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Study about Relevance Between Intellectual Capital Components and Financial Operation's Indexes

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Abstract: Amongst items absence for Intellectual Capital in financial forms of the banks, organizations, companies and the other economic corporation and the items concealment in these forms are the research execution's exigencies. We can point to the great distance between market value and clerical value for one of the other exigencies that they direct the researches to finding of the distance's causer factors. Looker primary information is a punctual relevance existence between growth rate of the Intellectual Capital's components and each of the financial indexes and also punctual difference in total Intellectual Capital at different industries. So information collection has done with free and library shape in all of the accepted companies' statistical society in valiant papers bourse that they have the conditions in temporal period for four years between 1379 until 1382. The research's goal is among application researches and its way is solidarity research. For the first and fifth supposition analysis has used "ANOVA", "WELCH", "TUKEY", For the second, third and fourth supposition analysis has used multiple regression, "ANOVA" and snatch coefficients' table and also SPSS software. For yearly output's rate has used Pars Portfolio software. The results are showing the financial indexes average has punctual difference in different levels of the Intellectual Capital and only physical fund efficiency has a punctual affection on the financial indexes and the Intellectual Capital's components has not a punctual affection on the financial indexes for next year and Finally the different industries' Intellectual Capital average have a punctual difference. In final analysis has studied collation between this article's results and the other similar researches that they have gotten in Singapore, Toyland and Taiwan's bourse.

Key words: Intellectual Capital · ASR · ROE · EPS · Valiant Papers Bourse

INTRODUCTION

One of the knowledge's properties is that it is intangible; it means the knowledge is palpable and invisible and its rate and measurement is difficult although the organizations could calculate value and size of their production completely by use of accounting methods in past, but today these accountings methods have not necessary performance. Intellectual capital is included part of the total capital or asset that it is based on knowledge and the company is its holder and owner. So, definition of intellectual capital can also include self-knowledge (that has changed to the intellectual property of a company) and the final result of its transfer process. The legal definition of spiritual property is only included some things such as property rights of objects like invention right, brand and copyrights. These assets, is only the form of intellectual capital that may be suitable for accounting purposes. Pulic in his model considered that intellectual capital is consist of three main components that they are interacting together to create the value. The three components are human capital, structural (organizational) capital and physical capital.

Purpose of research is study the relationship between the components of intellectual capital and financial performance indicators. One of the necessaries to do the research is lack of some items as intellectual capital in financial forms of the banks, organizations and companies and the other economic businesses and also be hide the items in these forms and we can point to long distance

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between market value and official value that it leads the researches to the discovery of the factors that create this distance.

In this article after reviews the research literature that examined the papers, theses and reports and the theoretical principles, the effective parameter in intellectual capital will be analyzed. Then will be analyzed information and prioritization of dimensions, components and indicators by using the SPSS software and portfolio PARS software for the rate of annual efficiency and also by using the descriptive and inferential statistical methods. In final section, the tests that are related to assumptions have been done and was determined the effective factors on it.

Theoretical Principles

1-2-Before 1980s:

- Mr. John Galbraith was the first one to use the expression "intellectual capital".

2-2-Mid 1980s:

- Moving from the age of industry to the age of information and creating a deep gap between book value and market value of firms.
- Publishing "extracting value from innovation" by Mr. Tis.

3-2- Late 1980s:

- The first efforts to develop forms of accounts which measure intellectual capital (Svibi 1988).
- Authoring book "lost connection and fall of accounting management (Johnson & Kaplan).
- Authoring book "management of knowledge asset in 21 century (Amiden).

4-2-Early 1990s:

- The first time that the role of intellectual capital management with an allocation of official posts gets its legitimacy in the organizations and Mr. Edvinsson is introduced as a director of Scandia intellectual capital.
- Introducing the concept and approach of the Balanced Scorecard by Kaplan and Norton.

5-2-Mid 1990s:

- Providing stock of intellectual capital in Scandia company stock in form of attachment of financial statements (1994).
- Using audit of knowledge, to comprehensively assess the state of intellectual capital by Salmi (1999).
- Publication of the book by scholars of intellectual capital movement.

6-2-Early 2000s:

- Publication of the Journal as intellectual capital.
- Publication of the first intellectual capital accounting standards by the Danish government.
- Publication of the first intellectual capital report by European Union.
- Publication of the book "management of measuring and reporting intangible assets" by Lou.
- Various Projects about management and measuring intellectual capital is being defined and followed up.

Method of Research: The data collection as field and library was done in a four-year period between1379 to 1382 in the statistical population of all accepted companies on the stock exchange with conditions. The data collection's tools has been collected by referring to library resources including books, weekly magazines, Monthly, journals, publications of research centers, academic theses and searching in electronic data bases such as the Internet and go to the Stock Exchange of required data for research. This research is an applied research in terms of purpose and is an investigate correlation in terms of technique. To test the first and fifth hypothesis has been used the ANOVA, Welch 5 and Tukey 6 and to test the second, the third and fourth hypothesis has been used the multiple regression, ANOVA and the partial coefficients table and also the SPSS software and has been used the portfolio's PARS software for rate of annual return. Statistical population is all companies of active industries in Exchange but in special condition that have been presented the shares of subset companies of this industries in Exchange before the 1379 and they have been active in stock exchange until 1382. And also were presented the financial statements and the notes with it to the Board for this period, the companies have not operating losses and losses after tax in this period and should be available 6 companies of every information industry at least. Thus, according to the limitations of statistical population, the annual financial reports of 99 companies have been collected for the study. These 99 companies are a subset of seven industries.

Analysis of Data: Research hypotheses are as follows:

- Average of financial indicators at different levels of intellectual capital, have a significant difference.

Table 4: Summary results of the first Far Zyh

		Levene Test			ANOVA Test			Welch Test			Tuky Test		
Year	Financial Performance	Statistics	d1,df2	sig	F	d1,df2	sig	F	d1,df2	sig	Levels	sig	omparable levels a
79	ROE	5.559	2.96	.005	8.33	2.96	.000	11.58	2.58.293	.000	G1, G2 G1, G3 G2, G3	.006 .001 .772	G3 > G2 > G1
	EPS	1.898	2.96	..156	5.118	2.96	.008	6.785	2.60.756	.002	G1 , G2 G1 , G3 G2 , G3	.008 .050 .789	G2 > G3 > G1
	ARS	1.809	2.96	.169	3.097	2.96	.050	3.099	2.62568	.052	G1 , G2 G1 , G3 G2 , G3	.049 .176 .824	G2 > G3 > G1
80	ROE	3.391	2.96	.038	4.935	2.96	.009	5.753	2.58.584	.005	G1 , G2 G1 , G3 G2 , G3	.229 .006 .302	G3 > G2 > G1
	EPS	1.388	2.96	.254	2.332	2.96	.103	2.252	2.62.510	.114	G1 , G2 G1 , G3 G2 , G3	.268 .101 .865	G2 > G3 > G1
	ARS	0.824	2.96	.442	2.187	2.96	.118	1.939	2.62.928	.152	G1 , G2 G1 , G3 G2 , G3	.539 .097 .562	G3 > G2 > G1
81	ROE	5.772	2.96	.004	11.13	2.96	.000	14.154	2.60.610	.000	G1 , G2 G1 , G3 G2 , G3	.003 .000 .520	G3 > G2 > G1
	EPS	7.107	2.96	.001	9.197	2.96	.000	13.247	2.57.579	.000	G1 , G2 G1 , G3 G2 , G3	.002 .000 .871	G3 > G2 > G1
	ARS	4.360	2.96	.015	7.634	2.96	.001	8.673	2.57.642	.001	G1 , G2 G1 , G3 G2 , G3	.239 .001 .066	G3 > G2 > G1
82	ROE	8.696	2.96	.000	14.424	2.96	.000	18.160	2.58455	.000	G1 , G2 G1 , G3 G2 , G3	.004 .000 .113	G3 > G2 > G1
	EPS	8.063	2.96	.001	8.906	2.96	.000	13.079	2.55.090	.000	G1 , G2 G1 , G3 G2 , G3	.009 .000 .567	G3 > G2 > G1
	ARS	4.186	2.96	.018	6.865	2.96	.002	8.048	2.54.306	.001	G1 , G2 G1 , G3 G2 , G3	.249 .001 .097	G3 > G2 > G1

Source: Sedghi Pish Kamar1386.

- There is a significant relationship between the components of organization's intellectual capitals and each of organization's financial indicators.
- There is a significant relationship between the components of organization's intellectual capitals and each of organization's financial indicators of the next year.
- There is a significant relationship between the growth rate of company's intellectual capital components and each of the organization's financial indicators.
- Average of total intellectual capital in different industries, have significant differences.

According to independent and dependent variables of research, only location that we can do this study is Stock Exchange because Tehran Stock Exchange has been selected as the location for this study. The period of research was similar to abroad order by: Kujansivu[1] 4 years (2001-2003), Chen Goh2 4 years (2001-2003), Appuhami3 1 year (2005), Williams4 5 years (1996-2000), Chin Chen5 and others 11 years (1992-2002) and Pew Tan[6] and others 3 years (2000-2002). For the accepted companies in Tehran Stock Exchange are among the statistical community, they should have all the following conditions:

The Obtained Results for the First Hypothesis: According to this issue that findings of study should be presented concise, complete and useful, for this purpose they are given as a summary in Table 4. So:

- **ROE:** Higher intellectual capital has a direct relationship with the greater ROE. It means if companies have a much higher capital, their ROE will be increased.
- **EPS:** Higher intellectual capital has a direct relationship with the greater EPS. It means if companies have a much higher capital, their EPS will be increased.
- **ASR:** Higher intellectual capital has a direct relationship with the greater ASR. It means if companies have a much higher capital, their ASR will be increased.

The Obtained Results for the Second Hypothesis:

- **ROE:** Multiple regression models shows that 29.3 percent of rate changes of shareholders' laws return is processed by the independent variables. ANOVA also found a significant relationship between intellectual capital components and shareholders' laws return that only VACA has a significant effect on the rate of shareholders' laws return and VAHU and STVA have not a significant effect on the rate of shareholders' laws return. Of course the effects of VACA and VAHU on the rate of shareholders' laws return is positive and STVA have a negative impact on the rate of shareholders' laws return.
- **EPS:** Multiple regression models shows that 37.7 percent of the profit changes of each share is processed by the independent variables. ANOVA also found a significant relationship between intellectual capital components and the profit of each share. The minor coefficients table also shows that only VACA has a significant effect on the profit of each share and VAHU and STVA have not a significant effect on the profit of each share. Of course the effect of VACA and VAHU on the profit of each share is positive and the effect of CAHU on the profit of each share is positive, too.
- **ASR:** Multiple regression models shows that 21.6 percent of annual rate of return is processed by the independent variables**.** ANOVA also found a significant relationship between intellectual capital components and annual rate of return. The minor coefficients table also shows that only VACA has a significant effect on the annual rate of return and VAHU and STVA have not a significant effect on the financial performance indicators and the effects of all the intellectual capitals components on the annual rate of return are positive.

The Obtained Results for the Third Hypothesis: According to the annual obtained results, we can say that there is not a significant relationship between the intellectual capitals components and the companies' financial indicators and only VACA of the intellectual capitals components have a positive effect on the companies' financial indicators for the next year.

The Obtained Results for the Fourth Hypothesis: According to the annual obtained results, we can say that there is not a significant relationship between the intellectual capitals components and the companies' financial indicators.

The Obtained Results for the Fifth Hypothesis: According to the statistic of Loon test (43.442) with degrees of freedom (6.92) and significance level (0.000) and comparing this level with $\alpha = 0.05$ level, we can observe that the zero hypothesis based on the variance of the responses will be rejected.

According to the calculated F statistic (47.359) with degrees of freedom (6.92) and significance level (0.000) and comparing this level with $\alpha = 0.05$, we can observe that the zero hypothesis based on be same the average of intellectual capital of different industries will be rejected. It means at least average of intellectual capital of an industry is not equal with the other industries.

According to the obtained F statistic of Welch test (5.407) with degrees of freedom (6.26.810) and significance level (0.000) and comparing this level with $\alpha = 0.05$, we can observe that the zero hypothesis based on be same the average of intellectual capital of different industries will be rejected. It means at least average of intellectual capital of an industry is not equal with the other industries. (Table 6 and 7 and 8)

Therefore, we can conclude that the average of intellectual capital in the study period of various industries has been different.

Table 6: The being same variance test of intellectual capital of different industries in total period of m VAIC

Levin Statistic	Df1	Df2	Sig
47.359	6	92	.000

Table 7: ANOVA test of intellectual capital of different industries in total period of m VAIC

	Sum of Squares	DF	Mean Square	F	Sig
Between Groups	422272.87	6	7045.478	43.442	.000
Within Groups	14920.70	92	162.182		
Total	57193.57	98			

Table 8: Welch test of intellectual capital of different industries in total period of m VAIC

	Statistic a	df1	df2	Sig
Welch	5.407	6	26.810	.001

CONCLUSIONS AND RECOMMENDATIONS

According to this issue that Pulic model has been used for accounting the intellectual capital in this study, necessary data for these variables has been calculated exactly from the Financial Statements and the notes with it that is relative to the end of financial year of the stock exchange companies in Tehran has been used. Audited Financial Statements and the notes with them has been used exactly in two cases for calculating the dependent variables and Pars software of portfolio has been used for annual rate of return (yearly updated).The results of research obtained separately in each hypothesis as following:

- The results of the first hypothesis shows that the average of financial indicators at the different levels of intellectual capital have a significant different and in higher levels of intellectual capital, financial indicators also have increased.
- The second hypothesis shows that only the efficiency of physical capital has a significant effect on financial indicators and we can say that efficiency of structural capital does not have much impact on financial indicators, but the effects of human capital performance on financial indicators is negative. In a similar study that has been done by Appuhami[1] in Thailand Exchange showed existence the relationship between the intellectual capital and financial performance. But between the intellectual capital Components, just efficiency of physical capital had a small effect on the financial performance and efficiency of structural capital performance was not significant and efficiency of human capital has been logged from equation for its little impact (its effect was not in acceptable level of statistically). The done research by Chin Chen and others2 in Taiwan exchange achieved to this result that financial performance has a significant relationship with intellectual, physical and human capital, but it does not have a significant relationship with the structural capital performance and have a positive relationship with R&D.
- The third hypothesis shows that the intellectual capital components don't have a significant effect on financial indicators over the next year and can not be said that we can predicted the companies by the amount of intellectual capital components of financial performance over the next year. In Pew Tan and others research that was done in Singapore Exchange shows a positive significant relationship between the intellectual capital and financial performance of companies over the next year.
- Growth of intellectual capital components does not have a significant effect on financial indicators of company. It means we can not say that the company's financial indicators will be increased with growing the intellectual capital components of company. This subject derived from results of the fourth hypothesis. In Pew Tan and others research that was done in Singapore Exchange showed a positive significant relationship between the growth of intellectual capital and financial performance of companies.
- Also the fifth hypothesis shows that average of intellectual capital of various industries have significant differences together. Of course Tukey test shows that these averages difference is more for high difference of average of financial mediated industry with the other industries. In Pew Tan and others research that was done in Singapore Exchange shows that average of intellectual capital in various industries have a significant difference together.

Among the proposals based on the results of research are the following points:

Since the resources are not always transferable, substitutions and replaceable; it is necessary to identify the real and stable sources, attention to inside of companies instead of outside. The organizations are being incorporated into a knowledge-based economy. It is An economy that intangible assets and knowledge were known as the most important of competitive advantage for companies. Today, the method of using the intangible assets has an important effect on success and survival of organizations, so this subject created a study area and serious researches on management field.

On the other hand, most of the current accounting systems are unaware of the role and increasing importance of intellectual property rights and knowledge

in the modern era's organizations and they can not measure the real value of assets in their calculations. In today's knowledge-based societies, efficiency of the used intellectual capital is more important than efficiency of the used financial capitals; it means that the importance of financial capitals decreased extremely in determining the capability of sustainable profit than the intellectual capital. Actually, the main problem of the research is studying about the importance of intellectual capital in financial return of the companies.

The results of the second hypothesis showed that the companies are paying more attention to the efficiency of physical capital and efficiency of their structural capital is effectiveness and efficiency of their human capital is also negative. According to this issue that the structural capital and the human capital are member of economic advantageous capitals for the companies, they must pay more attention to structural capital (organizational culture, internal structure, etc.).

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