



The Relationship between Corporate Governance and Intellectual Capital of Companies Listed on the Tehran Stock Exchange

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ABSTRACT

One of the main problems and shortcomings of traditional accounting systems is that the value of intellectual capital in financial statements and reports of business units is not reflected appropriately. Putting emphasis on human resources and intellectual capital will lead to a better understanding of current and future underlying values of individuals, firms, institutions, and communities for better utilization of these funds. The main aim of this study is to investigate the relationship between corporate governance and intellectual capital in companies listed on the Tehran Stock Exchange. The research population includes all companies listed on Tehran Stock Exchange. Data are collected over a 6-year period from 2009 to 2014. The purposeful sampling method is used to select the sample and after considering some limitations, a total number of 120 companies is selected from all various industries as the sample of the study. The results show that among all corporate governance variables which are selected to be tested in this research, only institutional ownership has a significant relationship with the intellectual capital of companies listed on Tehran Stock Exchange.

Keywords: Corporate Governance, Intellectual Capital, Institutional Ownership

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Introduction

The value of intellectual capital and intangible assets becomes more important than the cost of tangible assets (Wang, 2005). In fact, we are approaching a socio-economic environment where economic and natural resources are not vital resources but the main available resource is knowledge. Knowledge is the most important component of intangible assets and the success of an organization depends on the ability to identify and manage these types of intangible assets. Intellectual capital, in nature, can be seen against the tangible capital. Intellectual capital is a kind of intangible assets which is difficult to measure by quantitative indicators. However, it is necessary for intellectual capital to be measured by quantitative proxies in order to obtain suitable understanding (Ahmad and Ahmed, 2016).

One of the main problems and shortcomings of traditional accounting system is that the value of intellectual capital in financial statements and reports is not reflected appropriately. This is while intellectual capital has a more prominent role in creating and increasing the corporate value and in the current situation, intangible assets are the most important factors influencing the growth and development of companies (Dumay, 2016). However, due to the subjective and intangible nature of these assets, much debate has been emerged on how to measure and evaluate them. Intellectual capital can be simply defined by the difference between market value and book value of assets. In this definition, intellectual capital consists of assets and processes that are not reflecting on the balance sheet. Measuring the intangible assets is important from two aspects, called internal and external aspects. From internal aspect, measuring intangible assets will result in a better allocation of resources to increase the efficiency and effectiveness and minimize the costs of the organization. In terms of external aspect, the aim of measuring intangible assets is to prepare information about available investments to forecast future growth and long-term planning (Cheng et al. 2010).

The results of the previous studies show that corporate governance is a key factor for attracting, measuring, and disclosing intellectual capital. In fact, the existence of powerful corporate governance mechanisms increases the ability of companies to attract and disclose more intellectual capital. The existence of corporate governance mechanisms is beneficial for all stakeholders including investors, creditors, the board of directors, management, and employees as well as various industries and different

sectors of the economy. Corporate governance plays an important role in improving the efficiency and economic growth and, at the same time increases the confidence of the investors. Companies also benefit from an efficient governance system. If the company is profitable, there are more motivations for applying corporate governance mechanisms and the benefits are achievable either directly (through easier access to financial resources and low cost of capital) or indirectly (business reputation and better business opportunities). In other words, lack of appropriate corporate governance in companies leads to an inability to attract, disclose, and retain a strong intellectual capital (Baldini and Liberatore, 2016). Due to the importance of corporate governance mechanisms in organizations and the impact of these mechanisms on intellectual capital, the question in this study is how corporate governance mechanisms can affect the intellectual capital of companies listed on Tehran Stock Exchange?

Literature Review and Research Hypotheses

Intellectual capital has been investigated in different studies from the 1990s (Cheng et al., 2010). In fact, the extensive review of intellectual capital is in response to the importance of intangible assets (Roose et al. 2005). In other words, in today's economy, it seems that intangible resources have a more important role in the company's worth. While, tangible resources can be easily copied by competitors, intangible ones cannot be easily duplicated. Therefore, it is assumed that intangible resources are the main source of competitive advantage (Amini, 2008). Intangible resources not only motivated the businesses, but also created a competitive market (Jafari and Akhavan, 2006). Intellectual capital is a valuable asset that can be recognized as an intangible asset. In other words, intellectual capital includes technology, customer information, credit and organizational culture that is very crucial for the competitive power of a company (Jafari et al., 2005).

There is little agreement on the recognition of intellectual capital. Although intellectual capital was unknown before, now it has an important role in different forms in the process of economic development, management, technology, and society (Anvari Rostami and Seraji, 2005). Intellectual capital includes knowledge and abilities of all employees which creates wealth for the organization (Chen et al. 2004). In other words, intellectual capital can be defined as a group of knowledge-based assets which improve the competitive situation of an organization through

increasing the level of added value for key stakeholders (Gupta et al., 2000).

In the 1990s, famous researchers like Bontis (1998), Brooking (1996), Edvinsson and Malone (1997) and Stewart and Stephanie (1994) attempted to provide a framework for the intellectual capital in order to create a better understanding of the concept of intellectual capital. For the first time, Bontis in 1998 stated that intellectual capital components are human capital, structural capital, and relational capital. He changed his category in 2000 and declared that intellectual capital consists of human capital, structural capital, and spiritual asset. Human capital consists of capabilities, skills, expertise, education, and experience of human resources (Malcolm, 2001). The structural capital is the knowledge which remains in the organization at the end of each working day; it is also owned by the entire organization and can be shared by others. The relational capital or customer capital includes the external attachments such as customer loyalty, reputation and company's relationship with providers (Mourtsen et al., 2004).

Intellectual capital can lead to a competitive advantage in the market and a better financial performance of the company through proper guidance and management, organizational techniques, professional skills, and communication with customers (Wang, 2005). But, due to lack of understanding, appropriate measurement, and determination for the value of intellectual capital components, it resulted in inefficient investment decisions in the decision-making process. The existence of corporate governance mechanisms can play an important role in the presentation and disclosure of intellectual capital. Hype et al. (1998) believed that corporate governance outlines the internal structure of the company and shows the duties of the board, the ownership structure, and relationships between shareholders and stakeholders. In fact, corporate governance is a set of rules, structures, processes, and cultures which leads to the accountability, transparency, and fairness goals (Hasas Yeganeh, 2006). Among the important corporate governance mechanisms, the number of board members, board independence, audit firm size (audit quality), and the type of ownership are investigated in this research.

Setayesh and Kazemnezhad (2009) examined the impact of intellectual capital on the performance of companies listed on Tehran Stock Exchange. The research period was from 2001 to 2006. The results show that there is a positive significant relationship between intellectual capital and the rate of return on assets and asset turnover, but there is not any significant relationship between intellectual capital and market value to book value.

Moreover, Abasi and Sedghi (2010) investigated the efficiency of intellectual capital on the financial performance of companies listed on Tehran Stock Exchange during 2000 to 2003. The results of this study show that the coefficient of performance of each intellectual capital elements has a positive effect on the rate of return on equity.

Chang and Hsieh (2011) examined the relationship between intellectual capital components and operational, financial, and market performance. To measure the intellectual capital, they used an adjusted value-added intellectual coefficient model. The results show that there is a positive relationship between operational performance and intellectual capital. However, there is not any significant relationship between intellectual capital and financial and market performance. Fernandez et al. (2015) also investigated the relationship between intellectual capital and corporate performance. The main finding of this research was the new causal relationship. They found that intellectual capital has a significant effect on corporate performance and helps managers to make strategic decisions.

Therefore, based on prior studies and the conceptual framework, research hypotheses are as follows:

H₁: There is a significant relationship between institutional ownership and intellectual capital of companies listed on Tehran Stock Exchange.

H₂: There is a significant relationship between board independence and intellectual capital of companies listed on Tehran Stock Exchange.

H₃: There is a significant relationship between audit firm size and intellectual capital of companies listed on Tehran Stock Exchange.

H₄: There is a significant relationship between CEO duality and intellectual capital of companies listed on Tehran Stock Exchange.

H₅: There is a significant relationship between family ownership and intellectual capital of companies listed on Tehran Stock Exchange.

Methodology

For investigating the relationship between intellectual capital and corporate governance mechanisms, the multiple regression model is used. The population of this study is all companies listed on Tehran stock exchange from 2009 to 2014. For choosing samples, Purposeful *Sampling is used*. This means that companies are selected considering the following features:

- Selected companies are not financial intermediaries and leasing,
- They listed on Tehran Stock Exchange until the end of 2014,

- During the research period their stock trading has not stopped, and;
- In terms of increase comparability, their fiscal year ends to march.

Considering the mentioned conditions, a total number of 120 companies is selected. Thus, the secondary data of these companies are gathered and Eviews software is used for analysing data. The research model is as follows:

$$IC = \beta_0 + \beta_1 \text{ Institutional} + \beta_2 \text{ NIND} + \beta_3 \text{ BIND} + \beta_4 \text{ Auditor} + \beta_5 \text{ FOWN} + \beta_6 \text{ CEO} + \beta_7 \text{ FSIZE} + \beta_8 \text{ LEV} + \beta_9 \text{ ROA} + \varepsilon$$

IC = intellectual capital

β_0 = Model constant.

β_1 – β_5 = Beta coefficients of the model's independent variables.

Institutional = the percent of institutional shareholders to all shareholders.

NIND = the number of board members.

BIND = the number of non-executive members of board of directors.

Auditor = one, if the auditor is audit organization and 0 otherwise.

FOWN = one, if there is a family ownership and 0 otherwise.

CEO = one, if the CEO is the chairman or vice-chairman and 0 otherwise.

FSIZE = log of total assets.

LEV = the total liabilities to total assets ratio.

ROA = the net profit to total assets ratio.

ε = the model residual

For measuring the intellectual capital, first the value added is calculated through the following model:

$$VA = OP + EC + D + A$$

Where:

VA = value added

OP = operational profit

EC = employee costs and salaries

D = depreciation

A = amortization of intangible assets

Then the second model is used to determine the efficiency of used capital:

$$CEE = VA/CE$$

Where:

CEE = the efficiency of used capital.

VA = value added

CE = the book value of total assets minus intangible assets

Then the third model is used to determine the efficiency of human capital:

$$HCE = VA/HC$$

Where:

HCE = the efficiency of human capital

VA = value added

HC = human capital (the total cost of salary)

Then the fourth model is used to determine the efficiency of structural capital:

$$SC = VA - HC$$

SC = structural capital

VA = value added

HC = human capital

Then the fifth model is used to determine the value added of intellectual capital coefficient:

$$VAIC = ICE + CEE = HCE + SCE + CEE$$

This value shows the ability of the company in value creation. The more this value, the more the ability of managers would be to use the power of company in creating value.

Data Analysis

Table 1 shows the descriptive statistics of research variables.

Table 1. Descriptive Statistics

<i>Variables</i>	<i>mean</i>	<i>median</i>	<i>max</i>	<i>Min</i>	<i>S.D</i>
<i>IC</i>	<i>0.18</i>	<i>0.17</i>	<i>0.99</i>	<i>-0.3</i>	<i>0.14</i>
<i>Institutional</i>	<i>65.23</i>	<i>60.71</i>	<i>71.95</i>	<i>6.32</i>	<i>17.17</i>
<i>NIND</i>	<i>6.07</i>	<i>6.00</i>	<i>12.00</i>	<i>2.00</i>	<i>0.82</i>
<i>FSIZE</i>	<i>13.7</i>	<i>13.4</i>	<i>19.0</i>	<i>10.5</i>	<i>1.56</i>
<i>LEV</i>	<i>0.63</i>	<i>0.60</i>	<i>2.18</i>	<i>0.06</i>	<i>0.24</i>
<i>ROA</i>	<i>0.10</i>	<i>0.08</i>	<i>0.72</i>	<i>-0.44</i>	<i>0.13</i>

For analysing the research model, first the F-Limer Test is used to distinguish panel data from pooled data and if error is less than 5% data are panel and if it is more than 5% data are pooled. The results of the cross-section F-test is 0, thus, data are panel. Afterwards fixed effects and random effects of data are examined using the Hausman Test. Regarding the results of the Hausman test in the static model, error is 0.06. Thus, fixed effects of

panel data are accepted. Table 2 shows the results of F-Limer and Hausman tests. For every hypothesis, error is 5% and confidence level is 95%.

Table 2. Results of F-Limer and Hausman Tests

<i>F-Limer Test</i>			<i>Hausman Test</i>		
<i>F</i>	<i>P</i>	<i>result</i>	<i>K²</i>	<i>P</i>	<i>result</i>
3.59	0.00	panel	15.86	0.06	Random

The results of hypothesis testing and multiple regression analyses are presented in Table 3.

Table 3. Multiple Regression Analyses

<i>variables</i>	<i>beta</i>	<i>S.D</i>	<i>t</i>	<i>Sig</i>
<i>c</i>	0.18	0.04	3.79	0.00
<i>Institutional</i>	0.21	0.21	1.02	0.01
<i>NIND</i>	0.36	0.12	3.00	0.00
<i>BIND</i>	0.18	0.19	0.94	0.88
<i>Auditor</i>	0.16	0.11	1.48	0.15
<i>FOWN</i>	0.15	0.13	1.17	0.24
<i>CEO</i>	-0.11	0.13	-0.86	0.20
<i>FSIZE</i>	0.51	0.21	2.43	0.00
<i>LEV</i>	0.73	0.18	4.05	0.00
<i>ROA</i>	0.88	0.23	3.75	0.00
<i>R²: 0.48</i>				
<i>Adjusted R²: 0.43</i>				
<i>F-Value: 14.65</i>				

The results in Table 3 show that based on the p-value, which is less than 0.05 for institutional ownership and NIND, there is a significant relationship between institutional ownership, the number of board members, and intellectual capital. Also, based on p-value, which is not less than 0.05 for auditor, family ownership, and CEO, there is no significant relationship between these variables and intellectual capital. The R^2 is 0.43 which shows that 43 percent of changes of dependent variable are explained by changes in independent variables.

Conclusion

The main objective of this research is to investigate the relationship between intellectual capital and corporate governance mechanisms in companies listed on Tehran Stock Exchange. The population is all companies listed on Tehran Stock Exchange and the sample is 120

companies during 2009 to 2014. For testing the research hypotheses, multiple linear regression model is used.

The results show that from corporate governance mechanisms, institutional ownership and the number of board members are positively related to intellectual capital. But, there is no significant relationship between other governance mechanisms such as board independence, family ownership, CEO duality, audit firm size, and intellectual capital. This could be due to the inefficiency and underdevelopment of the Tehran Stock Exchange and lack of enough knowledge of majority shareholders, investors, and stock market participants of tasks, rights and concepts in specialized areas of accounting, financial management, and the agency problem. Therefore, it is expected that by the improvement of the Tehran Stock Exchange, the development and use of different tools in this market, the effectiveness of governance mechanisms increase in order to improve quality and transparency of operations.

There are some limitations to this research which should be recognized. First, this research is based on the financial information provided by companies in audited financial statements. Thus, it is evident that the results could be affected by the accuracy of financial statement information. Second, due to this fact that research variables are calculated from financial statements which are based on historical cost, adjusted data for the inflation effect may change the research results. Third, due to the limited population of manufacturing firms listed on TSE and their fiscal year, the generalization of these research results should be done with caution.

For future research studies, due to the removal of investment companies, banks, insurance companies, it is recommended to do an independent study on different industries such as banking and insurance to see the role of intellectual capital in these companies. It is also recommended to investigate the role of intellectual capital in companies' performance during the financial crisis.

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