

STUDY OF THE EFFECT OF INTELLECTUAL CAPITAL COMPONENTS AND FIRM SIZE

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Abstract

This study examines the relationship between intellectual capital components sizes listed company is enhancing the Tehran Stock Exchange. Using a quasi-experimental research and survey companies listed in Tehran Stock Exchange and the research period from 1381 to is 1390. Due to the limitations of the present study, 27 were selected to participate in the relevant period. Also according to the method of data collection, the data collected for this study, 270 years - is now. After the selection of the sample, based on Palyk (Model VAIC «coefficient value added intellectual capital»), the value of intellectual capital in 27 companies over the period of 10 years (1390-1381) were calculated. All activities related to summarize the data using EXCEL spreadsheet software was performed using SPSS software was used to analyze the data. In this study, test hypotheses and determine dependencies between components of intellectual capital and its relationship with the size of regression and Pearson correlation coefficients and variables for normality test of Kolmogorov-Smirnov used. The results of this study indicate that intellectual capital, human capital and physical capital have positive and significant relationship with firm size; firm size has a significant negative relationship. Also, the capital structure and the company do not have any significant association.

Keywords: intellectual capital, human capital, structural capital, physical capital and firm size

Introduction

Due to the transition from the industrial age to the era communities, the importance of intellectual capital in the business world has increased.

During the industrial age, the cost of property, plant and equipment and raw materials that were needed for a successful business but in this information age, effective use of intellectual capital is generally success or failure is an impressive collection. This issue goes to the Bihar Doajdr articles and valuable remarks and most important source of capital for a company that knows Fkrio intangible assets. He seems to tangible assets can easily be copied; therefore, it cannot be strategic assets of an enterprise to create competitive advantage for the company. Conversely, intellectual capital, and usually are caused by internal staff skills and experience lie.

The importance and necessity

Regression due to deficiencies in financial investigations, no Iranian companies based research data to examine the relationship between intellectual capital components and firm size effect has not been performed. In this research relationship between intellectual capital components and firm size are discussed.

History and literature of study

The discussion of intellectual capital and its relationship to company performance, several studies have been carried out. Palyk with a pattern entitled "value added intellectual coefficient" through which the intellectual capital of banks and banking in Australia between 1993 and 1995 Croatia had been measured in 1996 and 2000, has been used. The results of the two surveys considerable differences in the ratings of financial institutions based on traditional accounting-based accounting performance show. This model, of Japanese banks in 2000 was used to study. His studies also considerable differences between the performance of intellectual capital among various groups of Japanese banks show [3]

Williams Fire and the relationship between intellectual capital and transparency of company operations were examined, but the results were stable relationship between the two does not although high levels of intellectual capital appeared to be a large reduction in the transparency of intellectual capital has emerged. Adoynson and Malon study the differences between market value and book value of MDA as defined intellectual capital. Bontys believe, in a broad sense to include the company's intellectual capital, structural capital and human capital. In another article, he argues that human capital includes a set of employee characteristics such as competence, commitment, motivation and loyalty to them. Although human capital, intellectual capital is the essence of the character is that employees will fade out. Tan et al conducted a study in 2007 to examine the relationship between intellectual capital and financial performance of 150 firms between 2000 and 2002, Singapore Stock Exchange paid. The results were significant in different sectors. Including intellectual capital and financial performance of firms are positively correlated in a meaningful way. Future performance and growth as well as intellectual capital and intellectual capital were positively associated with firm performance. On the other hand, the contribution of intellectual capital on firm performance varies with the industry [7]. Rodef and Lylyart in 2002 to address the weaknesses of the methods of measuring intellectual capital and intangible assets as FIMI provide specific financial techniques [8].

Chen and colleagues examined the relationship between intellectual capital, market value and financial performance of companies in Taiwan's stock market during 1992 and 2002 began. The results indicated a positive effect on intellectual capital, financial performance and market value of the company. This research also showed that intellectual capital can be used as an index for predicting future financial performance [9]. Anvari Rostami and Seraji after 5 different methods of measuring intellectual capital, to review its relationship with the stock market value of companies engaged in the three methods, a direct relation between these two variables is confirmed [1]. Amiri also measured by the senseless Asgharnejad research and intellectual capital of the relationship with the financial return on investment by Iranian stock exchange is done. The results suggest the existence of a direct relationship between intellectual capital and financial performance and the company's future financial performance [2].

1 - Components of intellectual capital

If we approach (approach) to knowledge, intellectual capital, knowledge, communication and learning product known it to look at the effect of increasing the knowledge of the organization, its performance improves. In view of intellectual capital is a competitive advantage, but if we look at the intellectual capital perspective or approach to economic capital, intellectual capital is a financial asset that is measurable and can lead to higher profits. Accordingly, efforts have been made measurable intellectual capital. Some of these efforts were reporting knowledge-

based assets. Another group of researchers have attempted to present a separation approach, intellectual capital components to provide the most important of these efforts include:

- Three components of intellectual capital into human competence, Dronyo structure, outer structure.
 - divided into two sections intellectual capital, structural capital and human capital
 - into human intellectual capital assets, infrastructure, intellectual property and market
 - intellectual capital into human capital, structural capital, customer capital, strategic alliance
- Taking different approaches to the expression of three major intellectual capital can get most scholars believe that this concept include: human capital, structural capital and physical capital.

Models for measuring intellectual capital

- Balance model of invisibility
- Model of balanced scorecard model Askandya
- Navigator
- ROA model
- Table model intellectual capital
- Intellectual capital accounting model
- Model Guide intangible assets
- Tobin Q model
- Economic value added model
- Value added intellectual capital coefficient model

The model described VAIC (value added intellectual capital coefficient) One of the accepted methods for measuring intellectual capital approach VAIC (value added intellectual capital coefficient). Represents the value of the efficiency or mental ability of a firm, the greater the coefficient, the greater the potential for better company management had used. VAIC a set of indicators that are used as indicators to measure the efficiency and productivity and corporate resources are used has been established. Managers to increase understanding about the role of intangible assets to create competitive advantage, since several methods for sassing and measuring intellectual capital has emerged. Measurement of intellectual capital using a value-added intellectual capital coefficient according to the model VAIC, value added and output is equal to the difference. Value added (VA) is calculated as follows:

$$VA=OUT-IN.....$$

Relation 1

Where:

VA: value-added

OUT: Revenue from sale of goods and services

IN: costs used to produce goods and services, excluding staff salary costs and depreciation costs

Payment of salary is an investment in human resources and thus the value added intellectual and structural modification of processes and rules will help.

Depreciation expense and non-cash component of corporate costs.

The added value of the information contained in the audit report can also be calculated as follows:

$$VA = OP + EC + D + A$$

Relation 2

Where:

OP: Operating Profit

EC: payroll costs

D: depreciation of tangible assets

A: The cost expiration of intangible assets

VAIC calculations based on intellectual capital and financial performance is based on the Model Navigator Askandya model based on intellectual capital, human capital and structural capital is composed of value added.

Human Capital (HC): the model VAIC, payroll costs due to the active role of human resources in the value creation process is not included in the input.

Therefore, the cost of staff considered not as a cost but as an investment is considered. Thus, human capital efficiency coefficient is calculated as follows.

$$VAHU = \frac{VA}{HC}$$

1 Relation

Where:

VAHU: human capital efficiency coefficient

VA: value-added

HC: total payroll costs

Structural capital (SC): The second component of intellectual capital is calculated as follows.

$$SC = VA - HC \dots$$

Relation 2

Where:

SC: structural capital

VA: value-added

HC: total payroll costs

Structural capital cannot be measured directly, but we have to balance the value added and human capital.

According to calculations, structural capital efficiency coefficient is calculated as follows:

$$STVA = \frac{SC}{VA} \dots \dots$$

Relation 5

Where:

STVA: structural capital efficiency coefficient

SC: structural capital

VA: value-added

Efficiency coefficient of physical capital: (VACA)

This factor represents the added value created by the use of physical assets is evident. The tangible physical assets for a few Rials IRR value is obtained.

Visible = holdings of intangible assets - Total assets = CA

Tangible physical assets ÷ value = VA / CA = VACA

Intellectual capital efficiency coefficient (VAIC)

Based on human capital and structural coefficients are computed.

$$VAIC = VACA + VAHU + STVA$$

Relation 6

Where:

VAIC: intellectual capital efficiency coefficient

VAHU: human capital efficiency coefficient

STVA: structural capital efficiency coefficient

:VACA physical capital efficiency coefficient

Materials and Methods

This research is descriptive in terms of purpose, is applied research. This general procedure is to first survey of listed companies in Tehran Stock Exchange for the years 1381 to 1390 were examined. After the election the sample companies, based on Palyk (Model VAIC «coefficient value added intellectual capital"), the intellectual capital of each company was calculated for the period of 10 years.

All activities related to summarize the data using a Afzarsfhh extensive EXCEL was performed using SPSS software to analyze the data were collected., In this study, to test hypotheses and determine dependencies between components of intellectual capital and related The size of the regression coefficient Hmbstgypyrsvn for normality test of Kolmogorov variables - Asmyvnf used.

Hypothesis

This research is a main hypothesis and three sub-hypotheses:

The main hypothesis: There is a positive relationship between intellectual capital and firm size.

Alternative Hypothesis

First hypothesis: There is a positive relationship between human capital and firm size

Second hypothesis. There is a positive relationship between capital structure and firm.

Third Hypothesis: There is a positive relationship between physical capital and the size of a company.

Variable R

This SIZE (size) dependent variable and intellectual capital, human capital, structural capital and physical capital are independent variables.

Results

Descriptive statistics

Descriptive statistics of the dependent variable and independent variable quantities that are small are provided. These statistics include the mean, median and standard deviations of variables are available. Proximity of the median and average data indicated that the data were normally distributed enjoy. Results Table 1 shows the descriptive statistics used in the study.

Table 1

	Fiziki	Ensani	sakhtari	FEKRI	Size
N Valid	270	270	270	270	270
Missing	0	0	0	0	0
Mean	.292346745	3.228460286	.683586959	4.204604390	5.604225691
Median	.273174050	2.512692150	.610272400	3.480028550	5.514491800
Std. Deviation	.1385477588	3.0981196170	1.1378933906	3.3200290669	.6643406687
Minimum	-.0277127	-.2745676	-2.1749124	-1.8338616	4.3885274
Maximum	.9748253	31.2880017	11.6588012	32.4584001	7.8716385

Normality test variables

For the regression model, the dependent variable should be normally distributed. In the normal condition of the dependent variable (firm size) in the regression model with OpenCL Kolmogorov - Smirnov is being investigated. The test was conducted; the variables follow a normal distribution.

Testing hypotheses

Hypotheses based on stepwise procedure that is performed in the last step, we obtained the following results:

The main hypothesis

There is a positive relationship between intellectual capital and firm size. According to the results of the test (Table 2 and 3), inasmuch as significant variables of intellectual capital efficiency coefficient size is now below 5 percent of the Rubin intellectual capital and firm size is positive and significant.

Table 2

		FEKRI	Size
FEKR I	Pearson	1	.302**
	Correlation		
	Sig. (2-tailed)		.000
Size	N	270	270
	Pearson	.302**	1
	Correlation		
	Sig. (2-tailed)	.000	
	N	270	270

Table 3

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.350	.062		85.766	.000
FEKRI	.060	.012	.302	5.187	.000

a. Dependent Variable: size

The first hypothesis

First hypothesis: There is a positive relationship between human capital and firm size. According to the test results (Table 4 and 5), since the coefficient of performance of the significant variables in human capital and firm size is below 5% of the positive relationship between human capital and firm size are significant.

Table 4

		size	ensani
size	Pearson	1	.299**
	Correlation		
	Sig. (2-tailed)		.000
ensani	N	270	270
	Pearson	.299**	1
	Correlation		

Sig. (2-tailed)	.000	
N	270	270

Table 5

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	5.397	.056		96.580	.000
1 ensani	.064	.013	.299	5.122	.000

a. Dependent Variable: size

The second hypothesis

Second hypothesis: There is a positive relationship between capital structure and firm. According to the results of the test (Table 6) as can be seen more than 5% significance level variables. Consequently, the hypothesis is rejected.

Correlations

		size	sakhtari
size	Pearson Correlation	1	.115
	Sig. (2-tailed)		.059
	N	270	270
sakhtari	Pearson Correlation	.115	1
	Sig. (2-tailed)	.059	
	N	270	270

The third hypothesis

Third Hypothesis: There is a positive relationship between physical capital and the size of a company. According to the results of the test (Table 7) the significance level of less than 5 percent and the correlation coefficient is negative. Physical capital and the size of the inverse relationship between the two variables is positive significant. Consequently, this hypothesis will be rejected.

Table 7

		size	Fiziki
size	Pearson Correlation	1	-.387**
	Sig. (2-tailed)		.000
	N	270	270
fiziki	Pearson Correlation	-.387**	1
	Sig. (2-tailed)	.000	
	N	270	270

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

Discussion and Conclusion

After measuring intellectual capital index and its components using a value-added model of intellectual capital (VAIC) provided by Palyk, their impact on the size of the company using the regression was tested and it was observed that the intellectual capital and human capital stock company's securities have a direct relationship. Be given greater emphasis on intellectual capital in organizations and understand the significance and impact of these factors on the overall performance of organizations and positive effects on the process of value creation in organizations as a factor influencing the organizations advised. Since the research model of human capital as a key factor in the calculation of the role of intellectual capital, providing a competitive environment for staff salary levels, greatly increases the efficiency of your research paradigm. The remarkable thing about the components of intellectual capital in the model, there is a direct and significant relationship between human capital and firm size. This article examines the impact of human capital on firm size confirms in other words, the central role of human capital, intellectual capital, and consequently the size of the company and the company's performance is emphasized.

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