*Research Journal of Recent Sciences* _____ ISSN 2277-2502
Vol. **4(4),** 47-53, April **(2015)** *Res.J.Recent Sci.*

# Ranking Intellectual Capital Dimensions in terms of their Impact on the Performance of Tehran Stock Exchange Companies

**Mohammad Imani Barandagh**[1] **and Sajjad Azizi Barani**[2*]
[1]Department of Accounting, Urmia University, Urmia, IRAN
[2*]Department of Accounting, Science and Research Branch, Ardabil, IRAN

**Available online at: www.isca.in, www.isca.me**
Received 9th February 2014, revised 7th June 2014, accepted 17th December 2014

## Abstract

*This paper is aimed at ranking intellectual capital dimensions in terms of their impact on the company performance. This paper is an applied research in terms of objective and an ex post facto research in terms of data collection. To achieve this objective, a sample comprised of 100 companies of Tehran Stock Exchange during 2007-2012 was used. To measure intellectual capital, Value Added Intellectual Coefficient formulated by Pulic was used. the results of testing the research hypotheses revealed that there is a positive significant relation between three dimensions of intellectual capital (relational capital, human capital, and structural capital) and three dimensions of financial performance (return on assets, return on equity, and ). Also relational capital has more effect on return on assets and return on equity compared to other dimensions of intellectual capital index. And human capital has more effect on annual service return in Tehran Stock Exchange companies compared to other dimensions of intellectual capital index.*

**Keywords:** Intellectual capitals, financial performance, return on equity, return on assets, annual service return.

## Introduction

No doubt, the present era can be regarded as among eras that is different from other periods from various aspects. In the industry era, the price of assets, factories, equipments, and raw materials are deemed as the main factors of success. But in the current age, it is effective use of the intellectual capital that affects success or failure of a corporate[1]. The movement of industrial economy towards knowledge- based economy and underestimation of physical and material capitals and importance of non-material capitals like human, knowledge, intellectual, and social capital is among the important features of this era which has drawn the researchers' attention more than other features. Knowledge- based economy is an economy in which generation and utilization of knowledge play the main role in the process of value creation[2]. Therefore, knowledge and evaluation of intellectual capitals at the organization level may be very important and provide the stage for entry of the organizations into this arena. In fact, traditional financial reporting cannot calculate the real value of the company and suffices only to the measurement of short term financial balance sheet and tangible assets. While in the recent decade, companies have paid a particular attention to the measurement of intellectual capitals for presenting report to the beneficiaries and sought a method for evaluating internal intangible assets and deducting intangible value in the organizations[3].

Organizations may measure their intellectual capitals due to four reasons namely, i. improvement of internal management, ii. Improvement of reporting to outside the organization, iii. Exchanges of this capital, iv. Legal reasons of accounting improvement. The gap between market value of the organization and net value of tangible assets that is indeed regarded as stock of intangible assets draws more attention of the investor's day by day[4]. In a knowledge-based organization in which knowledge constitutes a large part of a product value and also wealth of an organization, traditional accounting methods that are based on tangible assets and data pertaining to the prior operations of the organization are not adequate for evaluating the intellectual capital that is the greatest and most valuable assets for them[5]. So, the intellectual capital approach is more comprehensive for the organizations that want to be well-aware of the value of their performance[6].

In this paper, Pulic comprehensive method, value added intellectual coefficient model, is used for quantifying the intellectual capital. This model is used due to its advantages and efficiency compared to other models. For example: It provides a standard basis for measurement[5]. It is based on both aspects, evaluation of efficiency and creation of value from tangible and intangible assets in a company[7] All data used in VAIC calculation is based on accounting and financial standard information that has normally been stipulated in financial reports of the company. So, calculations based on the objective can be investigated and confirmed[8]. This model has been used in many valid foreign studies[9].

The research questions have been formulated as: Is there a significant relation between dimensions of intellectual capital and financial performance of Tehran Stock Exchange

companies?, How is ranking of intellectual capital dimensions in terms of company performance?

**Theoretical Bases and Research Background:** The intellectual capital is the main determinant of value creation in firms and the companies are seeking to create the value through the intellectual capital within the organization. In fact, the managers' previous viewpoints on the value creation of company have been changed by the physical assets[10]. With regard findings, indicating the difference between the market value of firms and what is recorded in the account books (book value), the researchers have been seeking to find the response to this inequality during past two decades. There is a consensus that one of the reasons for the difference between the market value and book value is the intangible assets not included in the balance sheet of company. The intellectual capital is one of these intangible assets. The intellectual capital is one of the emerging issues in corporate accounting and is still in evolution, thus there is no detailed and comprehensive definition for it. In this regard, the main issue is that there is no particular way for indicating the intellectual capital structures in the form of figures and values in order to investigate the difference between the book and market values of firm and also it is difficult to evaluate the impact of intellectual capital on the firm value. Since the corporate revenues are from the tangible and intangible resources or a combination of both, we need a tool by which the intellectual capital structures are indicated in figures and it is investigated whether the intellectual capital has created the value added in the company and thus the difference between the book and market value in the company[11].

**Intellectual Capital:** During recent years, a relative consensus has been created on division of intellectual capital components[3]. According to these studies and definitions, intellectual capital includes i. Relational capital (customer), ii. Human capital, and iii. Structural (organizational) capital.

**Relational Capital (Customer):** The main subject of relational capital is the knowledge existing in the marketing channels and customer relationship which are the determining factor in converting the intellectual capital into the market value and so business performance of the organization[12].

**Human Capital:** Human capital of an organization includes skills, expertise, problem solving ability, and leadership styles[13]. Human capital as a basis for intellectual capital results in improving the performance and creating profit for the company[12].

**Structural (Organizational) Capital:** It embraces databases, organizational charts, and executive procedures of processes, strategies, and plans[14].

**Intellectual Capital Models:** In the intellectual capital literature, different models have been offered for measuring intellectual capital[15]. Some of them are specific models that have been designed and implemented in a specific company. Some others are merely theoretical models, most of them have not been accepted as a valid intellectual capital model[16-18]. In general, intellectual capital models can be classified into two goups:[7] Models that evaluate intellectual capital non-monetarily are namely, i. invisible balance sheet, ii. Intangible assets control, iii. Balanced scoring card (BSC), iv. Intellectual capital index, v. technology server, vi. Scandia commercial navigation method[19], vii. Intellectual capital management model, and viii. Joia method.

Models that evaluate intellectual capital monetarily and financially are namely, i. economic value added (EVA), ii. Return on assets (ROA), iii. Market capital formation method, iv. Direct intellectual capital method, v. methods of intellectual capital financial measurement, and vi. Tobin q method.

**Value Added Intellectual Coefficient (VAIC) Model:** Value added intellectual coefficient (VAIC) presented by Pulic will be used in this paper as the main model for measuring intellectual capital. Its measurement is based on three dependent variables, i. relational capital efficiency (CEE), ii. Human capital efficiency (HCE), and iii. Structural capital efficiency (SCE)[20]. Pulic stated that when VAIC is high, the efficiency of value added by the whole resources of the company is better. Formulation of VAIC indices is as following[20]:

$VAIC_i = CEE_i + HCE_i + SCE_i$

Value added ($VA_i$) of company i in year i is calculated as below:

$VA_i = I_i + DP_i + D_i + T_i + M_i + R_i$

Where: $I_i$: total interest cost of the company for year i; $DP_i$: depreciation costs of the company for year i; $D_i$: dividend of the company for year i; $T_i$: tax for year i; $M_i$: equity capital for year i; $R_i$: retained earnings of the company for year i.

$CEE_i$ is calculated by below relation:

$$CEE_i = \frac{VA_i}{CE_i}$$

Where: $CEE_i$: coefficient of relational efficiency for company I, $VA_i$: total value added for company I, $CE_i$: net book value of assets for company i[20,18,] Salary is one of the indices of human capital efficiency (HCEi). So, HCEi is calculated as below:

$$HCE_i = \frac{VA_i}{HC_i}$$

Where: HCEi: human capital efficiency for company I, VAi: total value added for company I, $HC_i$: total outlay for salary for company i.

Structural capital efficiency (SCEi) for company i is calculated as following. The first step for determining SCEi is to calculate the company structural capital (SCi):

$SCi = VA_i - HC_i$

Where: SCi : structural capital for company I, $VA_i$ : total value added for company I, $HC_i$ : total outlay for salary for company i Pulic stated that there is an inverse relation between SCi and $HC_i$, so SCEi is calculated as below:

$$SCE_i = \frac{SC_i}{VA_i}$$

Where: SCEi : structural capital efficiency for company i, SCi : structural capital for company i, $VA_i$ : total value added for company i.

Review of empirical studies regarding the research subject shows that, The first empirical research for measuring the intellectual capital was carried out in the mid 1980s by a Swedish association and then many studies were carried out for determining the status of companies intellectual capital inside the countries[21-23] and among countries[24]. Documentary research of Joia showed that try to incorporate intellectual capital into the company balance sheet is a logical concept and Joia research proved that it is quite scientific[25]. Oliver P. Pfeil has sought the most appropriate method for identifying intellectual capital and has compared different models[26]. He has studied 300 European large companies during 1990–2001 and evaluated Olsson 1995 and Feltam 1995 and investigated the return on intellectual capital. Hong Pew Tan has studied the relation between intellectual capital and financial return of the companies. The results indicate that first, there is a positive significant relation between intellectual capital and current and future financial return of the companies and second, the effect of intellectual capital on the financial return of the companies varies in different industries. Rudez studied the effect of intellectual capital components on the financial performance in hotel industry in Slovenia. The results of this research revealed that first there is a positive significant relation between intellectual capital components and financial performance in this industry and second, the effect of relational capital on the company financial performance is more than other intellectual capital components.[27] Garcia (2007) studied in an empirical research the relation of intellectual capital information used in the investment decisions in the Spanish companies[28].

**Importance of the Subject:** During the second half of the twentieth century, the concept, role and importance of knowledge in economy and business have changed highly. Importance of this issue is to the extent that the European Union introduces conversion into the greatest knowledge- based economic pole in the world as its major goal in its meeting 2000 in Lisbon, Portugal. During recent decade, more than 7000 scientific papers have been published in the scientific journal and conferences on intellectual capital and any of them has studied a specific perspective. The role and importance of knowledge has always been increasing not only at a macro-economic level and business but also in the company management processes. One of the main problems of traditional accounting systems is their disability to measure intellectual capitals of the companies. That's why, inclination to measure and consider real value of intangible assets and knowledge in the financial statements of the companies has been increased more than ever[29].

## Methodology

This paper is regarded as a descriptive research and also an applied research in terms of objective. This paper is aimed at providing a proper method for measuring intellectual capitals of the companies and testing these methods in Tehran Stock Exchange. In so doing, first intellectual capital value of each company was calculated based on Pulic method for a six-year period from 2007 to 2012. Then the relation between intellectual capital dimensions and financial performance dimensions of the company was studied by using generalized least squares method. In this paper, Data required for testing the hypotheses has been gathered by Rahavard Novin software. The gathered data was classified by using except program and then variables were calculated for testing the research hypotheses based on the mentioned models. Independent and dependent variables are as below. Independent variables include value added coefficient of relational capital (CEE), value added coefficient of structural capital (SCE), and value added coefficient of human capital (HCE). Dependent variables include return on assets (ROA), return on equity (ROE), and annual service return (ASR).

The research hypotheses can are presented as follows according to the research model: There is a significant relation between relational capital and return on assets. There is a significant relation between relational capital and return on equity. There is a significant relation between relational capital and annual service return. There is a significant relation between human capital and return on assets. There is a significant relation between human capital and return on equity. There is a significant relation between human capital and annual service return. There is a significant relation between structural capital and return on assets. There is a significant relation between structural capital and return on equity. There is a significant relation between structural capital and annual service return.

In this paper, the companies accepted in Tehran Stock Exchange that has submitted their financial statements to Tehran Stock Exchange during 2007 – 2012 constitute the statistical universe. For the sample, companies accepted in Tehran Stock Exchange were selected by considering below features : Their financial period must end in 29 Esfand; They must have no changes in the financial year and trading halts over three months during the research period. They must not be among investment companies, financial mediation companies, leasing companies and banks.

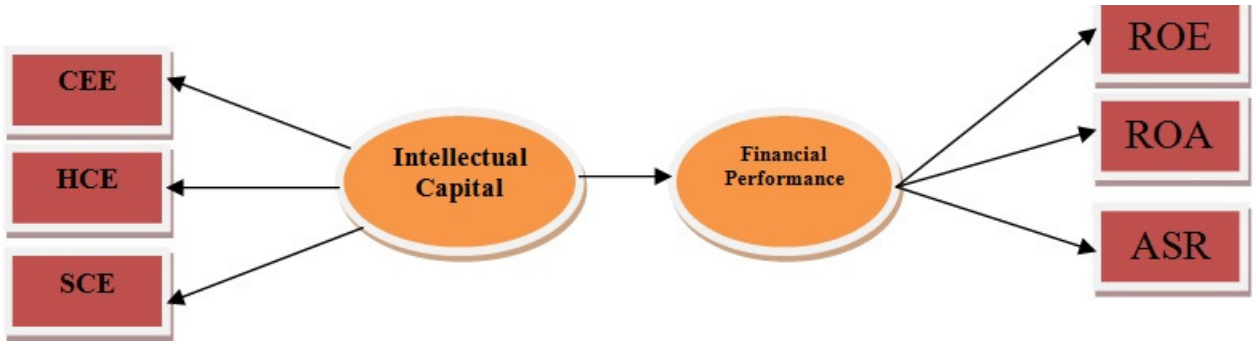


**Figure-1**
**Research model**

They must not incur losses during the research period and also the net book value of their assets must not be negative; Financial statements of the company must be available.

## Results and Discussion

**Research Findings:** As mentioned earlier, the regression method used in the present paper is generalized least squares method. To estimate the regression model, panel data has been used by assuming that B1, B2, ...., B0 is constant and error is variable. The regression model used in this paper is as following:

$$Y_{it} = B_o + B_1 CEE_{it} + B_2 HCE_{it} + B_3 SCE_{it} + M_{it}$$

Where: $Y_i$ is the dependent variable whose variables are ASR, ROA, and ROE and independent variables of the model include $CEE_{it}$, $HCE_{it}$, and $SCE_{it}$ . Also to study the correlation between residuals, Durbin – Watson statistic has been used; and if there was auto-correlation, auto-correlation problem has been removed by adding AR (1) sentence.

First hypothesis: there is a significant relation between relational capital and return on assets.

The results of data analysis show that there is a significant relation between relational capital and return on assets with the coefficient value (0.356).
Second hypothesis: there is a significant relation between relational capital and return on equity.

The findings show that there is a significant relation between relational capital and return on equity with the coefficient value (0.321).

Third hypothesis: there is a significant relation between relational capital and annual service return.

The findings show that there is a significant relation between relational capital and annual service return with the coefficient value (0.123).

Fourth hypothesis: there is a significant relation between human capital and return on assets.

The findings show that there is a significant relation between human capital and return on assets with the coefficient value (0.261).

Fifth hypothesis: there is a significant relation between human capital and return on equity.

As shown in the table, there is a significant relation between human capital and return on equity with the coefficient value (0.112).

Sixth hypothesis: there is a significant relation between human capital and annual service return.

Data analysis showed that human capital with the coefficient value (0.256) has a significant effect on annual service return.

**Table-1**
**The relation between intellectual capital and financial return**

| | CEE | HCE | SCE | Durbin-Watson statistic | AR(1) | Adjusted R square | R- square | Prob. F-stat | F-stat |
|---|---|---|---|---|---|---|---|---|---|
| ROA | 0.356 | 0.261 | 0.324 | 2.18 | 0.315 | 0.721 | 0.735 | 0.000 | 53.58 |
| ROE | 0.321 | 0.112 | 0.223 | 1.856 | 0.358 | 0.898 | 0.933 | 0.000 | 251 |
| ASR | 0.123 | 0.256 | 0.085 | 1.562 | 0.235 | 0.462 | 0.482 | 0.000 | 25.6 |

Seventh hypothesis: there is a significant relation between structural capital and return on assets.

Research findings showed that there is a significant relation between structural capital and return on assets with the coefficient value (0.324).

Eighth hypothesis: there is a significant relation between structural capital and return on equity.
Research findings showed that there is a significant relation between structural capital and return on equity with the coefficient value (0.223).

Ninth hypothesis: there is a significant relation between structural capital and annual service return.
Research findings showed that there is a significant relation between structural capital and annual service return with the coefficient value (0.085).

**Discussions:** With regard to the coefficients of relational capital, human capital, and structural capital in the regression model, one can state regarding ranking of intellectual capital dimensions that: There is a significant relation between return on assets and intellectual capital of the companies with regard to F value and its significance level. Also the coefficients of relational capital (0.356), human capital (0.261), and structural capital (0.324) show that relational capital has more effect on the return on assets compared to other dimensions of intellectual capital, and relational capital has the first rank in explaining return on assets in Tehran Stock Exchange companies. Also Durbin – Watson value shows that the values of this index are appropriate after removal of the first order auto-correlation. With respect to F value and its significance level, one can mention that there is a positive significant relation between return on equity and intellectual capital value of the companies. Also coefficients of intellectual capital dimensions show that relational capital with the coefficient (0.321) has more effect on the return on equity. Durbin – Watson value shows that the values of this index are appropriate after removal of the first order auto-correlation. F value and its significance level reveal that there is a significant relation between annual service and intellectual capital of Tehran Stock Exchange companies. As shown by the table, human capital with the coefficient (0.123) has more effect on the annual service return compared to other dimensions of intellectual capital. So, human capital has the first rank in explaining annual service return of Tehran Stock Exchange companies. Durbin – Watson value shows that the values of this index are appropriate after removal of the first order auto-correlation.

## Conclusion

Nowadays, the role and importance of return on the intellectual capitals in profitability and sustainability of the companies are more than financial capitals. In the other words, in the current knowledge- based societies, role and importance of financial capitals in determining sustainable profitability have been reduced remarkably compared to intellectual capitals. Due to the increasing importance of intellectual capitals in strategy superiority process, most companies seek to find methods of intellectual capital measurement and examine its relation with the company efficiency.

This paper has first introduced intellectual capital components and models and then a proper model for measuring intellectual capital of the companies to observe the real value of the organizations and incorporation of this capital into financial balance sheet. After calculating the value of intellectual capital of companies accepted in Tehran Stock Exchange by using Pulic model in a six-year period, the significant relation between intellectual capital and financial performance of the companies was studied. Having analyzed the results, below findings was obtained. There is a positive and significant relationship between the intellectual capital and rate of return on assets. Furthermore, there is a positive and significant relationship between the intellectual capital and return on equity and a positive and significant relationship between the intellectual capital and the annual service return. These results are consistent with the studies by Zéghal and Maaloul[30], Benitez et al[31], Maheran Mohammad [32], Chen et al[33], and Namazi and Ebrahimi[11], but not consistent with the study by Maditinos et al in Greece's market. This finding emphasizes that the intellectual capital play the major role in enhancing the performance and profitability of firm; despite the fact that the accepted accounting standards prevent the greater recognition of intellectual capital in the financial statements, the investors have understood the value of intellectual capital in their decisions and considered is essential for better performance of firms. Nowadays, despite the increased importance of intangible assets and especially the intellectual capital in firms, the accounting systems are not able to accurately calculate the firm performance proportional to the intellectual capital.

The relational capital has a greater impact on the return on assets than other aspects of intellectual capital index.

The relational capital has a greater impact on the return on equity than other aspects of intellectual capital index.

The human capital has a greater impact on the annual service return than other aspects of intellectual capital index.

According to these results, we can recommend the firm utilization of this model for preparing, providing and analyzing the complete and real financial statements in accounting systems applied in the firm.

The findings in this study are in accordance with Heydarzadeh et al [34] and Khodaie Mahmoodi et al[35] and Pooya et al [36] .

**Research suggestions:** Given that the relational capital has the greater impact on the return on assets and return on equity than other dimensions, it is recommended that the companies should conduct more comprehensive studies on the way of creating the relational capital and changing it to the market value in order to apply the available knowledge in the marketing canals and relations with customers.

Furthermore, due to the greater impact of human capital on the annual service return, it is recommended holding the weekly or monthly meetings to enhance the employees' participation in the organization in order to make optimal use of their capabilities and skills.

**Suggestions for future studies:** The following cases are recommended for future studies: Investigating the role and importance of intellectual capital in the organizations; Investigating the methods of assessing and measuring the intellectual capital to find the appropriate ways.

Investigating the ways to improve the growth of intellectual capital in companies.

## References

**1.** Rezaei Farzin, Intellectual capital and performance based on intellectual capital and value, *Accounting and Auditing Research,* **7,** 52-71 **(2010)**

**2.** Namazi Mohammad and Ebrahimi Shahla, A study on the effect of intellectual capital on the current and future financial performance of the companies accepted in Tehran Stock Exchange, *Accounting and Auditing Research,* **4,** 1-22 **(2009)**

**3.** Young Chu, Ling Lin, Po Yu, Hsing Hwa Hsiung and Tzu Yar Liu, Intellectual capital: An empirical study of ITRI ; Available online at :www.sciencedirect.com, *Technological Forecasting and Social Change*, **73,** 886–902 **(2006)**

**4.** Bose R., Knowledge management metrics, Industrial Management and Data Systems, **104(6),** 457-468 **(2004)**

**5.** Sullivan P.H., Value-driven intellectual capital: How to convert intangible corporate assets into market value, Toronto, Canada: Wiley **(2000)**

**6.** Waterhouse J. and Svendsen A, Strategic Performance Monitoring and Management, CICA, Toronto **(1998)**

**7.** Hong Pew Tan, David Plowman and Phil Hancock, Intellectual capital and financial returns of companies,The Graduate School of Management, University of Western Australia, Crawley, Australia, The current issue and full text archive of this journal is, *Journal of Intellectual Capital,* **8(1),** 76-95 **(2007)**

**8.** Anne Ho, Carol and Williams S. Mitchell, International comparative analysis of the association between board structure and the efficiency of value added by a firm from its physical capital and intellectual capital resources, *The International Journal of Accounting*, **38,** 465–491 **(2003)**

**9.** Nova, Kreditna Banka Maribor, Annual Report, Author: Maribor, Slovakia **(2000)**

**10.** Maditinos D, Chatzoudes D, Tsairidis Ch, Theriou T, The impact of intellectual capital on firms' market value and financial performance, *Journal of Intellectual Capital,* **12(1,011),** 132-151 **(2011)**

**11.** Namazi Mohammad and Ebrahimi Shahla, The experimental investigation of intellectual component's role in evaluating the financial operation of companies listed on Tehran Stock Exchange, *Journal of Advances in Accounting, Fall and Winter,* **3(2), (2011)**

**12.** Chen J, Zhu Z. and Xie H.Y., Measuring intellectual capital: a new model and empirical Study, *Journal of Intellectual Capital,* **5(1),** 195-212 **(2004)**

**13.** Brooking A., Intellectual Capital, Thomas Business Press, London **(1996)**

**14.** Roos J.G, Roos G, Dragonetti N.C. and Edvinsson L, Intellectual capital: Navigating in the new business landscape, Houndsmills, Basingtoke: Macmillan **(1997)**

**15.** Bontis N.N.C., Dragonetti K. and Jacobsen G. Roos, The knowledge toolbox: A review of the tools available to measure and manage intangible resources, *Eur. Manag. J.,* **17(4),** 391–402 **(2002)**

**16.** Rodov I. and P. Leliaert, FIMIAM: Financial Method of Intangible Assets Measurement, *Journal of Intellectual Capital*, **3 (3),** 323–36 **(2002)**

**17.** Stewart T.A, Intellectual Capital: The Wealth of New Organisations, Nicholas Brealey Publishing, London **(1997)**

**18.** Sveiby K, The New Organizational Wealth: Managing and Measuring Knowledge Based Assets, Berrett Koehler and San Francisco, CA **(1997)**

**19.** Edvinsson L., Developing intellectual capital at Skandia, *Long Range Planning,* **30(3),** 266–373 **(1997)**

**20.** Pulic A., Measuring the performance of intellectual potential in knowledge economy, Available online: http:// www.measuring-ip.at /papers /Pulic/Vaictxt/vaictxt.html, **(1998)**

**21.** Olsson, B.Annual reporting practices: information about human resources in corporate annual reports in major Swedish companies, *J. HRCA,* **6(1)**, 39–52 **(2001)**.

**22.** Abeysekera Indra and James Guthrie, An empirical investigation of annual reporting trends of intellectual capital in Sri Lanka, Crit, Perspect, *Accounting,* **16,** 151–163 **(2005)**

**23.** Brennan N., Reporting intellectual capital in annual reports: evidence from Ireland, Account, Audit, *Account J.*, **14(4)**, 423–436 **(2001)**

**24.** Subbarao A.V, Zeghal D., Human resources information disclosure in annual reports: An international comparison, *J.HRCA*, **2(2),** 53–73 **(1997)**

**25.** Joia L.A., Measuring intangible corporate assets linking business strategy with intellectual capital, *Journal of Intellectual Capital,* **1(1),** 68-84 **(2007)**

**26.** Pfeil Oliver P., The Valuation of Intellectual capital, Universität St. Gallen; Massachusetts Institute of Technology (MIT) - Sloan School of Management, March**,** 10 **(2003)**

**27.** Rudez Helena**,** Nemec and Mihalic Tanja, Intellectual capital in the hotel industry: A case study from Slovenia, *Hospitality Management,* **26,** 188–199 **(2007)**

**28.** García-Meca, Emma and Isabel Martínez, the use of intellectual capital information in investment decisions an empirical study using analyst reports, *The International Journal of Accounting*, **42,** 57–81 **(2007)**

**29.** Hemmati Hasan and Amin Mehrabi, A study on the relation between intellectual capital and financial return in the companies accepted in Tehran Stock Exchange, *Accounting Research,* 3rd year, 10 **(2011)**

**30.** Zéghal Anis Maaloul, Analyzing value added as an indicator of intellectual capital and its consequences on company performance, *Journal of Intellectual Capital,* **11(Iss:1),** 39 – 60 **(2010)**

**31.** Bontis N., Dargonetti N, Jacobsen C.K. and Roos G, The knowledge toolbox: A review of the tools available to measure and manage intangible resource, *European Management Journal,* **17(4),** 391-402 **(1999)**

**32.** Nik Maheran Nik Muhammad and Md Khairu Amin Ismai, Intellectual Capital Efficiency and Firm's Performance: Study on Malaysian Financial Sectors, *International journal of economics and finance,* **1(2),** 206-212 **(2009)**

**33.** Chen M.C., Cheng S.J. and Hwang Y, An empirical investigation of the relationship between intellectual capital and firms' market value and financial performance, *Journal of Intellectual Capital,* **6(2),** 159-76 **(2005)**

**34.** Javad Heydarzadeh, Hoseyn Jabbari and Hasan Ghodrati, The Study of the Relationship between Product Market Competition and Capital Structure of Companies Which is accepted in Tehran Stock Exchange, *Res. J. Recent Sci.,* **3(1),** 33-37 (**2014**)

**35.** Reza Khodaie Mahmoodi, Sedigheh Sarabi Nejad and Mehdi Ershadi sis, Expert Systems and Artificial Intelligence Capabilities Empower Strategic Decisions: A Case study, *Res. J. Recent Sci.,* **3(1),** 116-121 **(2013)**

**36.** Alireza Pooya, Hamid Rezazadeh Barfoei, Naghme Kargozar and Fateme Maleki, Relationship between Emotional Intelligence and Conflict Management Strategies, *Research Journal of Recent Sciences,* **2(7),** 37-42 **(2013)**