it can be claimed that there is not first order autocorrelation among the remaining of the pattern.

#### 4.2. Results of Testing Second Sub – Hypothesis

There is a significant relationship between short – term institutional shareholders and human capital efficiency.

At first, for testing the hypotheses, it is necessary that diagnostic tests of Limer F and if necessary Hausman test, are conducted to determine type of data collection. Table 2 presents the results.



**Table 3**  
**Results of diagnostic tests**

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

F-test compares hypothesis  $H_0$  (using pooled data) with  $H_1$  (using panel data). According to significance level in table 3, the result indicates that the usage of pooled data is more appropriate in case of second sub-hypothesis.

**Table 4**  
**Results of testing second sub - hypothesis**

$CEE_{it} = \beta_0 + \beta_1 TRA_{it} + \beta_2 ROA_{it} + \beta_3 MVEBVE_{it} + \beta_4 SIZE_{it} + e_{it}$				
Variable	$\beta$ coefficient	Standard error	t-statistics	Significance level
Intercept	-70.739	6.415	-11.026	0.000
Short - term institutional shareholders	-3.212	2.324	-1.381	0.167
Logarithm of asset market value to book value	-5.034	2.301	-2.188	0.029
F-statistics	132.349	Significance level (P - Value)		0.000
Adjusted determination coefficient	50	Watson - Durbin Statistics		0.43

Watson - Durbin statistics (0.438) indicates the existence of first order autocorrelation. "Returned corrected first order" has been used as explanatory variable to meet autocorrelation problem. Table 5 presents the final results.

**Table 5**  
**Results of testing second sub - hypothesis**

$CEE_{it} = \beta_0 + \beta_1 TRA_{it} + \beta_2 ROA_{it} + \beta_3 MVEBVE_{it} + \beta_4 SIZE_{it} + e_{it}$				
Variable	$\beta$ coefficient	Standard error	t-statistics	Significance level
Intercept	-87.254	17.043	-5.119	0.000
Short - term institutional shareholders	2.558	4.544	0.563	0.573
Logarithm of asset market value to book value	-13.261	2.695	-4.919	0.000
AR(1)	0.929	0.025	37.038	0.000
F-statistics	577.872	Significance level (P - Value)		0.000
Adjusted determination coefficient	%87.32	Watson - Durbin Statistics		1.938

The hypothesis studies the effect of short-term institutional shareholders on human capital efficiency. According to the results of table 5, the coefficient of short - term institutional shareholders variable (2.558) and its significance level (0.573), it can be claimed that there is a positive relationship between short - term institutional shareholders and human capital efficiency, but this relationship is not significant. According to the results of table 5, F - statistics (577871) and error level (0.000), it can be claimed that totally the research pattern has desirable significance. Also, adjusted determination coefficient for this pattern indicates that 87 percent of changes of dependent variable are explainable through the changes of independent variable and control variables. Additionally, according to Watson - Durbin statistics amount (1.938), it can be claimed that there is not first order autocorrelation among the remaining of the pattern.

#### 4.3. Results of Testing third Sub - Hypothesis

There is a significant relationship between short - term institutional shareholders and structural capital efficiency.

At first, for testing the hypotheses, it is necessary that diagnostic tests of Limer F and if necessary Hausman test, are conducted to determine type of data collection. Table 6 presents the results.

**Table 6**  
Results of diagnostic tests

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

F-test compares hypothesis  $H_0$  (using pooled data) with  $H_1$  (using panel data). According to significance level in table 6, the result indicates that the usage of pooled data is more appropriate in case of third sub-hypothesis.

**Table 7**  
Results of testing third sub - hypothesis

$CEE_{it} = \beta_0 + \beta_1 TRA_{it} + \beta_2 ROA_{it} + \beta_3 MVEBVE_{it} + \beta_4 SIZE_{it} + \varepsilon_{it}$				
Variable	$\beta$ coefficient	Standard error	t-statistics	Significance level
Intercept	1.291	0.049	26.229	0.000
Short - term institutional shareholders	0.066	0.031	2.191	0.028
Logarithm of asset market value to book value	-0.092	0.036	-2.529	0.012
F-statistics	23.378	Significance level (P - Value)		0.000
Adjusted determination coefficient	14.59	Watson - Durbin Statistics		1.283

Watson - Durbin statistics (1.283) indicates the existence of first order autocorrelation. "Returned corrected first order" has been used as explanatory variable to meet autocorrelation problem. Table 7 presents the final results.

**Table 8**  
**Results of testing third sub - hypothesis**

$CEE_{it} = \beta_0 + \beta_1 TRA_{it} + \beta_2 ROA_{it} + \beta_3 MVEBVE_{it} + \beta_4 SIZE_{it} + \varepsilon_{it}$				
Variable	$\beta$ coefficient	Standard error	t-statistics	Significance level
Intercept	1.334	0.071	18.812	0.000
Short - term institutional shareholders	0.105	0.045	2.294	0.023
Logarithm of asset market value to book value	-0.051	0.041	-1.232	0.218
AR(1)	0.236	0.034	6.924	0.000
F-statistics	29.471	Significance level (P - Value)		0.000
Adjusted determination coefficient	%25.36	Watson - Durbin Statistics		1.75

The hypothesis studies the effect of short-term institutional shareholders on structural capital efficiency. According to the results of table 8, the coefficient of short - term institutional shareholders variable (0.105) and its significance level (0.023), it can be claimed that there is a positive significant relationship between short - term institutional shareholders and human capital efficiency. According to the results of table 8, F - statistics (29.471) and error level (0.000), it can be claimed that totally the research pattern has desirable significance. Also, adjusted determination coefficient for this pattern indicates that 25 percent of changes of dependent variable are explainable through the changes of independent variable and control variables. Additionally, according to Watson - Durbin statistics amount (1.75), it can be claimed that there is not first order autocorrelation among the remaining of the pattern.

## 5. CONCLUSION

According to its components, intellectual capital can lead to the development of social responsibility. Since similar researches have not been on this regard and the topic is a new topic in terms of base and concept, the research can provide new grounds for other researches with more innovation. In fact, the research studies the relationship between short - term institutional shareholders with intellectual capital and the results of the research will provided in following order:

### **The Results of Testing First Sub - Hypothesis**

#### **There is a significant relationship between short - term institutional shareholders and communicative capital efficiency**

This hypothesis studies the effect of short - term institutional shareholders on communicative capital efficiency. Hence, Pulic model (1998) was used to calculate intellectual capital and its components. The results of testing first sub - hypothesis indicated that there is negative significant relationship between short - term institutional shareholders and communicative capital efficiency. It means that if short - term institutional shareholders keep their stocks for a short - term time, because of lack of smart and active surveillance on the performance of management and CEO, intellectual capital efficiency level will decrease. It reflects the high effect of the presence and influence of institutional investors with high expertise in company. The result also corresponds with self - interest hypothesis. According to the hypothesis, institutional shareholders tend to gain short - term benefits because of access to confidential information and also mutual relationship with management and in this regard, they ignore to strength other influential aspects on company performance such as communicative efficiency and its other aspects including continuous relationship with customer, distribution channel of raw material and sellers of productions.

### **The Results of Testing Second Sub - Hypothesis**

#### **There is a significant relationship between short - term institutional shareholders and human capital efficiency.**

The hypothesis studies the effect of short - term institutional shareholders on human capital efficiency. Hence, Pulic model (1998) was used to calculate intellectual capital and its components. The results of second sub - hypothesis indicated there is a positive relationship between short - term institutional shareholders and human capital efficiency, but this relationship is not significant which it seems that it is required to long - term studies and or other group of companies. These results are compatible with the results of the researches done by Heydar Pour and Poladi (2013) about the positive effect of institutional shareholders on intellectual capital efficiency. It implies that if institutional ownership percentage in a business unit increases, the performance of intellectual capital will increase. Generally, the researches indicate that there is a positive relationship between stock short - term ownership level and human capital efficiency. Hence, institutional shareholders play active monitoring role on company's decisions about the performance of intellectual capital.

### **The Results of Testing Third Sub - Hypothesis**

**There is a significant relationship between short - term institutional shareholders and structural capital efficiency.**

The hypothesis considers the effect of short - term institutional shareholders on structural capital efficiency. Hence, Pulic model (1998) was used to calculate intellectual capital and its components. The results of third sub - hypothesis indicated that there is a positive significant relationship between short - term institutional shareholders and structural capital efficiency. These results are compatible the results of the researches done by Morad Zadeh and Adili (2011) about the positive effect of institutional shareholders on intellectual capital efficiency. It implies if institutional ownership percentage in a business unit increases, the performance of intellectual capital will improve. It can be expected that institutional shareholders play significant role in improving structural capital, as one of the important elements of intellectual capital, through formulating appropriate executive instructions of process, strategies and programs. According to the positive effect of short- term ownership level of stock and structural capital efficiency, it can be said that institutional shareholders apply active monitoring role on company's decision about intellectual capital performance.

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