INVESTIGATING THE IMPACT OF INTELLECTUAL CAPITAL MANAGEMENT ON ORGANIZATIONAL FINANCIAL PERFORMANCE

Mahdi Haghshenass Rezaiie[1], Ahmad Souri[2], Mohammad Bagheri Manesh[3], Hadi Asadbaghi[4]

[1, 2 & 3] Department of Management and Faculty Member of KhatamAnbia University, Tehran;
[4]Department of Accounting and Faculty Member of KhatamAnbia University, Tehran, IRAN.

[1]ehsan.haghshenass@gmail.com

ABSTRACT

Measuring the performance of companies is in fact the most powerful and essential management system in managing modern organizations and It is important for organizations to be aware of how well the organization's performance is to achieve its goals and where the organization's position is in today's complex and dynamic environment. Today, the success of organizations depends on the effective use of human resources, which, in comparison with other resources of organization, are more privileged with a dynamic, viable and independent nature. Intellectual capital, including knowledge, experience, personal skills, good relationships and technology capability, is an important source of competitive advantage and a key factor in corporate profitability. In this regard, 84 active companies in the stock market were selected through systematic sampling during the period from 2011 to 2016 and classified by EVIEWS software and then processed in EXCEL environment. The model used in this research was also the Palick model (value-added coefficient of intellectual capital). The results indicated that there is not a meaningful relationship between intellectual capital and Tobin's Q ratio (as a performance index). On the other hand, the results indicate that there is a meaningful relationship between intellectual capital and two other indicators of financial performance (price ratios to earnings per share and growth rate). Also, with a closer look at the components of the Palick model, it can be concluded that after the employed physical and financial capital, human capital is most closely associated with the growth rate index.

Keywords: Management - Intellectual capital - financial performance

INTRODUCTION

Today's world relies on organizations, as institutions to meet the needs of modern humans, in various fields. So today, human life is tied with organizations operation in a way that is Inseparable, so that any society in which organizations are doing their own way more appropriately provide a better level of welfare for their people. In this regard, the financial performance of organizations is obvious as one of the economic sectors of society and the attraction and directing of financial resources in the country's social and economic development. On the other hand, in the today competitive world, organizations in every environment that they are operating constantly need to improve their performance and should do their utmost to achieve excellence in performance. One of the methods for assessing the improvement in the quality of the organization is to study the factors affecting it, which has led to the importance of intellectual capital. Therefore, intellectual capital includes all the knowledge-based resources that generate value for the organization but do not enter into the organization's financial statements. In the current century, economy is based on knowledge. The emergence of the information age and knowledge-based economy has pushed

organizations from emphasizing financial and monetary resources to intangible assets. The new economic growth that comes from knowledge and information has increased the importance of intellectual capital as a research and economic category. In the current knowledge-based economy, intellectual capital is a major factor in the excellence and improvement of company performance [1].

In the last decade, companies have expressed special interest in measuring intellectual capital to report to stakeholders, and seek to find a method for evaluating intangible assets and extract intangible value in organizations [2]. The success of organizations depends on the efficient use of human resources that compared to other resources are more privileged with a dynamic, viable and independent nature. Therefore, it is essential to identify a legitimate mechanism for measuring and registering the wealth of human resources, in order to compare and report the value of human resources with other resources of the Institute in the form of a business language, which is accounting. Therefore, each organization wants to increase its financial performance with different methods [3].

Performance measurement of companies is in fact the most powerful and essential management system in managing modern organizations and it is important for organizations the extent to which the organization performance is in line with achieving its goals and where the organization's position is in today's complex and dynamic environment. Since the 1980s, many researchers have emphasized financial and performance scales [4]. Organizational performance is measurable results, organizational decisions and actions that reflect the success rate achieved in the achievements [5]. In the 1990s, as a result of the development of information technology, the pattern of economic growth was undergoing fundamental changes, and the factor of knowledge as the most important capital, replaced the financial and physical capital in the global economy. In today's world, organizations and managers have to find new ways to adapt to global change so that they can stay in the domestic and global competition [6].

In fact, organizations face new challenges for their continuity and deployment, which requires more attention to the development and enhancement of internal skills and competences through the core of organizational knowledge and intellectual capital which organizations use them to achieve better performance in the business world. Knowledge and intellectual capital are recognized as sustainable strategies for obtaining and maintaining the competitive advantage of organizations. Intellectual capital, including knowledge, experience, personal skills, good relationships and technology capability, is an important source of competitive advantage and a key factor in corporate profitability. The two major factors that have increased the quality of corporate performance over the past two decades are the globalization and increased technological changes. In this environment, intellectual capital and intangible assets are important success factors.

In the new economic competition, knowledge-based assets provide an inherent competitive advantage. Intellectual capital provides a source of new resources through which the organization competes and is referred to as part of the total intangible collective assets that are knowledge-based, enabling the organization to act. This concept has three interdependent elements: human capital, structural capital, and customer / relationship capital. Human capital represents the knowledge of individuals in an organization and is defined as the combined knowledge, skill, experience and ability of each organization individuals. Structural capital includes all inhuman knowledge resources in the organization that are separate from individuals within the organization. Customer capital is a value that the organization's customers consider for the organization, resulting in a relationship between the organization and its customers.

Leena and Luna International, Chikusei-shi, Japan.
(株) リナアンドルナインターナショナル, 筑西市,日本
ISSN: 2186-845X ISSN: 2186-8441 Print
www.ajmse. leena-luna.co.jp

Given the speed with which national, regional and international competition is boosted, societies and organizations are forced to seek and retain their sustainable assets in the organization, and today they find that technological advancements are fundamental, and the only advantages Sustained competition is based on intellectual capital. The emphasis on intellectual capital represents a fundamental difference between the operations of companies in traditional economies and modern economies. Value in the traditional economy was due to physical assets, while in the modern economy, value is created by using science and intellectual capital. Intellectual capital has been the basis for understanding the organization's intangible assets, including knowledge, information, intellectual property, and experience. This capital is a key performance indicator that should be known and developed by the employees so that the company can maintain and improve its performance in the information evolution market. Today's world has passed the traditional economy and entered a knowledge-based economy. A distinctive feature of the knowledge-based economy is the huge flow of investment in human capital and ICT. The knowledge-based economy offers potential sources of unlimited resources because human capital is unlimited to create knowledge. Intangible assets are items such as power, creativity and staff innovation, employee experience and skill, customer satisfaction, information and knowledge in the organization that quickly complements physical assets [7]. in the third millennium in which Non-financial intellectual capital is the main foundation for the dynamics and future success of enterprises in the knowledge economy; key resources and incentives for performance and value in organizations must be determined by managers, since the increase in the recognition and utilization of intellectual capital helps the company To be more effective, more productive and innovative. In addition, the competitive success of companies depends less on the strategic allocation of physical and financial resources and more on the strategic management of intellectual capital. In this regard, the main purpose of this study is to investigate the effect of intellectual capital management on financial performance of the organization.

LITERATURE OF INTELLECTUAL CAPITAL

The term "intellectual capital" was first introduced by Galbraith in 1969. Earlier, Peter Drucker used the term "knowledge workers" [8].

The Organization for Economic Cooperation and Development identifies intellectual capital as the economic value of two categories of institutional intangible assets, namely, man and structure. In this definition, humans can be customers, employees, rivals and government officials [9].

Stewart believes that Intellectual capital is a collection of knowledge, information, intellectual property, experience, competition, and organizational learning that can be used to generate wealth. In fact, the intellectual capital of all employees entails organizational knowledge and capabilities for creating added value, resulting in continuous competitive benefits [10].

Edwardson and Malone define intellectual capital as information and knowledge used to work for value creation [11]. Bontis defines intellectual capital as a set of intangible assets (resources, abilities, competition) that derive from organizational performance and value creation [12].

The Marr considers intellectual capital as a stimulus to the company's competitive advantages and relates it to the ability to participate in the management and use of knowledge [13].

Russia and colleagues consider intellectual capital to be human capital, organizational capital, renewal capital, and development and communication capital [14].

Brooking provides intellectual capital in a more comprehensive framework, this framework includes the following categories in the IC:

a. Market assets (including services and brand names and loyalty of customers)
b. Intellectual assets (including right-of-interest, secret formulas, etc.)
c. Human-centered assets (including training, work knowledge of features and professional qualities, etc.)
d. Infrastructure assets (management philosophy, participatory culture, network systems, etc.) [15].

But the general definition that seems to gain broader acceptance by the academic community consists of three components:

a. Human capital
b. Structural (organizational) capital
c. Communication Capital (customer orientation) [16].

Intellectual Capital Elements

As mentioned, intellectual capital is represented as a category that has three basic components: human capital, structural capital and customer / Relational capital [17], which we will cover below.

1. Human Capital: Human capital represents the knowledge of individuals in an organization. Human capital is defined as the combined knowledge, skill, experience, and ability of each individual in the organization [18]. This is a moving capital and does not belong to a particular organization because the employees are the owners of human capital. Stewart considers human capital as the source of creativity and insight. According to Bontis, human capital is also important because it is the strategic source of creativity for the organization [19].

2. Structural capital: Structural capital includes all inhuman knowledge in the organization. It includes proprietary software, computer programs, databases, organizational structure, registration and exploitation rights, brands and similar assets that support productivity in the organization. Human capital is considered to be a major factor in the expansion of Structural capital, so Structural capital is based on human capital. The structural capital is the knowledge that the company retains when it workers return to their home in night, so the company owns structural capital [20].

3. Relational / Customer Capital: Customer capital is a value that the organization's customers value for the organization. This value is shaped by communication between the organization and its customers [21]. Intellectual capital includes things such as the value of company-owned privileges, its relationships with people and organizations associated with customers, market share, the rate of maintaining or losing customers, as well as net profit per customer [22].

The model used in this research is the Palick Model (Value-added coefficient of intellectual capital). This model measures and examines the value creation performance of companies, and it is based on this that the creation of value is based on two primary factors called physical and financial capital (tangible) and intellectual capital resources (intangible). Accordingly, the research hypotheses are as follows:

Leena and Luna International, Chikusei-shi, Japan.
(株) リナアンドルナインターナショナル, 筑西市,日本
ISSN: 2186-845X ISSN: 2186-8441 Print
www.ajmse. leena-luna.co.jp

THE MAIN HYPOTHESIS

Intellectual capital has a positive impact on financial performance of the organization.
Sub-assumptions:

1. The added value of employed (physical and financial) capital has a positive impact on financial performance of the organization.
2. Human capital added value has a positive impact on financial performance of the organization.
3. Structural capital Value-added has a positive impact on financial performance of the organization.

RESEARCH METHOD

This research is applied in terms of purpose and correlational in terms of the nature. To obtain the information required for the implementation of research Farsi and Latin specialized books and journals, Internet articles, financial statements and explanatory notes for sample companies related to companies listed on the Tehran Stock Exchange, available at the Stock Exchange website and Rahavard Novin and Tadbir Pardaz softwares have been used for the period of 5 years between 2011 and 2016.

The statistical population of this research is all companies listed on Tehran Stock Exchange. These companies should have the following conditions:

1. Because of the major difference in activities, they are not part of investment and financial intermediation companies, financial institutions and banks.
2. Financial statements of companies and accompanying notes are available during 2011-2016.
3. The financial year of the companies will end in Isfand.
4. Firms do not have abnormal data (very large or very low).
5. Trading interruption has not taken place for more than three months during the research period.
6. Their shareholders' equity is not negative during the period under review.

By applying the above, 84 companies were selected through systematic sampling during the period from 2011 to 2016.

In order to analyze the information, raw data was extracted from the financial statements of the companies listed on the Tehran Stock Exchange and classified in EVieWS software and then processed in the EXCEL environment, which will further describe the results.

VARIABLES CALCULATION

Independent variables

Independent variables used in this research are intellectual capital and its components in the Palick model, namely, the efficiency of capital employed, human capital efficiency, and structural capital efficiency. So far, due to increased understanding of managers about the role of intangible assets in creating competitive advantage, several methods capital have been developed for measuring intellectual (Hunter et al., 2005).

In this research, the Palick Value Added Value Model (2000) is used to measure independent variables.

The first step to calculate the above variables is to calculate the value added (VA), by deducting the total cost of materials, components, and services purchased from the total proceeds from the sale of goods and services. In this model, because of the active role of human resources in the process of creating value salary costs are not included in the input. Therefore, the cost of staff is not considered as a cost, but as an investment.
Value added can be calculated using the information contained in the annual reports in the form of Equation 1:

(1)

(OP): Operating profit, (EC): Staff costs, (D): Amortization expense, (A): Intangible asset amortization (expiration)

Step Two: Calculating and Determining Employed capital (CE), Human Capital (HU), Structural Capital (SC):

CE: represents the employed capital by the company, which is obtained through the calculation of the total value of net assets, HU: The collection of investments made to employees (salary), SC: The difference of value added and human capital.

And the last step is the calculation of the VAIC calculated using equations 2, 3, 4, and 5:

VACA = VA / CE (2)
VAHU = VA / HU (3)
STVA = SC / VA (4)
VAIC = VACA + VAHU + STVA (5)

Dependent Variables

There are various indicators for calculating financial performance of companies. In many studies, equity ratios, return on assets and earnings per share are used to measure performance. But considering the continuity of the company's business to pay off and the ability to pay off the yield or dividend declared, it should be noted that there are many companies that have high profits, but when making a profit to shareholders, they do not have required liquidity to pay profit, and so the payment of profit has been postponed and shareholders' returns are reduced due to time lapse and reduced liquidity. In this way, shareholders do not actually access their returns, and thus try to withdraw their capital from the stock market and invest in non-productive activities, which in general will result in a decline in trading and the prosperity of the stock market. On the other hand, a significant part of the investments made in the economy is made on the securities of institutions and active stock companies. Other indicators of financial performance are the ratio of price to earnings per share. Investors usually have great importance for this ratio. Although this ratio is an important tool in the market, but the reliance on this variable to buy or sell shares is risky, so this ratio should be weighed against other indicators. For this reason, in this research, the ratio of KT and the ratio of the price to earnings per share is evaluated. These two ratios are a combination of accounting and market information (if any of the market information ratios are updated, and accounting information used in their denominator). Also, the availability of the information needed to calculate the price / income ratio of each share and the ratio of the Tobin's Q and the understanding of these two ratios for users and analysts because of their simplicity of calculation has given rise to another advantage for choosing these two ratios. In this research, sales revenue growth is used as the third indicator of financial performance measurement. Here's how to calculate these three indicators.

Leena and Luna International, Chikusei-shi, Japan.
(株) リナアンドルナインターナショナル, 筑西市,日本
ISSN: 2186-845X ISSN: 2186-8441 Print
www.ajmse. leena-luna.co.jp

Tobin's Q ratio: This ratio is calculated by dividing the total value of the ordinary stock market and the book value of current debt and non-current debt at the end of the year by the total book value of the company's assets at the end of the year. If Tobin's Q is a smaller than one, it shows that the financial performance of the company has not had much efficiency.

The ratio of price to Earnings Per Share (P / E): This ratio is calculated by dividing the last day's stock price of a company (P) into earnings per share (EPS).

Growth of Income (GR): Income Growth is One of the traditional methods of representing the growth of an organization and is calculated using Equation 6:

GR = [(Sales revenue of the current year and of all previous years +Sales revenue of the past year and total past years)-1] × 100 (6)

RESULTS

In this study, financial performance was measured by three Tobin's Q, the ratio of price to earnings per share and income growth rate indicators. Therefore, the main hypothesis and three sub-hypotheses of the research were tested by multivariate regression models.

First indicator: Tobin's Q ratio as a performance indicator

Initially, F Limer test was used to select the combined data type. Considering the significance level obtained from this test (level of significance less than 0.5), integrated data methods was accepted.

Table 1: F Limer test results

F Limer Test	
1.365287	(0.1060)

Based on the results of statistical tests, it can be said that the above model has self-correlation, which AR component is used to remove it. Also, by comparing the obtained value of the t-statistic with its calculated value and the significance level obtained for each coefficient, the null hypothesis is used for the added value of the employed physical and financial capital is rejected and therefore, there is only a significant relationship between employed added value of physical and financial capital and financial performance.

The value of the significant level obtained for the total regression is equal to 0.1731 and is greater than the error level of 5%. Therefore, the null hypothesis (the insignificance of the total regression and equaling zero of at least one of the coefficients) is confirmed and concluded that there is no significant relationship between intellectual capital and financial performance (this seems to be due to the existence of other influential factors such as Economic and political conditions and ... during the research period).

Second Indicator: The ratio of price to earnings per share

Considering the level of significance obtained from the F limer test, the method of panel data and then using the Hausman test, fixed effects method was accepted.

Table 2: Results of F Limer and Hausman tests

Hausman test		F limer test	
10.5974	0.0487	1.595674	0.00051

Regarding the results of statistical tests, it can be said that the above model is not self-correlated. Considering the level of significance obtained for the whole regression (0.0089), which is less than the error level of 5%. Therefore, the hypothesis of the insignificancy of the

total regression was rejected, and this showed that the coefficients are not zero at the same time and regression is significant. By comparing the obtained value of the t-statistic with its calculated value and the significance level obtained for each coefficient, the null hypothesis for the added value of intellectual capital and the added value of the employed physical and financial capital are rejected and therefore there is a significant relationship between the intellectual capital value added and added value of employed physical and financial capital with financial performance.

Third Indicator: Income Growth Rate

Considering the significance level obtained from the F limer test, the method of panel data and then using the Hausman tests, the fixed effects method was accepted.

Table 3: Results of F Limer and Hausman tests

Hausman test		F Limer	
35.8527	0.000	2.5153	0.000

Regarding the results of statistical tests, it can be said that the above model is not self-correlated. Regarding the significance level obtained for the total regression (0.0011), which is less than the error level of 5%. Therefore, the insignificance hypothesis of the total regression was rejected, which showed that the coefficients are not simultaneously zero and regression is significant. By comparing the obtained value of t with its calculated value and the value of the significant level obtained for each coefficient, the null hypothesis for the added value of intellectual capital, the added value of employed capital and the financial and human capital added value Therefore, there is a significant relationship between the added value of intellectual capital, the added value of employed capital and the financial and human capital added value with financial performance.

Finally, we can conclude that among the three performance indicators, only two indicators of the price / income ratio of each share and the growth rate indicate a positive and significant relationship between intellectual capital and financial performance.

DISCUSSION AND CONCLUSION

Intellectual capital is known as an effective factor in financial performance of companies. Intellectual capital is an organization of total human capital, structural capital and its related capital. Having control of these assets enables the organization to have effective domestic governance and, on the other hand, have a successful external relationship with its customers and suppliers and other stakeholders. Therefore, it requires the company to take steps to manage, control and report intellectual capital.

The results of this research indicate that there is not a meaningful relationship between intellectual capital with Tobin's Q ratio (as a performance index). Observing this result may be due to the effect of the economic conditions and ... on the stock market value (one of the variables available in the calculation of the Tobin's Q ratio). The results obtained from the hypothesis test (using this index) were consistent with Pantilo (2009). On the other hand, the results indicate that there is a meaningful relationship between intellectual capital and two other indicators of financial performance (price ratios to earnings per share and growth rate).

Therefore, it can be argued that in the studied organizations, financial performance can be enhanced by improving intellectual capital. Also, with a closer look at the components of the Palick model, it can be concluded that after the employed physical and financial capital, human capital is most associated with the growth rate index. Therefore, it is concluded that human resource development is one of the important factors in economic success in the

Leena and Luna International, Chikusei-shi, Japan.
(株) リナアンドルナインターナショナル, 筑西市,日本
ISSN: 2186-845X ISSN: 2186-8441 Print
www.ajmse. leena-luna.co.jp

Iranian business environment. The results of this hypothesis test are consistent with those of Chang Vang et al. (2012).

In general, attention to intellectual capital is essential for the survival of the current competitive global market, and managers have to focus on the proper management of intellectual capital and take steps in the direction of measuring and reporting on intellectual capital, and investors choose companies that create efficient and sustainable value And governments identify and evaluate companies and sectors of the industry by value created with the help of intellectual capital. In order to strengthen intellectual capital and the relationships between them and their impact on financial performance of organizations and improving financial conditions in organizations, it is suggested that managers manage knowledge resources. in line with human resources enhancement in the organization It is also proposed to continuously measure the levels of employee competence and the use of employee empowerment and improvement programs to create an environment for expressing opinions in team discussions by staff.

REFERENCES

[1] Rahimian, N., Khan, H. D., Moazzez, E., & Nesbati, N. (2012). Investigating the ımpact of ıntellectual capital on financial performance of automobile ındustries and manufacturing parts listed on Tehran Stock Exchange. Iran: First Regional Conference on New Approaches to Accounting and Auditing.

[2] Chu, S. K.W., Chan, K. H., Yu, K.Y., Ng, H. T., & Wong, W. K. (2011). An empirical Study of the impact of intellectual capital on business performance. *Journal of Information & Knowledge Management, 11* (5), 1- 24.

[3] Ahmad, M.F., Zakuan, N., Jusoh, A., & Takala, J. (2012). Relationship of TQM and business performance with mediators of SPC, lean production and TPM. *Social and Behavioral Sciences, 65*, 186-191.

[4] Rahnavard, F. (2008). Factors Affecting the performance of organizations in the public sector of Iran. *Management Research, 8* (4).

[5] Tangen, S. (2004). Professional practice performance measurement: From philosophy to practice. *International Journal of Productivity and performance Management, 53* (8), 726.

[6] Faizi, K., & Ronaghi, M. (2011). Assessment of intellectual and social capital of companies rated by the Supreme Informatics Council of Iran. *Quarterly Journal of Research and Technology Institute of Science and Technology, 1* (2), 189.

[7] Razafindrambinina, D., & Anggreni, T. (2017). Intellectual capital and corporate financial performance of selected listed companies in Indonesia. *Malaysian Journal of Economic Studies, 48* (1), 61-77.

[8] Feiwal, G.R. (1975). *The ıntellectual capital of Michal Kalecki: A study in economic theory and policy*. USA: University of Tennessee Press.

[9] Ghose, D., & Wu, A. (2007). Intellectual capital and capital markets: additional evidence. *Journal of Intellectual Capital, 8* (2), 216-235.

[10] Stewart, T.A. (1997). *Intellectual capital: The new wealth of organizations, currency doubleday*. New York: Authors.

[11] Edvinsson, L., & Malone, M.S. (1997). *Intellectual capital: Realizing your company's true value by finding its hidden brainpower*. New York: Collins.

[12] Bontis, N. (1998). Intellectual capital: An exploratory study that develops measures and models. *Management Decision, 36* (2), 63-76.

[13] Marr, B. (2004). Measuring and benchmarking intellectual capital. *Benchmarking: An International Journal, 11* (6).

[14] Kok, A. (2007). Intellectual capital management as part of knowledge management initiatives at institutions of higher learning. *The Electronic Journal of Knowledge Management, 5* (2).

[15] Brooking, A. (1996). *Intellectual capital*. London, UK: International Thompson Business Press.

[16] Sveiby, K. E. (1997). *The new organizational wealth: Managing & measuring knowledge-base assets*. California, USA: Berrett-Koehler Publishers.

[17] Ramirez, Y., Lorduy, C., & Rojas, J. (2007). Intellectual capital management in Spanish Universities. *Journal of Intellectual Capital, 4*, 732-748.

[18] McGill, T. P. (2006). *Harnessing intellectual capital: A study of organizational knowledge transfer*. California, USA: Touro University Press.

[19] Bontis, N. (2000). CKO wanted- evangelical skills necessary: A review of the Chief Knowledge Officer position. *Knowledge and Process Management, 7* (4), 29- 38.

[20] McGill, T. P. (2006). *Harnessing intellectual capital: A study of organizational knowledge transfer*. California, USA: Touro University Press.

[21] Mouritsen, J., & Larsen, H. T. (2005). The 2nd wave of knowledge management: The management control of knowledge resources through intellectual capital information. *Management Accounting Research, 16*, 371-394.

Leena and Luna International, Chikusei-shi, Japan.
(株) リナアンドルナインターナショナル, 筑西市,日本
ISSN: 2186-845X ISSN: 2186-8441 Print
www.ajmse. leena-luna.co.jp