THE RELATIONSHIP BETWEEN INTELLECTUAL CAPITAL AND EARNINGS QUALITY INDICATORS IN EMERGING COMPANIES LISTED IN TEHRAN STOCK EXCHANGE

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ABSTRACT
Development in recent decades, new opportunities facing individuals and organizations put. The interaction and communication in the global developed and new definitions of the various aspects of individual and social life has already been updated. The organization has the greatest impact on whether or not to accept the new situation, we are getting into a knowledge-based economy. Economy where knowledge and intangible assets as an important source of competitive advantage for organizations known. The main objective of this research was to investigate the relationship between intellectual capital and earnings quality indicators in emerging companies listed on the Tehran Stock Exchange. In this study, to measure intellectual capital the model by Pulic Name VIAC (Value added intellectual capital) Raised has been used. Based on the model VAIC, the value of intellectual capital firms studied in a 5-year period 1386 to 1391 to calculate quality index of the relationship between intellectual capital and corporate profits have been evaluated by. Earnings Quality As the dependent variable based on earnings persistence, earnings predictability, the relationship between earnings and operating cash flow to equity is a profitability measure. In this study, the statistical methods used to analyze the data, simple regression and correlation coefficients are statistically test results indicate that a significant relationship between intellectual capital and earnings quality indicators (Stable profit, the profit forecasts) Is, Given these results can be found growing importance of intellectual capital in business process excellence And the need to identify the knowledge and the formation of the necessary framework for knowledge management in organizations.

Keywords: Intellectual Capital, Earnings Quality, Simple Regression, the Tehran Stock Exchange

INTRODUCTION
In the second half of the twentieth century with the development and rapid advancement of information technology, Great development in all aspects of life and human activity caused this move toward economic (Hemmati et al, 2010). In such circumstances, knowledge and intangible assets as an important source of competitive advantage for organizations known. In fact, after the agricultural revolution and the industrial world, where land, capital and labor were considered to be the main source control information revolution is Which is the main source of knowledge and information is formed. In the knowledge era, intellectual capital management, it is an important issue in today's turbulent and challenging, is key to success (Mojtahedzade, 2002). Due to the growing importance of intellectual capital (As an important part of the total capital of the company) In the process of strategic advantage and sustainable profitability of firms, this study examines the relationship between intellectual capital and earnings quality indicators in emerging companies listed in Tehran stock exchange deals. In this study, the research literature on the definition of intellectual capital, intellectual capital, and research assessing the components and models, foreign and domestic, will be examined. The research
hypotheses and statistical methods used to test the hypotheses are described. Following the results of the data analysis. Finally conclusions and recommendations will be presented.

**Literature and Theoretical Research**

**Intellectual capital**
The literature on the nature of intellectual capital and intangible value of this resource is. Efforts related to the concepts of intellectual capital due to Machlup In 1962 AD, but historically invented the concept of intellectual capital in 1969 by Galbraith is assigned. He believed in something beyond the mind and intellectual capital includes intellectual action Applies. This means that in the literature to explain the concept of intellectual capital, intellectual capital, Moving from knowledge to the application of knowledge to this point Relationships and processes that are considered as intellectual capital, Must convert knowledge into a product or service to the organization, company, etc. is valuable. This is a process that also contributes to our knowledge of the use of knowledge is this has also led to different definitions of intellectual capital.

In the evolution of the concept of intellectual capital, intellectual capital theorists are numerous definitions of the different perspectives offered the examples shown in Table 1.

**Table 1 - Definitions of intellectual capital**

<table>
<thead>
<tr>
<th>Writer</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edvinson &amp; Sullivan (1996)</td>
<td>Intellectual capital is knowledge that can be converted value.</td>
</tr>
<tr>
<td>Brooking (1996)</td>
<td>Intellectual capital is a combination of four main parts: Market assets, human-centered assets, intellectual property assets and infrastructure.</td>
</tr>
<tr>
<td>Sveiby (1985)</td>
<td>Intangible assets and intellectual capital is divided into three categories: internal structure, external structure and competence of staff.</td>
</tr>
<tr>
<td>Ross, et al (1997)</td>
<td>Intellectual capital includes an intellectual component (eg, human capital) and a mechanic (for example, structural capital) is.</td>
</tr>
<tr>
<td>Stewart (1997)</td>
<td>The idea of intellectual capital items, has been officially added to produce a more valuable asset is applied.</td>
</tr>
<tr>
<td>Bontis, et al (1999)</td>
<td>Intellectual capital is a concept that all intangible resources and internal communications to classify them.</td>
</tr>
<tr>
<td>Barney (1991)</td>
<td>Intangible nature of intellectual capital, and the umbrella organizations known as a strategic asset. Although the effect of intellectual capital in organizations improves financial performance and competitive advantage of the organization will follow.</td>
</tr>
</tbody>
</table>

A brief look at the definitions of intellectual capital reflects the writers are still on a single definition, do not agree, but in many ways parallels are observed between different definitions. All these definitions are based on the principle that intellectual capital sum of intangible assets such as human capital, structural capital and customer capital.

**Human Capital**

Human capital represents the knowledge stock of an organization (Bvntys et al, 2002). Ross et al (1997) also argue that employees’ intellectual capital through competence, attitude and intellectual agility of their populations. Also, Brookings (1996) argues that human assets of an organization, including skills, expertise, problem solving ability and leadership styles.

**Structural capital**

Structural capital includes all non-human reservoirs of knowledge in organizations that include databases, Organizational charts, executive processes, strategies, action plans and generally whatever its value to the organization.
Is higher than its material value is (Ross et al, 1997). The brighter, the Russians and colleagues argue that capital structure is "what will remain with the company after employees go home at night."

**Customer capital**

Stewart (1997) states the main topic of customer capital, knowledge in marketing channels and relationships with customers. Customer capital represents the potential ability of an organization to its external intangible factors. Also, Chen and colleagues (2004) Investment in Qalbyt customer marketing, customer loyalty and market aggressively classify.

**Measurement model of intellectual capital**

Intellectual capital literature, several models have been proposed to measure intellectual capital. Some of them are specific models that have been designed and implemented in a particular company. Others are purely theoretical models, most of which have been accepted as a model for measuring intellectual capital and not Mbrmtrh. General intellectual capital measurement models can be classified in two groups:

The models of intellectual capital in the form of non-monetary evaluation will include:

1. The Invisible Balance Sheet (intangible)
2. Control of intangible assets
3. The Balanced Scorecard (BSC)
4. Index of intellectual capital
5. Server Technology
6. Commercial navigation method Askandya
7. Model of Intellectual Capital Management
8. Method Joia

The models of intellectual capital in the form of monetary and financial evaluation will include:

1. Economic Value Added (EVA)
2. Rate of return on assets (ROA)
3. Formation of Capital Markets
4. direct intellectual capital method
5. Methods for measuring intellectual capital funding
6. How Tobinq

**Literature**

The first experimental study to measure intellectual capital in the mid-1980s, Sweden was by then a lot of research to determine the status of corporate intellectual capital within countries and between countries was conducted. Inquire documented research that attempts to put intellectual capital within the balance sheet of the Company, is a logical concept and the research that was done by Inquire showed that it is quite scientific. (Joia, 2000).

Your Plvmn and Hancock (2007) in their study of the relationship between intellectual capital and financial performance of the firms have studied. First results indicate that the current and future financial performance of the company's intellectual capital, and there is a significant positive relationship, secondly, the impact of intellectual capital on the financial performance of companies in different industries are different.

Rhodes and Tanja Helena Myhalyk (2007), in their study to assess the effects on the financial performance of the components of intellectual capital in the hotel industry began in Slovenia. The results showed that, first, a significant positive relationship between the components of intellectual capital and financial performance of the industry is second high impact investment relationship compared to the other components of the intellectual capital Financial performance of the company. Garcia and Martinez (2007) in an experimental study to examine the relationship between intellectual capital using data on Spanish firms engaged in investment decisions.
Yang Chu and others (2006) examined the relationship between the components of intellectual capital value / performance industries, specialized advanced industrial technology research institute (ITRI) and have concluded that, firstly, a significant positive relationship between intellectual capital components and firm performance is secondly intellectual capital increase is subject to process and store their strategic value creation in an organization. Canvas and Silverman (2004) study and test components of human intellectual capital, financial risk decisions and corporate performance in the biotechnology industry in Finland and the impact on future performance companies have attempted components. Results indicate a significant influence on the performance of the components of intellectual capital and financial risk companies in the biotechnology industry is.

Tung Tai Shen and Chen (2008) A new model for intellectual capital performance evaluation by combining fuzzy approach 2.tuple using multivariate techniques, decision-making (MCDM) has provided specialized Ypshrft enterprises in Taiwan are examined.

Tvnk Bvzbvra and Ahmt Sbks (2007) intellectual capital measurement indicators using fuzzy AHP prioritization and strategic value of creating and disseminating research results showed that the most important indicator of intellectual capital is.

Anvari A. Rostami and H. Seraji (2005) in their study of five methods examined intellectual capital are calculated. Finally, Hoda Hemmati in his thesis by comparing six models to assess the relationship between intellectual capital and intellectual capital to create value-based performance measurement of new variables such as economic value added, market value and shareholder value added deals results scale indicate the existence of a relationship between intellectual capital and market value, respectively (Rvdpshty and Hemmati, 2009).

RESEARCH METHODOLOGY

The purpose of this study is classified based on the type of applied research. Applied research aims to develop practical knowledge in a particular field is a (Earth, 2009). Also, the method and the nature of correlational research. The purpose of this study was to determine the correlations between variables and sampling new companies accepted in Tehran Stock Exchange during the period 2007 to 2012 is sampling, systematic elimination is done, so that the only companies that are members of the following conditions are chosen: 1 - at least after 2007, have been a member of the Tehran Stock Exchange. 2 - financial year, ending on 29 Esfand each year. 3 - year-end financial statements to be delivered to the exchange of the study period. 4 - The company shares have been traded at the beginning and end of their fiscal year is. 5 - In the study period, the company profit and loss account should be audited year-end financial, operational losses have. According to the requirements listed 70 companies as the samples were studied. Theoretical background of the research library and Internet research is collected. Financial statements and accompanying notes of the Company were issued by the Stock Exchange, as the investigation tool is introduced.

In this study, regression assumptions include: 1 - normal distribution of the dependent variable (test Kolmogorov - Smirnov) 2 - independence of errors (camera test - Watson) 3 - zero expectation -------4 - constant variance model errors 5 - The lack of correlation between the independent variables tested.

Research models and methods of measurement of variables

In this study, to measure the value added intellectual capital coefficient model of intellectual capital (VAIC) by Palyk has been used. This model has the advantages over other models as the models used to measure intellectual capital in this study is that these benefits include:

1 - This model is a standard and consistent basis of measurement provides.
2 - The model is based on two aspects of performance evaluation and the value of tangible and intangible assets of a company.
Research Article

3 - All the data used in the calculation (VAIC) based on standard accounting and financial information that is normally included in financial reports that are, so calculations based on objective, verifiable authend and the approval of requirements.

4 - This model has been used in many studies (Brookings, 1996 and Chen, 2004). Formulation of indicators VAIC, the following algebraic expression:

\[
\text{Value added intellectual capital performance} = \text{Human Capital Performance} = \text{Structural capital efficiency} = \text{Performance of physical capital}
\]

1 - Calculated value ------ Company --- Per year --- Is as follows:

\[
\text{Value added intellectual capital performance} \cdot \text{Human Capital Performance} \cdot \text{Structural capital efficiency} = \text{Performance of physical capital}
\]

Where:

--- = Profits
--- = Company payroll costs
--- = Company dividends
--- = Interest payments
--- = Corporate depreciation expense
--- = Corporate Tax

2 - Calculated -------- by the following terms are defined:

\[
\text{Coefficient of physical capital for the company,}
\text{The overall value of the company} = \text{Book value of tangible assets}
\]

And the book value of tangible assets = book value of total assets - book value of intangible assets is.

3 - Calculated ------ by the following terms are defined:

Where:

<table>
<thead>
<tr>
<th>Coefficient of human capital for</th>
<th>The overall value of the company</th>
</tr>
</thead>
</table>

4 - Calculate ------ the coefficient of the capital structure of the company --- . The first step is to determine, calculate the capital structure of the company is to be calculated as follows:

\[
\text{Capital Structure} = \text{The overall value of the company} = \text{Total cost of the company's payroll}
\]

As Pvyk that an inverse relationship between the fits and there is therefore calculated as follows:

\[
\text{Structural capital coefficient for} = \text{The overall value of the company} = \text{Capital Structure}
\]

And ------ more.

And also how the quality parameters of interest are as follows:
Research Article

1 - Stability of profit for profit sustainability assessment model used in Sloan (Sloan et al, 2005, 441)
Sustainability means reproducibility profit (continuing) current income, consistent profitability is the company's current profits and assumes more power to maintain the quality of corporate profits higher. To measure earnings persistence coefficient of an explanatory variable ---- to wit --- Reagents are stable Earnings. When the value obtained for the coefficient of the explanatory variable --- The number is closer to a more stable profit and they are closer to zero, the more evanescent profits.
2 - the profit forecast: Francis and colleagues to assess the predictability of earnings following model was used:

In this model, the estimated model, the square root of the calculated error values greater (less) obtained imply less (more) of the anticipated benefits.
3 - the profit-to-equity: for assessing the qualitative features of interest following model is estimated:

The coefficient of determination of the model, the value of equity in earnings related indicators are considered. Can be explained by accounting earnings on stock returns show changes.
4 - The relationship between operating cash flow and earnings quality based on profits or income components: in other words, the regression coefficient of determination of operating cash flow and earnings as a measure of earnings quality intended for this purpose, the Model A is estimated.

Model A

Previous research predicting the future performance of the company over the interest income components are described by two components, namely Profit Profit and Non Profit Operations in Model B are separated.

Model B

The above model variables are defined as follows:
= Profit before extraordinary items for the company in
= Profit before extraordinary items for the company in
= In the company yields
Profit before extraordinary items, changes from the previous year
= Cash flow from operations for the year is calculated as follows:
Cash Flow: Operating profit after deducting interest and taxes + depreciation expense + changes in assets and current liabilities (Dychv, 1994).
= Company's annual earnings before extraordinary items for the year
= Net operating profit after deducting operating expenses and other income and operating expenses from gross profit achieved for the year
= Non-net Other income and expense for the year

Research Hypotheses

The study has four main hypotheses are as follows:
1 - The intellectual capital and a sustainable income as an indicator of earnings quality are related.
2 - Between intellectual capital and earnings predictability as an indicator of earnings quality are related.
3 - The intellectual capital and the earnings to shareholder value as an indicator of earnings quality are related.
4 - The relationship between intellectual capital and operating cash flow with profit as an indicator of earnings quality are related.

Analysis and test research hypotheses

After determining and calculating the independent and dependent variables, to test hypotheses and analysis would be considered. The relationship between independent variables and dependent variables
examined, and then a simple regression method to determine the mathematical relationship between the independent and dependent variables are used. Indeed, regression analysis helps linear equation (\(y = a + Bx\)) between variables to be studied.

Since the normal (Normality test) Dependent variables, the normality of residuals resulting model is needed before the model, it is normal to be controlled. To test the normality or non-normality of the dependent variables and Kolmogorov - Smirnov is used as follows:

- The dependent variable is normally distributed:
- The dependent variable is not normally distributed:

The Dependent variables related to income shares, but the other variables are normally distributed, as being abnormal, and panel regression models will be void and must be appropriate for data normality practices such as conversion and them (the profit forecasts) \(\ln\), (stable income) \(\sqrt{r}\) and (with respect to operating cash flow components of earnings or profits) \(\ln\) the model used.

**Picture 1-4: Test of normality - the dependent variables**

<table>
<thead>
<tr>
<th>Significant Sig</th>
<th>Test Kolmogorov - Smirnov</th>
<th>The maximum standard deviation</th>
<th>Parametrnormal</th>
<th>Number</th>
<th>Variable index</th>
</tr>
</thead>
<tbody>
<tr>
<td>0/074</td>
<td>1/285</td>
<td>-0/046</td>
<td></td>
<td>0/081</td>
<td></td>
</tr>
<tr>
<td>0/761</td>
<td>0/670</td>
<td>-0/039</td>
<td></td>
<td>0/031</td>
<td></td>
</tr>
<tr>
<td>0/065</td>
<td>2/195</td>
<td>-0/117</td>
<td></td>
<td>0/107</td>
<td></td>
</tr>
<tr>
<td>0/170</td>
<td>1/110</td>
<td>-0/075</td>
<td></td>
<td>0/050</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0/075</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1/39677</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11/6950</td>
<td></td>
</tr>
</tbody>
</table>

Based on the values presented in table (1-4), since significant values for each variable in the model is greater than 5% (--------), so the null hypothesis of normality of the variables will be accepted.

Analysis and hypothesis testing of the first

The first main hypothesis: between intellectual capital and sustainability of earnings quality indicators profits, in Tehran Stock Exchange are related.

The hypothesis of statistical hypotheses is shown below.

- There is no significant correlation between intellectual capital and sustainability benefits:
- There is a significant correlation between intellectual capital and sustainability benefits:

**PD No. 2-4 summarizes the results of the first main hypothesis**

<table>
<thead>
<tr>
<th>Result test</th>
<th>Significant level</th>
<th>Level of error</th>
<th>Statistics F</th>
<th>Camera Watson</th>
<th>Adjusted coefficient of determination</th>
<th>The coefficient of determination</th>
<th>The correlation coefficient</th>
<th>Statistics Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>(H_1)</td>
<td>0/002</td>
<td>0/26886</td>
<td>10/277</td>
<td>1/684</td>
<td>0/036</td>
<td>0/040</td>
<td>0/020</td>
<td>The relationship between intellectual capital and earnings stability</td>
</tr>
</tbody>
</table>
As shown in figure (2-4) is observed, the relationship between intellectual capital and sustainability Adjusted profit / 036 is 0. It is noteworthy that 040/0 of intellectual capital can be explained by changes in the interest of stability. The camera base Watson 684/1, which shows the model errors are independent. Linear regression models with respect to the significance level (sig) = less than 5% and F and T statistics with regard to the rejection of the hypothesis has been verified and thus a significant relationship between intellectual capital and sustainability of Income is verified.

Analysis and testing of the second hypothesis
The second main hypothesis: between intellectual capital and earnings predictability of earnings quality indicators, in Tehran Stock Exchange are related.
The results of the tests of the second hypothesis, the image of No. 3-4, is presented and analyzed.

<table>
<thead>
<tr>
<th>PD No. 3-4 summarizes the results of the second main hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result test</td>
</tr>
<tr>
<td>H₁</td>
</tr>
</tbody>
</table>

As shown in figure (3-4) is observed, moderated the relationship between intellectual capital and earnings predictability 085/0 is noteworthy that 088/0 of intellectual capital can be explained by changes in earnings predictability. Watson statistic of cameras to 140/2, which shows the model errors are independent. Linear regression models with respect to the significance level (sig) = less than 5% and the value of F and T statistics reject the hypothesis that the region has been, Confirmed the significant relationship between intellectual capital and earnings predictability is verified.

Analysis and testing of the third hypothesis
The third main hypothesis: between intellectual capital and income related to equity earnings quality indicators, in Tehran Stock Exchange are related.
The results of the third research hypothesis testing, to describe the picture number (4-4) is presented and analyzed.

<table>
<thead>
<tr>
<th>PD No. 4-4 summarizes the results of the third main hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result test</td>
</tr>
<tr>
<td>H₀</td>
</tr>
</tbody>
</table>

As can be seen in figure 4-4, moderated the relationship between intellectual capital and income related to equity 002/0 is noteworthy that 001/0 of changes in the value of the stock of intellectual capital income
be explained. Watson statistic of cameras to 141/2, which shows the model errors are independent. Linear regression models with respect to the significance level (sig) = greater than 5% and the value of F and T statistics in the hypothesis was accepted, Rejected and thus significant relationship between intellectual capital and income related to equity is rejected.

PD No. 5-4 summarizes the results of the fourth main hypothesis

<table>
<thead>
<tr>
<th>Result test</th>
<th>Significant level</th>
<th>Level of error</th>
<th>Statistic F (e)</th>
<th>Camera Watson</th>
<th>Adjusted coefficient of determination</th>
<th>The coefficient of determination</th>
<th>The correlation coefficient</th>
<th>Statistics Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_0$</td>
<td>0/268</td>
<td>1/3914</td>
<td>1/236</td>
<td>1/866</td>
<td>0/001</td>
<td>0/006</td>
<td>0/075</td>
<td>The relationship between intellectual capital and operating cash flows</td>
</tr>
</tbody>
</table>

As shown in figure (5-4) is observed, adjusted operating cash flow with regard to the relationship between intellectual capital and profits / 001 is 0, it is noteworthy that the 006/0 relationship to changes in operating cash flow with profit by capital it is thought to be parsed. The camera base Watson 866/1, which shows the model errors are independent. Linear regression models with respect to the significance level (sig) = greater than 5% and the value of F and T statistics in the hypothesis was accepted, Rejected and thus significant relationship between intellectual capital and operating cash flow with profit, be refuted.

CONCLUSIONS
Firstly, the components of intellectual capital and intellectual capital firms evaluate measurement models, the appropriate model for measuring intellectual capital, to see the true value of an organization, and entry of financial assets on the balance sheet is presented. After calculating the value of intellectual capital firms studied using a 5-year period Palyk model the relationship between intellectual capital and earnings quality indicators were assessed. The results showed that the intellectual capital and earnings quality indicators (Stability and predictability profits interest) There is a significant relation Given these results be due to investors and financial managers More internal resources and capabilities in customer relations and levels of knowledge and Organizational structure in order to achieve greater efficiency and to attract investors and money managers are looking to invest in the stock market, this proposed model. Other results suggest that the intellectual capital and other indicators of quality of earnings (corresponding to equity income and operating cash flows relating to interest), there is no significant relationship Noting that the future of the technology industry and the increasing focus on customer and internal structure Companies and the results can be concluded that the research period between 2004 to 2008 period was intended to coincide with the Tehran Stock Exchange has stagnated and It is suggested that this issue should be studied in other time periods, because today the importance of Efficiency of intellectual capital employed in the sustainable profitability of the company over the financial investment is handled.

Suggestions for future research
- It is recommended to assess other models of intellectual capital (a combination of financial and non-financial) should be used.
- It is suggested that the relationship between intellectual capital and other quality indicators such as interest accruals and ... Be tested.
- It is recommended that researchers varied the size of the company and the industry as a control variable.

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added to the research and then examine the matter.
- It is suggested that the relationship between intellectual capital and non-financial performance such as customer satisfaction, employee rank, industry, market share and... Should be studied.

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