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Investigation of Relationship Between Intellectual Capital and Financial Performance In Industrial Companies of Iran

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ABSTRACT

The role of intellectual capital is recognized on theoretical and practical level. The main purpose of this paper is study of relationship between intellectual capital and financial performance in industrial companies of Iran. The industries presented in the dataset are selected according to the predominance of several intellectual capital elements. Measuring the intellectual capital with Pulic's model and for measuring the companies' profitability, return on assets and return on equity are used. This study was carried out from 2010 to 2012 and the statistical methods used to test the hypotheses were the simple and multiple regression methods. The T and F tests were employed to reject or confirm the hypotheses. Moreover, the results of descriptive statistics concerning the variables of the research, including the means, the variances and the standard deviations were also measured. Research findings show that there is significant relationship between intellectual capital and two performance indicators (return on equity and return on sales) in industrial companies of Iran. Also, our findings show that among component of intellectual capital, structural capital efficiency has most relationship with financial performance indicators and so among the financial performance indicators, return on sales has most relationship with component of intellectual capital.

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INTRODUCTION

Company performance is very essential to management as it is an outcome which has been achieved by an individual or a group of individuals in an organization related to its authority and responsibility in achieving the goal legally, not against the law, and conforming to the morale and ethic. Performance is the function of the ability of an organization to gain and manage the resources in several different ways to develop competitive advantage. There are two kinds of performance, financial performance and non-financial performance (Hansen and Mowen, 2005). Financial performance emphasizes on variables related directly to financial report. Company's performance is evaluated in three dimensions. The first dimension is company's productivity, or processing input into output efficiently. As we have already mentioned, few works include industry-level analysis, while investigating intellectual capital impact on financial performance. Most of the researchers stop their studies at the level of the specific sector descriptive analysis and make conclusions about the industry in general on the basis of a single firm case study (Lopes and Rodrigues, 2007, Kayakutlu, 2007).

The second is profitability dimension, or the level of which company's earning is bigger than its cost. The third dimension is market premium, or the level of which company's market value is exceeding its book value (Walker, 2001).

Hence, trend to measuring and reporting the real value of intangible assets and knowledge in the financial statements of companies has increased more than ever. Companies, especially companies involved in industries related to the knowledge are required to understand the importance of intellectual capital and should know that Knowledge is one of the most critical factors in the company's ability to remain competitive advantage in the current market; also managers should be aware of intellectual capital. Without awareness of this valuable asset, managers cannot make the right decision and thereby perhaps be causing wasting this precious asset. Therefore the intellectual capital reporting for managers and for company's stakeholders is very important. Managers should be aware of the company's intellectual capital in order to manage these assets properly and make necessary plan for better use of their assets. Stakeholders and users of company reports also

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will be able to be aware of the intellectual capital available in the organization and can take more informed decisions.

The term intellectual capital for the first time was used in 1969 by economist John Kenneth Albright, in order to explain the gap between book value and market value in institutions. After him, Karl Erik Sveiby Swedes accountant considered the lack of reflecting intellectual capital in traditional balance-sheets. In today knowledge-based economy, intellectual capital is the most important capital in every organization and it can effect on the performance of the organization in all aspects (Riahi Balkauie, 2003).

Human capital represents the stock of staff knowledge in an organization. Human capital forms the foundation of intellectual capital and without that intellectual capital can not be implemented (Chen & others, 2004). Without intellectual capital, there is no innovation in products, services, and commercial processes (Riahi Balkauie, 2003). In other words, intellectual capital includes knowledge, skills, and abilities of the organization staff that can be used in resolving organizational problems. Because human capital belongs to the organization staff, it can be claimed that this type of capital is not owned by the organization and therefore, with the departure of employees from organizations, this capital also is taken out from the organizations. Thus, organizations seek to prevent capital outflow by converting it to other kinds of capital (Antonio Rojas, 2007).

Structural capital is the firm's organizational capabilities to meet market requirements. It involves the organization's routines and structures that support employees' quests for optimum intellectual performance and, therefore, overall business performance. An individual can have a high level of intellect, but if the organization has poor systems and procedures by which to track his or her actions, the overall intellectual capital will not reach its fullest potential. (Bontis, Nick, 1996)

Relational capital refers to the organization's relationships or network of associates and their satisfaction with and loyalty to the company. It includes knowledge of market channels, customer and supplier relationships, industry associations and a sound understanding of the impacts of government public policy. Frustrated managers often do not recognize that they can tap into a wealth of knowledge from their own clients and suppliers. Understanding better than anyone else what customers want in a product or a service, is what makes someone a business leader as opposed to a follower. Customer and supplier loyalty, target marketing, longevity of relationships and satisfaction are all measurable elements of this form of intellectual capital. (Bontis, Nick, 1996)

Methodology:

Previous Research:

According to available statistics, in the 1980s, the share of intangible assets from total assets in companies is of about 20 percent, compared to 45 percent in the 1990s, and in recent years has increased to 75%. (Ballou and others, 2004) with a remarkable increase in the share of intangible assets from total assets, measuring intellectual capital has become one of the main concerns in accounting profession.

American researchers N. Gallini and S. Scotchmer review the economic reasoning that supports intellectual property over funding from general revenue. For those economic environments in which intellectual property is justified, they review some of the arguments as to why it is designed as it is, especially with regard to extent of protection, and especially where innovation is cumulative. They conclude that the patentee's ability to reorganize rights through licensing and other contractual arrangements should be taken into account in designing the property system. (Gallini, Scotchmer, 2002).

Cheng and colleagues (2010) investigated the relationship between intellectual capital with market value and financial performance of companies listed on the Taiwan Stock Exchange. They used the intellectual capital Pulic model to measure intellectual capital and the regression analysis showed that if the company's intellectual capital is more, their financial performance and market value will be higher. Piotan and his colleagues (2007) investigated the relation between IC and financial function in Singapore stock exchange based on three financial indexes (earning per share, ratio of return on equity and ratio of yearly return). The result showed that there is positive relation between IC and financial function indexes and there are meaningful differences between IC rate in different industries.

Economic evidence shows that industry effects need to be taken into account for the purposes of an overall study of intellectual capital impact on corporate performance and benchmarking. Therefore, human capital can be more important in an industry requiring special employee skills and competencies. Structural capital plays the major role in the industries demanding extensive IT infrastructure or strong corporate culture. (Bramhandkar *et al.*, 2007) We are following the approach suggested by Roos *et al.* and Stewart, who identified three components of intellectual capital: human (HC), relational (RC) and structural resources (SC)

- Fig.1. This division fits resource-based logic, as it separately describes key areas of company management:

Intellectual capital category	Available indicator
Human capital (HC)	Board of directors qualification
	Cost of employees
Structural capital (SC)	Intangible assets
	Patents, licenses, trademarks
	Enterprise Resource Planning System implementation
	Corporate strategy implementation
Relational capital (RC)	Commercial expenses share
	Well-known brand
	Citation in the Internet
	Site quality

Fig. 1: Three-component structure of intellectual capital

Financial performance. The two financial performance variables are defined as follows:

•Return on equity (ROE) = pre - tax income / average stockholders' equity. ROE represents returns to shareholders of common stocks, and is generally considered an important financial indicator for investors.

•Return on total assets (ROA) = pre - tax income / average total assets. ROA reflects firms' efficiency in utilising total assets, holding constant firms' financing policy.

Hypotheses:

The main research hypotheses:

There is significant relationship between intellectual capital and financial performance

First sub-hypothesis:

There is significant relationship between intellectual capital and Return on Equity (ROE).

Second First sub-hypothesis:

There is significant relationship between intellectual capital and Return on sales (ROS).

Research Method:

This research has a measuring, descriptive and applied methodology. In this research, significant relationship between intellectual capital and financial performance will be investigated in industrial companies of Iran described. This study was carried out from 2010 to 2012 and the statistical methods used to test the hypotheses were the simple and multiple regression methods. The T and F tests were employed to reject or confirm the hypotheses. Moreover, the results of descriptive statistics concerning the variables of the research, including the means, the variances and the standard deviations were also measured.

Hypotheses Testing:

Test the first hypothesis:

The first step is to examine the significant relationship between the components of intellectual capital and return on equity; we will use the following regression equation.

$$ROE_{it} = \alpha_0 + \alpha_1 HCE_{it} + \alpha_2 SCE_{it} + \alpha_3 CEE_{it} + \mu_{it}$$

Table1: Summary results of the sample T-Test

Variable	Freedom Degree	Average	Standard deviation	Reliability difference %95		T	Prob. (Fstatistic)	Significance Level
				Low degree	High Degree			
capital	60	/3363	/3091	/2543	/4183	1/215	0.000	/000
Human capital	60	/2561	/3256	/2476	/3458	/895	0.000	/420
Structural capital	60	/4010	/3796	/0606	/1408	/797	0.000	/429
Relational capital	60	/3896	/3897	/2564	/3546	/954	0.000	/412

According to table 1 and regarding the obtained amount, that is, 1/215, we observe that it is bigger than the number related to T-Text distribution table (= 0/05) and the freedom degree of 60. Consequently, it is shown that According to information given in table1 concerning dependent variable of return on equity and with regard to the statistic F-Statistic and level Prob it can be concluded that the model have statistically significant validity, therefore hypothesis on existing significant relationship between the components of intellectual capital and return on equity will be confirmed.

Test the second hypothesis:

Now we examine the relationship between components of intellectual capital and return on sales by using the method of least squares (LS) and using the following model:

$$ROSit = \alpha_0 + \alpha_1 HCEit + \alpha_2 SCEit + \alpha_3 CEEit + \mu_{it}$$

Table 2: Summary results results of the sample T-Test

Variable	Freedom Degree	Average	Standard deviation	Reliability difference %95		T	Prob. (Fstatistic)	Significance Level
				Low degree	High Degree			
Capital	60	/3125	/2110	/2643	/4183	2/525	0.000	/000
Human capital	60	/1245	/3345	/2776	/3658	/0495	0.000	/425
Structural capital	60	/4112	/3796	/0606	/2408	/0395	0.000	/479
Relational capital	60	/2587	/3546	/3364	/4540	/0487	0.000	/422

According to table 2 and regarding the obtained amount, that is, 2/525, we observe that it is bigger than the number related to T-Text distribution table (= 0/05) and the freedom degree of 60. Consequently, it is shown that According to information given in table2 concerning dependent variable of return on equity and with regard to the statistic F-Statistic and level Prob it can be concluded that the model have statistically significant validity, therefore hypothesis on existing significant relationship between the components of intellectual capital and return on equity will be confirmed.

Sample and Scope of the research:

The statistical population and sample of this research are all the industrial companies of Iran.

Statistical population of this research included 487 companies whose in this method all financial statements of industrial companies of Iran between 2010 until 2012 are extracted and considering the features listed below finally 80 companies have been recognized eligible.

1. capitals were more than 50000 dollars.
2. had departments of industrial accounting and management accounting

Table 3: the manner of distributing statistical samples

Row	Product groups	Population volume	Sampling volume
1	Foods and drinks	136	22
2	Textiles	26	4
3	Non-metal mineral	95	16
4	Metal industries	91	15
5	Electrical machineries	11	2
6	Paper and paper products	22	4
7	Chemicals	59	9
8	Robber and plastics	47	8
	Total	487	80

Conclusion:

In this research we have investigated the relationship between intellectual capital and financial performance in industrial companies of Iran and, after collecting, categorizing and summarizing questionnaire with the help of econometric software (spss) and applying the method of least squares regression hypotheses were examined. The obtained results have been summarized in table 3 as follows:

Table 3: The obtained results have been summarized

Dependent variable	Independent variables			T	Prob.	Regression Results
	Human capital	Structural capital	Relational capital			
ROE	0.420	0/429	0.412	1/215	Acceptable	The first Hypothesis is Confirmed
ROS	0.425	0.479	0.422	2/525	Acceptable	The second Hypothesis is Confirmed

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