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The Relationship between Intellectual Capital and Earnings Quality

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Abstract: The purpose of this study is to investigate the association between the intellectual capital of firms and their earnings quality. The Research was conducted with 158 accepted companies and 948 firm-year observations from Iran stock market. Empirical studies were conducted based on hypothesis by Value Added Intellectual Coefficient as measures of intellectual capital and taking absolute value of Discretionary Accruals as measures of earnings quality. The results of statistical test show that intellectual capital and its human capital component have a significant positive impact on earnings quality and lead us to conclude that intellectual capital has a positive role in financial practices and reporting.

Keywords: Discretionary accruals, earnings quality, intellectual capital, value added intellectual coefficient

INTRODUCTION

In the knowledge-based economy, organizations live and die based on knowledge. In this arena the most successful companies are those that make use of these intangible assets in the best manner. Bontis (1999) studies have shown that contrary to reduced efficiency of traditional sources (e.g., money, machinery, etc.); knowledge is a resource for improving business performance. Knowledge as an asset, in the comparison with other types of assets, have a unique nature that what more used, its value is added (Nirmal *et al*., 2004). With the advent of knowledge-based economy, knowledge or intellectual capital become more important in compared with other production factors such as land, capital and machinery. So that in this economy, knowledge is considered as the most important production factor and it is named as the most important competitive advantage of organizations (Seetharaman *et al*., 2002). Thus, the present and future success in the competition between organizations mainly will be based on strategic management of knowledge. From a strategic perspective, intellectual capital can be used in creating and applying knowledge to increase the organization value (Roos *et al*., 1997). Therefore, intellectual capital and considering its components are important for investors and creditors.

The main objective of financial reporting is to provide information about impact of economic events and financial operations on entity's status and performance for user's decision making. Financial analysts, corporate executives, investors and individuals who participate in capital market for their financial and investment decisions attract most of their attention to net profit figure. In the early 3rd millennium, public confidence in financial reporting was faced with problems because of undermine its credibility.

Increased number of fraud that was accompanied with the bankruptcy of large companies created concerns about the health of earnings quality. In recent years, following the bankruptcy of some large companies in the world, researchers and financial analysts, in addition to considering the earnings quantity, note earnings quality also. Earnings quality is an important aspect of evaluating an entity's financial health, yet investors, creditors and other financial statement users often overlook it. Earnings quality refers to the ability of reported earnings to reflect the company's true earnings, as well as the usefulness of reported earnings to predict future earnings. Earnings quality also refers to the stability, persistence and lack of variability in reported earnings. Although the concept of earnings quality has been discussed widely, there is still no agreement about its definition and measurement (Revsine *et al*., 2001; Penman and Zhang, 2002), making it an elusive concept (Siegel, 1982; Chan *et al*., 2001) argue that when profit is closer to cash flow, accruals is less and it will result in higher earnings quality. Penman and Zhang (2002) consider persistence to be one of the characteristics which constitute earnings quality from the perspective of value relevance. The purpose of this is to investigate the relationship between earnings quality and intellectual capital. The Intellectual Capital is an area of interest to numerous parties, such as shareholders, institutional investors, scholars, policymakers and managers. This paper builds on the current research on IC and provides empirical evidence on the relevance of IC (as measured by the Pulic model) to earnings quality of companies. The findings help to managers to better harness and manage IC.

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THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

The term "Intellectual Capital" (Sullivan, 2000) collectively refers to all resources that determine the value of an organization and the competitiveness of an enterprise. Understandably, the term "intellectual capital" from a human resources perspective is not easily translatable into financial terms. For all other assets of a company, there exist standard criteria for expressing their value. Perhaps, this term could more appropriately term a "non-financial asset." In an article written by Magrassi (2002) titled "Taxonomy of Intellectual Capital", Mr. Magrassi defines human capital as "the knowledge and competencies residing with the company's employees" and defines organizational intellectual capital as "the collective know-how, even beyond the capabilities of individual employees, that contributes to an organization." Intellectual capital can be broken down into three areas: Human capital; Customer capital; and Structural capital. Human capital is the knowledge residing in the heads of employees that is relevant to the purpose of the organization. Human capital is formed and deployed, when more of the time and talent of employees are devoted to activities that result in innovation. It can grow in 2 ways: when the organization uses more of what people know; or when people know more that is useful to the organization. This capital is the organization's constant renewable source of creativity and innovativeness, which is not reflected, in its financial statements (Lynn, 2000). Structural capital can be defined as competitive intelligence, formulas, information systems, patents, policies, processes and etc., resulted from the products or systems the firm has created over time. Structural capital is the intellectual value that remains with the enterprise when people leave. Structural capital includes the content within the enterprise knowledge asset, as well as the intellectual investment that the enterprise has made in the physical, technical and business culture infrastructures that support its activities.

Capital employed on the other hand can be defined as total capital harnessed in a firm's fixed and current assets. Viewed from the funding side, it equals to stockholders' funds (equity capital) plus long-term liabilities (loan capital). However, if it is viewed from the asset side, it equals to fixed assets plus working capital (Bozbura, 2004).

In recent decades, differences and gaps between book value and market value of firms represent the significant role of intellectual capital in the companies. Today, the role and importance of intellectual capital return on the stable and continuous profitability of firms is higher than the financial assets return. As we know, intellectual capital is the model by which we can measure the real value of organizations. The main goal of financial reporting is expressing the effects of economic events and financial operations on the status and performance of business units to help the actual and potential users for financial decision making. One of the accounting items that are presented in the financial reports is "net profit". Usually net profit acts as a factor for dividend policy, forecast and guidance for investment and decision making. Earnings quality is important aspects of corporate financial health assessment that has been attention by investors, creditors and other users of financial statements. Theory of earnings quality for the first time were raised by financial analysts and stock brokers because they believed that reported earnings will not show the strength of a company's profits so that they envisage. Yet financial experts have not been able to achieve an independent calculation of the profit. Pratt (2003) has defined earnings quality as different rates of reported earnings in the income statement with real profits. Mikhail *et al*. (2003) have defined earnings quality based on the ability of past earnings in predicting future cash flows. In general, whatever reported earnings help users to make better decisions, this profit has more quality (Schipper and Vincent, 2003; McNichals, 2002).

Based on earnings quality definition, it can also be said that earning has more quality when it show the real value of organization and by which we can predict the future value of entity. Therefore, to achieve this goal and provide earning with high quality for users, it seems necessary that intellectual capital is appropriately disclosed in financial statement. So, this study seeks to prove that whether intellectual capital disclosure in financial reports, can improve the quality of earning? According to our discussion, substantial question of this research is that whether there is significant relationship between Intellectual Capital and Earnings Quality or not? This is asked within the framework of following hypothesis:

H1: There is significant relationship between the intellectual capital and earnings quality.

Since intellectual capital consists of 3 components of human capital, capital employed and structural capital, therefore above hypothesis can be divided into three following sub-hypothesis:

H1a: There is significant relationship between the human capital and earnings quality.

H1b: There is significant relationship between the capital employed and earnings quality.

H1c: There is significant relationship between the structural capital and earnings quality.

In reviewing earlier studies, didn't found any research that directly examines the impact of intellectual capital on the earnings quality. Hence, in the next section the results of previous research that have been examined some aspects of the earnings quality or intellectual capital is presented. Schipper and Vincent (2003) noted that persistence is derivative from a decision usefulness viewpoint. They reported that earnings persistence is positively related to return and earnings, but unrelated to earnings representational faithfulness. Francis *et al*., (2004) argue that there are seven attributes of earnings, such as accruals quality, persistence, predictability, smoothness, value relevance, timeliness and conservatism and examine their relationship with the cost of equity capital. Kothari (2001) mentions corporate evaluation by investors and discretional management as relevant factors and categorizes arguments on earnings quality. Sloan (1996) mentions that information on the relationship between future earnings and each constituent factor of reported earnings, accruals and cash flow, is not rationally reflected in a capital market. Sloan highlights an 'accruals anomaly' – that is, that accruals have a higher correlation with stock returns even though persistence of accruals is lower than operating cash flow. Khajavi and Nazemi (2005) investigate the role of accrual accounting on the "quality of earnings" for the firms accepted in Tehran Stock Exchange (TSE). The results indicate that accrual accounting (the difference between earnings and cash flows) does not affect the average stock returns. In addition, there is no significant difference between average returns of the firms with high and low accrual accounting.

Rudez and Mihalic (2006) have defined a 4 category intellectual capital model via the survey they performed in Slovenian hotels. They have shown the impact of structural, human, end-customers and non-end customers on financial performances. Tan *et al*., (2007) investigate the association between the Intellectual Capital (IC) of firms and their financial performance. Their findings show that IC and company performance are positively related; IC is correlated to future company performance; the rate of growth of a company's IC is positively related to the company's performance; and the contribution of IC to company performance differs by industry. Bramhandkar *et al*., (2007) investigated the effect of intellectual capital on the performance of 139 pharmaceutical firms and concluded that there is a significant relationship between components of intellectual capital and performance of firms. Tai and Chen (2008) in the study titled "The New Model of Assessment of Linguistic-Oriented Intellectual Capital" presented a new model to assess the performance of intellectual capital by using a combination of Fuzzy and then Tope approaches with a multi-variant decision making technique which was tested for high-tech firms in Taiwan. The study results demonstrated the significant relationship between components of intellectual capital and performance. Namazi and Ebrahimis (2009) investigate the effect of intellectual capital on current and future financial performance of accepted firms in Tehran Stock Exchange (TSE). The empirical evidence provided by them suggests that there is a significant and positive relationship between intellectual capital and current and future financial performance of companies in both of general level and industry level.

METHODOLOGY

Statistical sample and population: We use the Iranian database of Tehran Stock Exchange (Tadbirpardaz) annual data files and sample firms in Tehran Stock Exchange with sufficient data available to calculate the variables for every firm-year. In some cases whereby the required data is incomplete we use the manual archive in the TSE's library. The full list consists of 221 active firms. We remove 31 financial institutions in this study because it is difficult to define accruals for these companies. Another 32 firms are excluded due to missing data. Imposing all the data-availability requirements yields 948 firm-years over the period 2005 - 2010, including 158 individual firms. Panel A of Table 1 reconciles the sample selection process. Panel B in Table 1 presents the sample's distribution across broad industry categories.

Research model and measurement of variables: In order to test our hypotheses the following models is used:

Table 1: Sample selection and industry distribution

Panel A: Sample selection	Sample size
2010 Active firm list	221
Finance firms	(31)
Firms missing data	(32)
Final sample	158
Panel B: Industry distribution	
	Number of films
Mineral industries	20
Cement industry	28
Oil products industries	4
Food industries	35
Tiles and ceramics industry	10
Rubber and plastic industry	10
Chemical products industry	25
Pharmaceutical products industry	26
Total	158

Table 2: Value Added Intellectual Coefficient (VAIC) Calculation-Pulic (1998, 2004)

Step	Label	Formula	Description
1	Value Added (VA)	VA = OUT – IN	OUT = Revenues and include all products and services sold in the market. IN = All expenses for operating a company (Exclusive of employee costs which are not regarded as costs).
2	Human Capital Coefficient (HCE)	HCE = VA/HC	HC= Total investment in terms of salaries and wages of the staff.
3	Structural Capital Coefficient (SCE)	SCE = SC/VA	SC=VA-HC
4	Capital Employed Efficiency (CEE)	CEE = VA/CA	CA= Book-value of net assets
5	Value Added Intellectual Coefficient (VAIC)	VAIC = HCE+SCE+CEE	

$$|DA_{i,t}| = \beta_0 + \beta_1 VAIC_{i,t} + \beta_2 LEV_{i,t} + \beta_3 SIZE_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$|DA_{i,t}| = \beta_0 + \beta_1 CEE_{i,t} + \beta_2 HCE_{i,t} + \beta_3 SCE_{i,t} + \beta_4 LEV_{i,t} + \beta_5 SIZE_{i,t} + \varepsilon_{i,t} \quad (2)$$

where, $|DA_{i,t}|$ represents the discretionary accruals as a proxy of earnings quality; $VAIC_{i,t}$ represents the intellectual capital and includes 3 components of capital employed ($CEE_{i,t}$), human capital ($HCE_{i,t}$)and structural capital ($SCE_{i,t}$). $LEV_{i,\ t}$ is leverage ratio measured as total debt divided by total assets and $Size_{,\ t}$ represents book value of total assets in millions.

Earnings quality: Prior research generally uses 1 of the 2 approaches to measure earnings quality. The first approach captures earnings quality by examining accounting variables. For example, Sloan (1996) measures earnings quality by examining the level of accruals, while Dechow and Dichev (2002) measure earnings quality by examining the estimation error in accruals. The second approach examines the relationship between earnings and stock returns assuming market efficiency (Basu, 1997; Collins *et al*., 1999; Francis and Schipper, 1999).

We use the first approach. Specifically, we measure earnings quality by investigating the level of discretionary accruals. We use the modified (Jones, 1991) model and a cross-sectional estimation method to capture discretionary accruals. The absolute value of discretionary accruals is viewed as an inverse measure of earnings quality. That is, a higher absolute value of discretionary accruals suggests lower earnings quality. Total Accruals (TA) are measured as follows:

$$TA_{i,t} = NI_{i,t} - CFFO_{i,t} \quad (3)$$

where, Nil, t is firm if's net income in year t and CFFOi, t is firm if's cash flow from operations in year t. In order to estimate discretionary accruals for firm I in year t, we first estimate parameters of the cross-sectional modified (Jones, 1991) model using all other firms in the same industry (same first two-digit SIC as firm I). The model is as follows:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \lambda_1\left(\frac{1}{A_{i,t-1}}\right) + \lambda_2\left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}}\right) + \lambda_3\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \quad (4)$$

where, TAi, t represents total accruals measured as net income minus cash flow from operations, ΔREVi,t and ΔRECEi,t are change in revenue and change in receivables between year (t-1) and year t, respectively. PPEi, t represents gross property, plant and equipment at the end of year tend Ai, and t-1 represents the total assets at the end of year t-1. The discretionary accruals for firm I in year t can be computed as follows:

$$DA_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - \left[\hat{\lambda}_1\left(\frac{1}{A_{i,t-1}}\right) + \hat{\lambda}_2\left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}}\right) + \hat{\lambda}_3\left(\frac{PPE_{i,t}}{A_{i,t}}\right)\right] \quad (5)$$

Intellectual capital: In this study, intellectual capital was measured by human capital, structural capital and capital employed as suggested by Pulic (1998). He defined IC as "how much and how efficiently IC and capital employed create values in the firm and categorized IC into three main components: Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE). The process to calculate VAIC, consistent with the literature findings, entails five steps procedure that is shown in Table 2.

Control variables: The choice of control variables included in the model is guided by prior literature and comprises the two variables known to influence the earnings quality. Specifically, the selected control variables are Leverage (LEV*)* and firm size (SIZ*E*), with the coefficients on them expected to be negative. These variables are measured as follows:

LEVi, t = total debt divided by total assets for firm I at fiscal yearend *t.*

Table 3: Descriptive data about the sample and variables

Variable	N	Mean	Std. Dev	Min	Max	25	Median	75
EQ	948	0.0807	0.0621	0.0002	0.35636	0.0328	0.0663	0.1140
CEE	948	1.2705	3.4466	-52.9418	78.2671	0.8537	1.1706	1.6180
HCE	948	7.1855	23.9081	-28.1633	411.4881	2.1456	3.4717	5.5258
SCE	948	0.6684	0.8212	-13.1192	9.9225	0.5631	0.7258	0.8288
VAIC	948	9.1243	24.2046	-54.4915	413.1499	4.0723	5.5434	7.8871
LEV	945	0.6557	0.1833	0.1037	1.9103	0.5461	0.6638	0.7760
Ln(SIZE)	945	12.8340	1.1388	9.7777	17.1849	12.0780	12.7108	13.5474

SIZEi, t = firm if's natural logarithm of total assets in millions at fiscal yearend *t.*

Analyze method: We conduct our analyses using both of OLS and panel data method. Here, the use of pooled cross sectional time-series (panel) data creates an econometric issue. One of the underlying assumptions of OLS regression is that the regression errors terms are uncorrelated with homogeneous regression variance (Myers, 1989). The independent variables are expected to explain much of the observed differences, with the error term capturing the often-unobserved factors that have not been modeled. The problem arises when the unobserved factors are correlated and the errors are heteroscedastic. If OLS regression is used to estimate the model with panel data, the estimates will be biased and inefficient. We therefore estimate a series of generalized linear regression models with firm fixed effects according to result of hausman test. The fixed effects method overcomes the issue of serial correlation by controlling for unobservable correlated omitted factors (Myers, 1989; Allison, 2008).

RESULTS

Table 3 presents the descriptive statistics of variables from sample firms. These variables include the absolute value of discretionary accruals –proxy of earnings quality- (|DsA|), INTELLECTUAL CAPITAL (VAIC), capital employed efficiency (CEE), Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), LEVERAGE (LEV) and firm size (SIZE). To eliminate the effect of outliers, we winsorize the 1 and 99% percentile. For sample firms, the mean and median values of |*DA*| are 0.0807 and 0.06636, respectively, with an upward trend during the study period. This trend is shown in Fig. 1 and indicates decreasing of earnings quality among sample firms during the 2005-2010.

In relation to intellectual capital, the descriptive statistics shows that the average efficiency in the use of sample firms intellectual capital is 9.12 and the mean values of CEE, HCE and SCE is 1.27, 7.18 and 0.66, respectively. It should be noted that, as shown in the Fig. 2, VAIC and its components have a decline trend

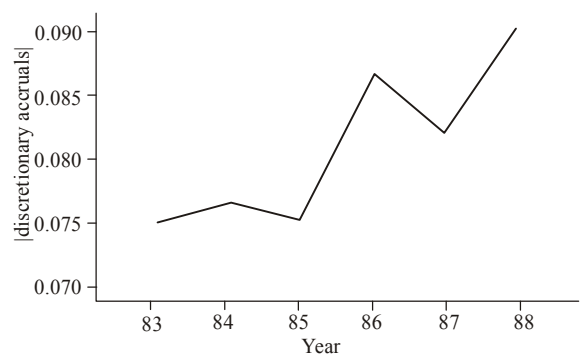

Fig. 1: Trend of absolute value of discretionary accruals during the study period

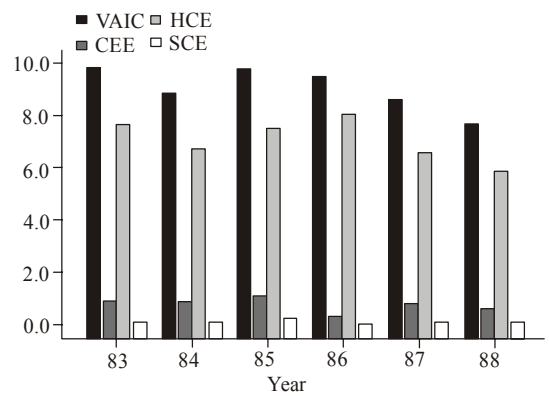

Fig. 2: Trend of VAIC and its components during the study period

during the study period. In Table 4 Pearson correlations of variables is also presented. The correlation coefficient between the absolute value of Discretionary Accruals (|DA|) and VAIC is -0.069, with a p-value of 0.033. This implies a negative correlation between absolute value of discretionary accruals and VAIC and it can be concluded that there is a positive correlation between intellectual capital and earnings quality. This correlation also is observed between intellectual capital components and earnings quality, except CEE. So that, the correlation between the capital employed and discretionary accruals is not significant at 95% confidence level. Table 4 also shows that absolute value of discretionary accruals exhibit a positively significant

Table 4: Correlation matrix for the variables

	|DA|	VAIC	CEE	HCE	SCE	Lev	Size
|DA|	_						
VAIC	-.069*	_					
	0.033						
CEE	-0.012	0.136**	_				
	0.706	0.000					
HCE	-0.064*	0.989**	-0.007	_			
	0.047	0.000	0.830				
SCE	-0.110**	0.106**	0.016	0.071*	_		
	0.001	0.001	0.622	0.030			
Lev	0.299**	-0.223**	0.016	-0.226**	-0.058	_	
	0.000	0.000	0.632	0.000	0.073		
Size	-0.156**	0.210**	-0.035	0.215**	0.066*	-0.140**	_
	0.000	0.000	0.279	0.000	0.043	0.000	

This table reports Pearson correlations of regression variables. Statistical significance at the 1% and 5%, levels is indicated by **, and *, respectively

Table 5: The effect of Intellectual capital and its components on absolute value of discretionary accruals (|DA|)

	1		2	
	OLS	Panel	OLS	Panel
Intercept	0.3534 (0.7880)	2.4739 (1.2318)	0.3210 (0.7152)	2.4529 (1.2070)
VAIC	-0.0037*(-2.4566)	-0.0044**(-3.0792)	-	-
CEE	-	-	0.0046 (0.4906)	-0.0001 (-0.0017)
HCE	-	-	-0.0039*(-2.6024)	-0.0046*(-4.0921)
SCE	-	-	0.0161 (0.4047)	0.0052 (0.1089)
LEV	-0.6633*(-3.3587)	-1.0152*(-6.096)	-0.6667*(-3.3769)	-1.0072*(-6.2516)
Ln (size)	0.0100 (0.3090)	-0.1368 (-0.8515)	0.0110 (0.3396)	-0.1364 (-0.8397)
Adj R^2	0.0289	0.2663	0.0300	0.2665
F Value Prob (F-statistic)	6.9742 (0.0000)	1.7787 (0.0000)	4.8182 (0.0000)	1.7543 (0.0000)
Durbin-Watson	1.9928	2.2787	1.9921	2.2783
Fixed effect F-test prob (F-statistic)	-	1.7045 (0.0000)	-	1.6910 (0.0000)
Hausman test Prob (Chi-Sq -statistic)	-	8.0505 (0.0450)	-	11.9536 (0.0354)

In this Table, we report the results from estimating models (1) and (2):

$$\left|DA_{i,t}\right| = \beta_0 + \beta_1 VAIC_{i,t} + \beta_2 LEV_{i,t} + \beta_3 SIZE_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$\left|DA_{i,t}\right| = \beta_0 + \beta_1 CEE_{i,t} + \beta_2 HCE_{i,t} + \beta_3 SCE_{i,t} + \beta_4 LEV_{i,t} + \beta_5 SIZE_{i,t} + \varepsilon_{i,t} \quad (2)$$

where $|DA_{i,}|$ represents the discretionary accruals as a proxy of earnings quality; $VAIC_{i,t}$ represents the intellectual capital and includes three components of capital employed ($CEE_{i,t}$), human capital ($HCE_{i,t}$), and structural capital ($SCE_{i,t}$). $LEV_{i,}$ is leverage ratio measured as total debt divided by total assets and $SIZE_{i,t}$ represents book value of total assets in millions. We report the estimates of the model using pooled OLS estimation and panel regression with firm-level fixed effects. * and ** denote significance at the 5%, and 1% levels, respectively.

correlation with Leverage and negatively significant correlation with Ln (Size).

Table 5 reports the main regression results. In the first and third column of estimates, we report the coefficients estimated using OLS and in the second and fourth column, we report the coefficients estimated using panel regressions.

As shown in column (1) of Table 5, the Value Added Intellectual Coefficient (VAIC) is negatively related to the absolute value of discretionary accruals (coefficient = -0.0037, t = -2.456). Using panel regressions model also gives the same results. So that, the column (2) of Table 5 illustrate the Value Added Intellectual Coefficient (VAIC) is negatively related to the absolute value of discretionary accruals (coefficient = -0.0044, t = -3.079). These findings indicating that there is significant relationship between the intellectual capital and earnings quality and intellectual capital positively affect earnings quality.

In this research we also investigate the effect of each intellectual capital components including human capital, capital employed and structural capital on earnings quality. Results are presented in columns (3) and (4) of Table 5. Using OLS and panel regression, we find only human capital component significantly is associated with earnings quality and 2 other

components have no significant effect on earnings quality. In this regard, according to OLS estimation (columns 3), there is a negative relationship between Human Capital (HCE) and absolute value of discretionary accruals (coefficient = -0.0039, t = -2.602). Using panel regressions model also gives the same results (coefficient = -0.0046, t = -4.092). We included 2 control variables in our regression analysis. Both OLS and panel regression results indicate the absolute value of discretionary accruals is negatively related to leverage ratio. Hence, we can say there is a positive relationship between earnings quality and leverage ratio. However, the results did not demonstrate significant relationship between earnings quality and firm size.

CONCLUSION AND DISCUSSION

The purpose of the study is to investigate the association between the Intellectual Capital (IC) of firms and their earnings quality. To achieve this goal, first the data required to calculate the Intellectual Capital (IC) and its components as the independent variable, absolute value of discretionary accruals – proxy of earnings quality- (|*DA*|) as the dependent variable and finally Leverage (LEV) and firm size (SIZE) as control variables have been collected for 158 companies listed on Tehran Stock Exchange.

As indicated in Table 1, sample companies have been selected from Mineral industries, Cement industry, Oil products industries, Food industries, Tiles and ceramics industry, Rubber and plastic industry, Chemical products industry, pharmaceutical products industry for a 6-year-period between 2005 and 2010 from audited financial statements of the companies and their accompanying notes. Second the variables used in the study were calculated using Excel software. Eventually the significant relationship between intellectual capital and earnings quality for the sample firms was analyzed using both of OLS and panel data method.

Research results are presented as follows using OLS and panel regression:

- There is significant relationship between the Intellectual Capital (IC) and Earnings Quality (EQ). Since the intellectual capital is negatively related to the absolute value of Discretionary Accruals (|DA|) so intellectual capital positively affect earnings quality.
- Among the different components of Intellectual Capital (IC) only human capital component is significantly associated with earnings quality. In this regard, there is a negative relationship between Human Capital (HC) and absolute value of Discretionary Accruals (|DA|) so this component of intellectual capital positively affects Earnings Quality (EQ).
- Among the different components of Intellectual Capital (IC), 2 sscomponents of capital employed and structural capital have no significant relationship with Earnings Quality (EQ).
- Between Leverage Ratio (Lev) as the first control variable and Earnings Quality (EQ), significant relationship has been observed. Statistical methods indicated that the absolute value of Discretionary Accruals (|DA|) is negatively related to leverage ratio. Hence, we can say there is a positive relationship between earnings quality and leverage ratio.
- Between firm size as the second control variable and Earnings Quality (EQ), the results did not demonstrate any significant relationship.

As mentioned before, intangible assets such as intellectual capital have considerable importance in the company's growth and success. Undoubtedly earnings quality is one of the most important criteria to measure the company's growth. So in this present study we survey that if intellectual capital has an impact on earnings quality or not.

Based on OLS and panel regression method, the results were presented as described above and we demonstrated that intellectual capital positively affect earnings quality. So according to the obtained results and since main objective of financial reporting that earnings quality is one of its component, provide useful data to help actual and potential investors in their logical decision makings, disclosure of intellectual capital in financial statements will lead to the usefulness of decision makings for users and thus the significance of proper disclosure of intellectual capital in financial reports of firms is more evident in order to contribute to their accomplishing of goals.

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