The Impact of Intellectual Capital Disclosure on Common Cost of Equity in the Companies Listed in Tehran Stock Exchange

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Abstract

Nowadays, the use of non- tangible assets due to its competitive advantage has significant impact on the success and survival of organizations, hence the identification, measurement, and management of intellectual capital is of particular importance and makes real value of the organizations revealed. The impact of intellectual capital disclosures provides useful information to assist actual and potential investors in making rational decisions. The aim of this study was to investigate the impact of intellectual capital disclosure and its components on the sort of equity in the period of five years from 2008 to 2012 in the companies listed in Tehran stock exchange. Thus, 80 stock companies were considered as the samples and for this study, four hypotheses have been considered. The variables of the study were first identified and excel software was used to calculate the variables which are independent from Palyk model to measure the variables of the study. The data were analyzed by SPSS Statistics software version 20 and applying descriptive and inferential statistics such as correlation analysis, multiple regressions to test the hypotheses. The results of the statistical hypothesis test show there is a positive and significant relationship between intellectual capital disclosure and common Cost of equity. Also, the results indicated that the effect of the two components from the components of the intellectual capital - structural capital and human capital disclosure - on the independent variable, common Cost of equity, is not significant, but the impact of Capital Employed Disclosure on common cost of equity was significant, positive and reasonable.

Keywords: disclosure of intellectual capital components, common Cost of equity, intangible assets, Palyk model

Introduction

In the second half of the twentieth century, with the rapid progress of information technology, a great development in all aspects of human life and activity was generated which helped to move towards knowledge-based economy and changing the paradigm of industrial economy (Hemmati et al 2010). In such circumstances, knowledge and intangible assets are known as a source of competitive advantage for organizations. In fact, the world after agricultural and industrial revolution in which land, capital and labor were considered as main resources, watching the information revolution in which the major sources have been formed based on information and knowledge. In the knowledge era, intellectual capital management is an important issue in which its correct management in today's turbulent and challenging environment is the key to company success (Mojtahedzadeh, 2002).

21st century is a century with knowledge-based economy in which knowledge or intellectual capital as a factor of wealth production gets higher priority in comparison to the other physical and tangible assets (Bentis, 1998). Intellectual capital is defined as a pack of useful knowledge for organizations in which some components such as organizational processes, technologies, concessions, the skill of company personnel, and the information of customers, stakeholders, and organizational suppliers are kept (Thomas Stewart (1997). Intellectual capital is to develop and

utilizing the sources of knowledge in corporations. Hence in the third millennium AD, where intellectual capital rather than physical, is the essential foundation for future success of companies in the knowledge-based economy, has made the investors and creditors interested, and their disclosures plays a prominent role in the two groups decision-making(Williams, 2000). According to Mer et al, the organizations' reasons to consider the intellectual capital management are as follows: assisting the organizations in designing strategies, evaluating the implementation of strategies; assisting the organizations in big and diverse decisions, using the results of intellectual capital as a basis for compensation, measuring the value and financial performance. Common Cost of equity is one of the criteria to evaluate investment decisions. As far as the financial statements of a company including its profitability, was clear, the uncertainty associated with shareholders' equity would be minimized and common Cost of equity would decrease. If the financial statements of a company provided incomplete and unclear information, the uncertainty among the stakeholders would be increased and cause information risk premium leading to higher return demands by the stakeholders. Cost of equity is one of the concepts which have always been the financial experts concern and the main reason in creating gaps between accounting profit and economic profit. Regarding the concept, Cost of equity is the opportunity of investors to invest in the company. Cost of equity is important in two dimensions: The first dimension is that all of the securities valuation models are based on the Cost of equity. The second dimension is that the money is invested by the company and determining the investment priorities and capital structures without the Cost of equity will not be practical (Salimi Ahmed, 2007). Using the Cost of equity of investment decision, using it as the basis for creating optimal structure of the capital or moving towards it, using it in capital leases measuring the performance indexes and primarily using it to decrease future cash flows to determine the value, all are things that can be mentioned in describing Cost of equity(Osmani, 2002). Annual reports in studying intellectual capital disclosure are important because managers always apply them to show important changes to the people outside of the company and the reports allow them to have better relationships with external users and inner stakeholders (Gadry & Petty, 2000).

Theoretical framework and literature review

The first efforts associated with the concepts of intellectual capital is due to Mchlap studies in 1962 AD, but historically the innovation of the concept of intellectual capital was attributed by Galbrays in 1969. He believed that intellectual capital is something beyond the minds and also involves intellectual action. In the evolution of the concept of intellectual capital, theorists offered numerous definitions of intellectual capital from different perspectives expressed in the following. Intellectual capital is the sum of all the things that the organization staff know and creating a competitive advantage for the organization in the market (Stewart, 1991). Unique set of tangible and intangible resources of the company is called intellectual capital (Gupta, 2001). Intellectual capital is a term for a combination of market intangible assets, intellectual property, human assets, and structural assets that can enable the organization to carry out its activities (Brookings, 2001). Intellectual capital is a set of knowledge and assets that are specific to an organization and is considered as one of the characteristics of the organization and adding value to key stakeholders and organizations considerably improving the competitive position of the organizations (Mer, 2004). Some researchers including Stewart (1997), Brookings (1996), Bentis (1998), Ross et al (1997) and others commented on intellectual capital which confirmed the significance of the intangible assets (Nikumram, 2002). A brief look at the definitions of intellectual capital indicates that all these definitions are based on the principle that intellectual capital is the sum of intangible assets such as human capital, structural capital and customer capital. Human capital represents the knowledge of an organization (Bvntys et al, 2002). Ross et al (1997) also argued that employees create intellectual

capital through competence, attitude and intellectual agility one. Brookings (1996) argued that human assets of an organization include skills, expertise, and problem solving and leadership styles. Structural capital consists of all non-human reservoirs of knowledge including databases, organizational charts, and instructions implementing the processes, strategies, action plans, and generally anything that can be valuable to an organization than its material value (Ross et al, 1997). In other words, Russ and his colleagues argue that capital structure is "whatever is left in the company after workers go home at night." Stewart (1997) stated that the central theme of Capital Employed (customer) is the knowledge of marketing channels and relationships with customers. Customer capital represents the potential ability of an organization due to its external intangible factors. Chen et al (2004) classified the customer's investment in marketing capabilities, customer loyalty and market intensity. The Cost of equity is the minimum rate of the investors' capital return to provide the capital to the company (Bvtsan, 2006). Cost of equity determines the minimum return of the investment expected from a company or organizations which is necessary to maintain the value of the company (Panahiha, 2008). As representatives of the shareholders, managers should strive to minimize the company's Cost of equity and thus maximize the value of the company and shareholder wealth. Cost of equity is an important and effective factor in most of the financial management decisions. Managers use Cost of equity in different cases including capital budgeting decisions, setting optimal structure of decision-making regarding long-term lease of the replacement of bonds and, working capital management. Wedge Chen (2005)measured intellectual capital performance of commercial banks in Malaysia during the years 2001 to 2003, and applied the coefficient of performance called, value added intellectual coefficient (developed by Palyk). This paper is the first study on the function of intellectual capital of Malaysian banks. This study demonstrated the ability to create value for both domestic and foreign banks in Malaysia is largely dependent on the efficiency of human capital. This means that investment in human capital is relatively higher returns than investment in physical and structural capital. The statistical population of the survey included 33 insurance, financial companies and Thailand banking market in 2005. Experimental studies showed the company's intellectual capital has a significant correlation with the increase in the investor's share price. The findings increase the basic knowledge of intellectual capital and develop the concept of intellectual capital in achieving competitive coefficient in the sustainable economic such as Thailand. The purpose of Chen et al (2005) in this paper was to investigate practical relationship between intellectual capital and market value and financial performance of the company. The statistical population of the survey included, Taiwan listed companies that were active during the years 1992 to 2002. A total of 4254 companies were considered for their study. Experimental studies showed that the higher the company's intellectual capital leads to higher market value and financial performance in the current year and the next will be better. The results showed the importance of intellectual capital in assessing the company's profitability and developing its income. The purpose of Putan et al (2007) in this paper was to examine the relationship between intellectual capital and financial performance of their companies. The Palyk model in this framework is used which is an Asian focus and review of data from 150 companies that listed in the Stock Exchange of Singapore. The intellectual capital was tested by three financial performance variables. The findings of this project indicated that intellectual capital and financial performance are positively correlated with each other. The company's Intellectual capital is positively associated with future financial performance of the companies. The growth rate of company's intellectual capital is positively related to the company's performance and distribution of intellectual capital in compare to the company's performance is different. Tao Chen (2008) introduced a new model for evaluating linguistic entitled" New models of intellectual capital measurement technique based on decision-making of some type of intellectual capital variables are

then presented by combining the fuzzy approach for hi-tech companies in Taiwan were tested . The results showed significant between the components of intellectual capital and performance. Mifeng , Zivangag, Ochanly (2010) in a survey entitled " predicting Cost of equity and managers " studied the relationships between the capitals by selecting 3539 companies giving annual predictions and 4095 predictions and EPS capital offering managers' interim predictions and cost companies offering. The findings showed a negative relationship in Cost of equity. Kordestani and Majdi (2006) investigated the relationships between the qualitative characteristics of equity and Cost of equity and concluded that there is a significant relationship between the four characteristics (the impact of benefit persistence, benefit predictability, benefits related to the share) and the share conservative with the common Cost of equity. Rasaiyan and Hoseini (2008) investigated the relationship between the quality of accruals and debt financing costs and Cost of equity, indicating that the company's Cost of equity are not influenced under the quality of accruals and its components. Alavi (2010) examined the relationship between common Cost of equity and accounting of the transparency benefits in Iran Stock Exchange. In this study, the model of Barth et al in 2010 was used to estimate the transparency benefits. The research showed that the companies with higher transparency experience less common Cost of equity. So far, no experimental study of internal researched on the effectiveness of disclosure of intellectual capital components on the common capital in Tehran Stock Exchange has been done. The other studies done in the field of intellectual capital and disclosure of intellectual capital components are as follows:

Hemmati (2009) in his thesis by comparing six models of measuring intellectual capital examined the relationship between intellectual capital and the measuring performance of new variables based on the value creation including the economic value added, market value added, and focused on shareholder value added. The results indicated a correlation between the level of intellectual capital and the market value added. Anvari Rostami and Seraji (2005), investigated the relationship between intellectual capital and Stock market value of companies listed in Tehran Stock. In this regard, by using quantitative and mathematical techniques proposed by Anvari Rostami and Rostami in 2003 and the data of 7 years of listed companies in Tehran Stock Exchange, intellectual capital of companies was measured and then the relationship between the results of each method and the market value of the companies was measured. The findings indicated that only two of the proposed values, had a significant correlation with the stock market value of the companies listed in Tehran stock exchange. Amangoli Sedghi (2006) in his MA thesis (public administration) examined the relationship between intellectual capital and financial performance of listed companies in Tehran Stock Exchange. Based on the results of the study, the mean levels of financial indexes and intellectual capital has a significant relationship with the company's current and future performance. Salehnejad and Malekian (2010) in their research investigated the effects of intellectual capital on the financial performance and concluded that the company's human capital and Capital Employed had a positive effect on the company's performance, while no significant effect is indicated on the structural capital. Faghani and Nasiri (2013) investigated the relationship between intellectual capital and the capital structure of listed companies in Tehran Stock Exchange. The results of testing the hypothesis showed that the relationship between capital structure and value of the company was approved, significant relationship between intellectual capital and value of the company was not approved,the relationship between human capital and value of the company was not approved; significant relationship between capital structure and value of the company was not approved, and the relationship between capital structure and value of company's intellectual capital was not approved.

The researches carried out in relation to the disclosure of intellectual capital

Bojalban and Afs (2013) in an article examined the impact of the intellectual capital disclosure on the Cost of equity of shareholders' equity. The experimental research has been conducted on 120 companies listed in France. The findings confirmed that there was a significant and negative relationship between intellectual capital disclosure and the two components of human and structural capital) and the cost of shareholders' equity. Negative impact of the Capital Employed Disclosure is not valid. Darabi (2012) in an article evaluated the effect of the components disclosure of the intellectual capital on the quality of financial reporting of listed companies in Tehran Stock Exchange. To conduct the research, a sample consisted of 184 companies listed in in Tehran Stock Exchange including chemical and pharmaceutical industries, other metallic minerals, cement, lime, plaster, ceramic tile, rubber and plastics, food and beverage, sugar, oil, refined petroleum products and nuclear fuel which were active from 2006 to 2012, were chosen. . For this study, one main and three sub- hypotheses were formulated. The results of testing the hypotheses indicated that the effect of the two components of intellectual capital, Capital Employed and human capital, on the dependent variable of the quality of financial reporting was positive and significant, and the effects of structural capital on the quality of financial reporting is negative and significant. Of the three components of intellectual capital, the human capital effect on the quality of financial reporting was far more powerful than the other two factors. Abastafreshi (2012) in her M.A thesis,examined the relationship between company's governance mechanisms and the level of intellectual capital disclosure in the companies listed in Tehran Stock Exchange from 2008-2010. In this regard, the effect of some of the company's governance criteria or the size of the board of directors and the number of managers (Composition of the Board), Percentage of non- bound members (the same CEO and Chairman and the internal audit department on intellectual capital disclosure), Human, structural, and Capital Employed (including disclosure of the 10 variables welfare staff, students, staff, staff training, customer satisfaction, market share, companies, certificates and awards received by the company, contract, corporate , information systems, technology and research and development activities for the 120 companies listed in the Tehran Stock Exchange) was assessed using Poisson regression model by Tai Pandey. The results showed there was not a negative significant relationship between the number of directors and the disclosure of intellectual capital, there was a positive significant relationship between the percentage of non- bound members and intellectual capital disclosure, there was a negative significant relationship between the same CEO and Chairman and intellectual capital disclosure, and there was not a positive significant relationship between the internal audit department and intellectual capital disclosure.

Research Methodology

The methodology of the present research was deductive -inductive in which theoretical basis of the research were obtained through library research with respect to the deductive methods and the data was collected by observing the financial statements collecting and the accompanying notes and application through Kdal, software, and the website of the Stock Exchange. This study experimentally evaluated the impact of intellectual capital components of the Cost of equity of listed companies in different industries in Tehran Stock Exchange. Therefore, this research was done according to the applied aim and collected based on the data analysis. On the other hand, this kind of research was a descriptive correlational study and its statistical society included all companies listed in Tehran Stock Exchange during from 2008 to 2012 and sampling have been conducted by systematic elimination (screening) with the following conditions: at least prior to 2008 joined the Tehran Stock Exchange, the company's financial period ends on March 19th of each year. In the period of the study, the company should not have operating losses in the audited profit and loss

account at the end of its fiscal year and the remaining after tax profit and loss account should not be negative; not included in the financial and investment companies (holding companies, banks, pension funds and services) or would be excluded from the sample. Information required by the companies, especially the notes to the financial statements in order to extract the required data should be available. Regarding the above circumstances, the final sample was limited to the 80 companies listed in Tehran stock Exchange in 5 -year return period.

Methods of data analysis

The information of 80 companies as the statistical population of the study was analyzed from 2008 -2012 in order to investigate the relationship between variables to test the research hypothesis. The data were calculated by excel software then analyzed by SPSS Statistics software version 20. Data analysis was conducted in the descriptive statistics stage by calculating the mean and median dispersion indices, standard deviation, skewness and strain skewness, and Kolmogorov – Smirnov test was used for normality and Pearson's correlation coefficient was used for analyzing the models.

Research hypotheses

Based on the theoretical literature this study has four main hypotheses as follow.

H_0: Intellectual capital Disclosure affects the common Cost of equity.

H_1: Human capital Disclosure affects the common Cost of equity.

H_2: Capital Employed Disclosure affects the common Cost of equity.

H_3: structural capital Disclosure affects the common Cost of equity.

Models and measurements of variables

In the current study, to measure intellectual capital, the value added intellectual capital model coefficient (VAIC) proposed by Palyk (1998 and 2000) was applied; the Gordon growth models, explained in the following, were used to measure the common Cost of equity.

Measurement model of intellectual capital index

Most intellectual capital methods due to the mental measurement and the problems they cause during the measurement have been criticized (Asvibi, 2000). Because the managers' understanding of the role of intangible assets to create competitive advantage was increased several methods have been proposed to measure intellectual capital (Williams, 2001). This model was used as intellectual capital measurement model in this study because it has some advantages over other models.

1) The value added intellectual capital coefficient is very simple and transparent and provides a standard to measure (Palyk , 1998; Asvibi, 2001).

2) This model is based on the two aspects of performance evaluation and the creation of tangible and intangible value of the company (Tano et al, 2007).

3) The required data to calculate the intellectual capital in this way can be easily extracted from the audited financial statements of companies hence the calculation done is verifiable and authenticated (Palyk , 1998; Tano et al, 2007).

4) This model has been used in the verifiable foreign researches.

The value added intellectual capital coefficient refers to the coefficient of the company performance and the ability to create value in the company (Chen et al, 2005; William, 2001). Value added intellectual capital coefficient (VAIC) formula is as follows:

Equation (1) ………………………*VAIC=HCE+SCE+CEE*

Value Added Intellectual Coefficient (VAIC) = Human Capital Efficiency (HCE) + Structural Capital Efficiency (SCE) + Capital Employed Efficiency (CEE).

Intellectual Capital Disclosures (ICD) formula is as follows.

Equation (2) ……………………… *ICD =HC+SC+CE*

Intellectual Capital Disclosure (ICD) = Human Capital (HC) + Structural Capital (SC) + Capital Employed (CE).

HC is obtained from the sum of Human Capital Disclosure; SC is obtained from the sum of Structural Capital Disclosure; and CE is obtained from the sum of Capital Employed Disclosure with the customers they have good economic relationship(Hang et al, 2007). Palyk model (2000) the company value-added is the difference between the income from the sale of goods and services and the cost of materials and services purchased. Added value with respect to the information contained in the annual financial statements can be calculated as follows:

Value added = Operating Profit + Depreciation Expense + Cost of Employee Salary

Equation (3) ……………………… VA= P+C+D+A

P = Operating Profit, C = Cost of Employee Salary, D + A = Depreciation Expense.

Human Capital Efficiency (HCE) can be calculated as follows:

Equation (4) ……………………… HCE = VA/HC

HCE = the effectiveness of the human capital efficiency, VA = the company value-added.

According to Edvinson (1997) Palyk (1998), one of the company's human capital indexes is the sum of the cost of employee salary. Capital Employed Efficiency (CEE) can be calculated as follows:

Equation (5) ……………………… CEE = VA/CE

Tangible assets = Total assets - Intangible assets

CE stands for Capital Employed which equals the book value of total assets except intangible assets. SEE stands for the effectiveness of the Capital Employed Efficiency; VA stands for the company total Value-Added; and CE stands for Capital Employed. The first step to determine SCE is to calculate the company's structural capital calculated as follows:

Equation (6) ……………………… SC=VA-HC

SC=P+D+A

SC stands for structural capital calculated as follows:

Equation (7) ……………………… SCE = SC/VA

SCE stands for Structural Capital Efficiency, VA stands for the company total Value-Added; and CE stands for Capital Employed. Palyk model only considers Capital Employed, but Structural and Human Capital are not considered in this model (Namazi, 2009).

The dependent variable

In this study, common Cost of equity is considered as the dependent variable calculated by using the Gordon growth model as follows.

$$Ke = \frac{DPS_1}{P_\circ} + g \qquad\qquad g = \frac{EPS - DPS}{P}$$

P_0 = Common stock price in the year x_0 \qquad g = Rate of Growth

Eps = Earnings per share \qquad\qquad DPS = Dividend per share

DPS_1 = Expected Dividend per share \qquad Ke = Cost of shareholders' equity

Control variable

Financial leverage (financial risk) is the sum of the total debt and total assets ratio (Barako et al, 2006; Hanifeh and Kokeh, 2002; Ku Ismail and Chandler, 2005; Ornes et al, 2009).

Size of the company was obtained by the logarithm of total assets (Bozwellan et al, 2003; Rabahi Balkuie, 2003; Garcia et al, 2005; Oliveira et al, 2006).

The ratio of market value to book value (MB) was obtained by the ratio of price per share to earnings per share (Chen et al, 2005; Garcia et al, 2005; Lee et al, 2007).

Data analysis and Results

In descriptive statistics, data analysis was conducted in the descriptive statistics stage by calculating the mean and median dispersion indices, standard deviation, skewness and strain skewness. Table 1 contains statistical indexes to describe the characteristics of the variables of the study.

Table 1: Statistical indexes describing the characteristics of the variables

Variables' index	Capital Employed Disclosure	Human capital Disclosure	Structural capital Disclosure	Cost of equity	Financial leverage	The ratio of market value to book value	Size of the company
Mean	0.38	5.18	0.76	0.36	5.15	12.02	2.11
Standard error of the mean	0.008	0.105	0.007	0.009	0.102	0.028	0.035
median	0.38	4.94	0.77	0.37	4.91	11.96	2.03
Standard deviation	0.165	2.093	0.134	0.185	2.090	0.599	0.696
Variance	0.027	4.380	0.018	0.034	4.377	0.313	0.484
Skewness	-0.058	0.451	-0.500	-0.256	0.499	0.183	0.440
The standard error	0.122	0.122	0.122	0.122	0.122	0.122	0.122
strain	-0.030	-0.522	0.075	-0.544	-0.524	-0.371	-0.521
The standard error	0.243	0.243	0.243	0.243	0.243	0.243	0.243
Min	0	2	0	0	2	11	1
Max	1	10	1	1	10	13	4

Test of normality (Kolmogorov – Smirnov)

Kolmogorov - Smirnov test is used to detect the data normality reflected in the table. In the test (k-s) when significance level is less than 5% testing the null hypothesis is rejected at the reliability of 95 %. To evaluate the normality of the dependent variable, the null and alternative hypothesis can be written as follows:

H_0: Population distribution is normal Sig $\geq$ 5%

H_1: Population distribution is not normal Sig <5%

Table 2: Kolmogorov - Smirnov test to determine normality

variable value Research Dimensions	Number of	Test value	Significance level of the test	Test Results
Structural capital Disclosure	400	0.81	0.52	H_0 confirmed
Capital Employed Disclosure	400	0.53	0.93	H_0 confirmed
Human capital Disclosure	400	1.20	0.10	H_0 confirmed
Intellectual capital Disclosure	400	1.27	0.07	H_0 confirmed
Cost of equity	400	1.31	0.06	H_0 confirmed
Financial leverage	400	1.33	0.05	H_0 confirmed
The ratio of market value to book value	400	1.20	0.10	H_0 confirmed
Size of the company	400	1.10	0.17	H_0 confirmed

Because significance level is more or equal to the amount of five percent, so the null hypothesis can be confirmed based on the normal distribution of variables. Thus the data are parametric.

First hypothesis: Intellectual capital Disclosure affects the common Cost of equity.

The first hypothesis Regression model to investigate can be expressed as the follow:

Equation (8) ……………… COEC=β_0 + β 1ICD + β 2SIZE + β 3LEV+ β 4MB +€

Null hypothesis and mid-domain hypothesis for significant model are as follow:

H $_0$: Intellectual capital Disclosure does not affect the common Cost of equity.

H $_1$: Intellectual capital Disclosure affects the common Cost of equity.

Table 3: Pearson's correlation analysis related to the relationship between intellectual capital disclosure and cost of equity

Common Cost of Equity		
Intellectual capital Disclosure	The correlation coefficient	0.044
	Significance level	0.38
	Number of	400

Since the calculated significance level is more than five percent (Sig $\geq$ 0.05), thus the H$_0$ is confirmed.

Table 4: Summary of the findings of the first hypothesis

Statistics / Variables	Pearson's correlation coefficient	coefficient of determining R^2	coefficient of adjusted determination	Durbin-Watson	Statistics F	Statistics t	level of errors	significance level	Test results
Effect of Intellectual capital on the Cost of equity	0.04	0.002	-0.001	1.85	0.75	0.86	0.013	0.38	H$_0$

Results of Table 4 shows the adjusted R^2 relating to the disclosure of intellectual capital and cost of equity is -0.001. It is noteworthy that 0.002 of the common cost of equity can be described by Intellectual capital Disclosure. Durbin- Watson value is 1.85, which is between 1, 5 and 2, 5. Assuming independence between the errors can be accepted and regression can be used. Linear regression model was rejected with respect to the level of significance (more than 5 %) and according to the F and t statistics value which are in the points to accept the H$_0$ is rejected. Thus, the significant relationship between intellectual capital disclosure and cost of equity will be rejected. Table 5 indicates Analysis of variance (ANOVA) of the regression model.

Second hypothesis: Human Capital Disclosure affects the common Cost of equity.

The second hypothesis Regression model to investigate can be expressed as the follow:

Equation (9) ……………… COEC= β_0 + β 1HCD+ β 2SIZE + β 3LEV + β 4MB +€

Null hypothesis and mid-domain hypothesis for significant model are as follow:

Table 5: Analysis of variance (ANOVA) related to the regression model of intellectual capital disclosure

Model	The sum of squares	Degrees of freedom	Mean-square	Statistics F	significance level
Regression	0.026	1	0.026	0.75	0.38
The sum of squares of the errors	13.699	398	0.034		
Total	13.725	399			

H_0: Human capital Disclosure does not affect the common Cost of equity.
H_1: Human capital Disclosure affects the common Cost of equity.

Table 6: Pearson's correlation analysis related to the relationship between Human capital disclosure and cost of equity

	Common Cost of Equity	
Human capital Disclosure	The correlation coefficient	0.032
	Significance level	0.52
	Number of	400

Since the calculated significance level is more than five percent (Sig $\geq$ 0.05), thus the H_0 is confirmed.

Table 7: Summary of the findings of the second hypothesis

Statistics / Variables	Pearson's correlation coefficient	coefficient of determining R^2	coefficient of adjusted determination	Durbin-Watson	Statistics F	Statistics T	level of errors	Sig.	Test results
Effect of Human capital on the Cost of equity	0.032	0.001	-0.001	1.85	0.403	0.86	0.635	0.52	H_0

Results of Table 7 shows the adjusted R^2 relating to the disclosure of human capital and cost of equity is -0.001. Durbin- Watsonvalue is 1.85, which is between 1, 5 and 2, 5. Assuming independence between the errors can be accepted and regression can be used. Linear regression model was rejected with respect to the level of significance (more than 5 %) and according to the f and t statistics value which are in the points to accept the H_0 is rejected. Thus the significant relationship between human capital disclosure and cost of equity will be rejected. Table 8 indicates Analysis of variance (ANOVA) of the regression model.

Table 8: Analysis of variance (ANOVA) related to the regression model of human capital disclosure

Model	The sum of squares	Degrees of freedom	Mean-square	Statistics F	significance level
Regression	0.014	1	0.014	0.403	0.52
The sum of squares of the errors	13.711	398	0.034		
Total	13.725	399			

Third hypothesis: Capital Employed Disclosure affects the common Cost of equity.
The third hypothesis Regression model to investigate can be expressed as the follow:
Equation (10) ……………… COEC= β_0 + β 1RCD+ β 2SIZE + β 3LEV + β 4MB +€

Null hypothesis and mid-domain hypothesis for significant model are as follow:
H_0: Capital Employed Disclosure does not affect the common Cost of equity.
H_1: Capital Employed Disclosure affects the common Cost of equity.

Table 9: Pearson's correlation analysis related to the relationship between Capital Employed disclosure and cost of equity.

	Common Cost of Equity	
Capital Employed Disclosure	The correlation coefficient	0.15
	Significance level	0.002
	Number of	400

Since the calculated significance level is more than five percent (Sig ≥ 0.05), thus the H_1 is confirmed.

Table 10: **Summary of the findings of the third hypothesis**

Statistics / Variables	Pearson's correlation coefficient	coefficient of determining R^2	coefficient of adjusted determination	Durbin-Watson	Statistics F	Statistics t	level of errors	Sig.	Test results
Effect of Capital Employed on the Cost of equity	0.15	0.025	0.023	1.88	10.20	3.19	0.15	0.002	H_1

Results of Table 10 shows the adjusted R^2 relating to the disclosure of Capital Employed and cost of equity is 0.025. It is noteworthy that 0.023 of the common cost of equity can be described by Capital Employed Disclosure. Independent variables of the study have more significant on the dependent variable. Durbin- Watsonvalue is 1.88, which is between 1, 5 and 2, 5. Assuming

independence between the errors can be accepted and regression can be used. Linear regression model was accepted with respect to the level of significance (lee than 5 % and is 0.002). So assuming a linear relationship between dependent and independent variables is accepted and the Correlation coefficient determined by Capital Employed disclosure on the common cost of equity is significant and the variables are suitable. Capital Employed disclosure as predictive variables effects on the common cost of equity. Table 11 indicates Analysis of variance (ANOVA) of the regression model.

Table 11: Analysis of variance (ANOVA) related to the regression model of Capital Employed disclosure

Model	The sum of squares	Degrees of freedom	Mean-square	Statistics F	significance level
Regression	0.0343	1	0.0343	10.20	0.002
The sum of squares of the errors	13.382	398	0.034		
Total	13.725	399			

Fourth hypothesis: Structural Capital Disclosure affects the common Cost of equity.
The fourth hypothesis Regression model to investigate can be expressed as the follow:
Equation (11) ……………… COEC= β_0 + β 1 SCD+ β 2 SIZE + β 3 LEV + β 4 MB +€
Null hypothesis and mid-domain hypothesis for significant model are as follow:

H_0: Structural capital Disclosure does not affect the common Cost of equity.
H_1: Structural capital Disclosure affects the common Cost of equity.

Table 12: Pearson's correlation analysis related to the relationship between Structural capital disclosure and cost of equity

	Common Cost of Equity	
Structural capital Disclosure	The correlation coefficient	-0.013
	Significance level	0.79
	Number of	400

Since the calculated significance level is more than five percent (Sig $\geq$ 0.05), thus the H_0 is confirmed.

Table 13: Summary of the findings of the fourth hypothesis

Statistics / Variables	Pearson's correlation coefficient	coefficient of determining R^2	coefficient of adjusted determination	Durbin-Watson	Statistics F	Statistics T	level of errors	Sig.	Test results
Effect of Structural capital on the Cost of equity	-0.013	0.000	-0.002	1.86	0.68	-0.026	-0.013	0.79	H_0

Results of Table 13 show the adjusted R^2 relating to the disclosure of Structural capital and cost of equity is 0.000. Durbin- Watson value is 1.86, which is between 1, 5 and 2, 5. Assuming independence between the errors can be accepted and regression can be used. Linear regression model was rejected with respect to the level of significance (more than 5 %) and according to the f and t statistics value which are in the points to accept the H_0 is rejected. Thus the significant relationship between Structural capital disclosure and cost of equity will be rejected. Table 14 indicates Analysis of variance (ANOVA) of the regression model.

Table 14: Analysis of variance (ANOVA) related to the regression model of Structural capital disclosure

Model	The sum of squares	Degrees of freedom	Mean-square	Statistics F	significance level
Regression	**0.013**	**1**	**0.020**	**0.68**	**0.79**
The sum of squares of the errors	**13.722**	**398**	**0.034**		
Total	**13.725**	**399**			

Table 15: **Estimation of regression model coefficient of simple linear models of the intellectual capital disclosure components**

Model	Unstandardized coefficients		Standardized coefficients	Statistics t	significance level
	B	Standard error	Beta		
Intercept	0.33	0.03		11.42	0.000
Capital Employed Disclosure	0.178	0.056	0.158	3.194	0.002
Structural capital Disclosure	-0.018	0.069	-0.013	-0.262	0.794
Human capital Disclosure	0.003	0.004	0.032	0.63	0.52

Regression model................................. Y =b+ a(x)
Y=0/33+ 0/17X………….Capital Employed Disclosure is effective.
Y= 0/33+ (-0/018) X, Y=0/33+ 0/003X

The results of the regression analysis show that Capital Employed Disclosure with significance level less than %5 which is 0.002 and beta efficiency which is 0.178 can affect the common cost of equity as predictive variables. While Human and Structural Capital Disclosure with significance level more than %5 are not significant and cannot affect the common cost of equity as predictive variables.

Conclusion

In this study, first the data needed to calculate the components of intellectual capital, including Human capital, capital employed, and structural capital as independent variables to the common cost of equity and as a dependent variable for 80 companies listed in Tehran stock exchange during 5 years from 2008 to 2012 were collected from the audited financial statements of companies and their notes. Then the variables used in the study were measured by applying the Excel software and finally the significant relationship between intellectual capital and its components were studied by applying the SPSS software version 20. The findings are as follow:

The results indicate that the effect of intellectual capital from the components of intellectual capital as an independent variable, the effect of human capital disclosure and the effect of structural capital disclosure on the common cost of equity are not significant and cannot effect on the common cost of equity as predictive variables. But the effect of capital employed disclosure on the common cost of equity is positive and significant and has great impact on the dependent variable. The findings of the study are not consistent with the findings of Bujalban (2013) which indicated a negative and significant relationship between intellectual capital disclosures with its two components (human and structural capital) and the cost of shareholders' equity and negative effect of capital employed disclosures. And also the findings of the study are consistent with the findings of Darabi in terms structural capital and capital employed disclosures but they are not resistant with human capital disclosures.

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