Earnings Management and Intellectual Capital

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ABSTRACT: The present study aims to investigate the relationship between intellectual capital, its development and earnings management in listed companies on Tehran Stock Exchange. Target population of this research is consisting of all listed companies on Tehran Stock Exchange. Research sampling was conducted based on simple random sampling, and 121 companies were chosen over a period extending from 2006 to 2012. Using the modified Jones model, discretionary accruals were applied as the criterion for determining earnings management, and research hypotheses were tested applying regression model. They were assessed utilizing synthetic data and regression analysis. The achieved findings indicated that earnings management and intellectual capital are significantly related to each other, but there is no significant relationship between intellectual capital and intellectual capital development.
Key words: Intellectual Capital, Intellectual Capital Development, Earnings Management

INTRODUCTION

Nowadays, a major concern in financial reporting is the extent to which managers engage in earnings management. Earnings management can refer to the purposeful application of accounting techniques to produce financial reports which demonstrate an overly positive picture of a company's business activities and financial position. Considering management objectives, it is possible to identify three following strategies for assessing earnings management: 1) aggressive policies, aimed at improving income, 2) conservative policies, aimed at reducing income, and 3) income smoothing policies. There are many possible reasons to smooth reported income. For example, since stockholders will feel more confident if a company reports stable earnings, smoothing income should have a favorable effect on share value and cost of capital, or stockholders will obtain more information from earnings announcements (Easton and Zmijewski, 1989, cited in Tseng and Lai, 2007). Due to the considerable effect of earnings management, managers always try to smooth and manipulate the reported income. This study intends to assess why managers smooth reported income and what consequences smoothing income behavior has.

Most researches associated with earnings management have conducted in the West, but their findings are contrary to each other, since they have utilized various criteria. Manipulation of reported earnings may also occur in Iran due to different accounting methods which are employed by managers such as scrap value of assets, and estimated useful life when executing straight-line method. Therefore, the current study assesses earnings management in order to achieve a better understanding of the concepts of earning and its quality.

In industrial economic period (before knowledge-based economic period) some factors such as tangible assets, land, labor force, money and machine could create wealth. In that period, knowledge was not considered as a wealth making element. Whine in knowledge-based economic period, intangible assets such as knowledge can affect more influentially than tangible ones (Bontis, 1998). In other words, intangible assets are of great importance in enhancing organizational assets which can improve the potentiality of organizational success (Flamholtz et al., 2002).

Organizations can create wealth and value by the exchange of intellectual capital (intangible assets and intellectual resources) and tangible assets (goods and services). Intellectual capitals can support managers in improving and achieving the organizations' objectives. This study investigates whether intellectual capital affects smoothing income behaviour of managers or not. So, it assesses the relationship between intellectual capital, intellectual capital development and earnings management.

Abbasi and Sedghi (2010) conducted a research entitled "assessing the effects of intellectual capital elements on financial performance of listed companies on Tehran Stock Exchange". In this study, they examined the influence of intellectual capital elements (human, physical and structural capitals) on financial performance (earning per share, rate of return on equity, rate of annual return) for 99 companies from 2000 to 2003 using panel data regression model. The results of mixed least square method indicated that the efficiency coefficient of each element of intellectual capital significantly and positively affects the rate of return on equity.

Mojtahedzadeh et al. (2009) did a research under the title "the relationship between intellectual capital (human, customer and structure) and performance of insurance industry managers from the viewpoint of managers". This research is a descriptive survey which used a questionnaire containing 40 Likert-type questions. They collected their needed data from insurance companies' staffs through the application of simple regression model. Findings of this study showed that intellectual capital elements are separately effective in managers' performance, while their simultaneous examination indicated a significant relationship only between structural and human capitals and manager's performance.

Hemmati et al. (2010) accomplished a study entitled "assessing the relationship between intellectual capital, market value and financial performance of non-financial companies". They investigated the relationship between intellectual capital, market value and financial performance of 60 non-financial listed companies on Tehran Stock Exchange from 2004 to 2008. Pulic model deployed in order to test research hypotheses and analyze the value of intellectual capital. Then, Pearson correlation coefficient and regression analysis were conducted. The obtained findings demonstrated that there is significant relationship between intellectual capital, market value and financial performance of non-financial companies.

Daniel and Anis (2010) did a study entitled "analyzing value added as an indicator of intellectual capital and its consequences on company performance". They analyzed the role of value added as an indicator of intellectual capital and its impact on the firm's economic, financial and stock market performance. The results of this study showed that companies' intellectual capital has a positive impact on economic and financial performance. However, the association between intellectual capital and stock market performance is only significant for high-tech industries.

Lee and Whiting (2011) did a research under the title "Technology, Intellectual Capital Disclosure and Cost of Capital" and examined the relationship between intellectual capital and capital costs in 70 Australian companies in 2008. They found that among internal and external investment elements, the factor of intellectual capital disclosure can significantly affect capital costs.

Cabrita and Bontis (2008) conducted a research entitled "intellectual capital and business performance in the Portuguese banking industry" and examined the inter-relationships and interactions among intellectual capital components and business performance in the Portuguese banking industry. The results confirmed that human capital has a significant impact on organizational performance through customer capital. Human capital can directly affect intellectual capital components, but it indirectly affects organizational performance. Furthermore, human capital can influence customer capital through structural capital.

MATERIAL AND METHODS

This is an applied research which used descriptive-correlation approaches. It is field study in which desk methods were utilized. Multiple regression models were used to analyze the obtained data with the application of synthetic data which combined sectional and time-series data. So, research variables are assessed from two viewpoints: 1) in comparison to other exiting companies in the research sample, 2) over the period extending from 2006 to 2012.

Research hypotheses

First hypothesis: There is a significant relationship between intellectual capital and earnings management.

Second hypothesis :There is a significant relationship between intellectual capital development and earnings management.

Target population and research sampling: Target population of a research refers to the total participants, elements or objects which a researcher studies about. All members of target population should have a specific peculiarity in common. Target population of this research is consisting of all listed companies on Tehran Stock Exchange which have the following characteristics: Its shares should be exchanged in the market over the period of studying, extending from the beginning of 2006 to the end of 2011; The intervals between transactions should not be more than 6 months; It should not be an investment or servicing company, or a financial intermediation; Its fiscal year should be leading to March, and no changes should be observed during fiscal years. Simple random sampling was applied and finally, 121 companies were chosen as the research sample.

Dependent variable

Earnings management: Using the modified Jones model, earnings management was calculated. Four series of tests were utilized to conclude that the modified Jones model is the most appropriate in order to assess earnings management. This model can be written in the following manner. $TAC^{it}/TA_{it-1} = a0j(1/TA_{it-1}) + a1j(\Delta REV_{it} - \Delta REC_{it})^{it}/TA_{it-1} + a3(PPE_t^{it}/TA_{it-1}) + \varepsilon it$

where; TACit: total accruals (Income Before Extraordinary Items minus operating cash flow)in year t for control company i

At-1: total assets in year t-1

ΔREVit: revenue in year t minus revenue in year t-1 for control company i

ΔRECit: net value of receivables in year t minus receivables in year t-1 for control company i

PPEit: gross value of property, plant and equipment in year t for Control Company i

$ε_{it}$: total error of the regression

Then, the following model was used to estimate the coefficients of Control Company's regression to calculate managed accruals. It can be obtained through deducting non-managed accruals from the total accruals.

$$TAEMit= TAC^{it} /TAit\text{-}1 - a0j(1/ TAit\text{-}1) - a1j (ΔREVit$$

$$– ΔRECit) /TAit\text{-}1 - a3(PPEt^{it} /TAit\text{-}1)$$

where; TAEMit: the elements of managed accruals for sample company i in year t equalling total discretionary accruals (Bolou & Hosseini, 2007)

Independent variable: Intellectual capital and intellectual capital development. Intellectual capital of a company can be calculated through the following equation (Anvari Rostami, Seraji, 2005):

$$IC = \frac{MV_{it} - BV_{it}}{1 + _{I_{\inf}}}$$

where; MVt: value of stock market in year t

BVt: book value of the company (owners' equity)

Iinfo t: rate of inflation in year t

The variable 'intellectual capital development' can be also regarded as an independent variable. During period t, it can be calculated as follows:

$$ICG_{it} = \frac{IC_{it} - IC_{it-1}}{IC_{it-1}}$$

where;

ICG_{it} : intellectual capital growth for company i in year t

IC_{it} : value of intellectual capital at the end of year t

IC_{it-1}: value of intellectual capital at the beginning of year t

Control variables

ROE: the company's net earning divided by average equity

DIVIR: total dividend divided by net earnings

SIZE: natural logarithm of stock market value at the beginning of the year

GROW: stock market value in proportion to the book value of owners' equity

RETURN: the price of the share at the end of the stock period minus its price at the beginning of the period, plus dividend divided by the price of the share at the beginning of the period .

RESULTS

First hypothesis: "There is a significant relationship between intellectual capital and earnings management." Multiple regression model and Pearson correlation coefficient were used to test the first hypothesis. The obtained findings showed that the probable result of Kolmogorov-Smirnov test is 0.535 which indicates the normality residuals with the confidence level of %95. Durbin-Watson statistic is 1.911 that proves the residuals independency in the fitted model. Homogeneity of the residuals' variances was confirmed using statistical scatter plot of standard residuals of predicted standards. Bias-variance and tolerance for independent variables are respectively less than 10 and more than 0.1, so no linearity problem can be seen among independent variables. And the final fitted model is confirmed.

The adjusted coefficient of determination for the final fitted model is about 0.019 which shows that %2 of the dependent variable's changes can be described by the independent variables. The probability of F-statistic is 0.001which shows the appropriateness of model for hypothesis testing. The significance of the first variable's coefficient (intellectual capital) can confirm or reject the hypothesis. The probability of T-statistic for the variable of intellectual capital is less than 0.05. It proves that this coefficient is statistically significant, null hypothesis is rejected, and the first research hypothesis is confirmed. The coefficient of this variable is -0.029 which demonstrates the reverse relationship between intellectual capital and earnings management.

Second hypothesis: "There is a significant relationship between intellectual capital development and earnings management." Multiple regression model and Pearson correlation coefficient were used to test the second hypothesis. The obtained findings showed that the probable result of kolmogorov-smirnov test is 0.447 which indicates the normality residuals with the confidence level of %95. Durbin-Watson statistic is 1.917 that proves the residuals independency in the fitted model. Homogeneity of the residuals' variances was confirmed using statistical scatter plot of standard residuals of predicted standards. Bias-variance and tolerance for independent variables are respectively less than 10 and more than 0.1, so no linearity problem can be seen among independent variables. And the final fitted model is accepted.

The adjusted coefficient of determination for the final fitted model is about 0.002 which shows that %2 of the dependent variable's changes can be described by the independent variables. The probability of F-statistic is 0.048 which shows the appropriateness of model for hypothesis testing. The significance of the second variable's coefficient (intellectual capital

development) can confirm or reject the hypothesis. The probability of T-statistic for the variable of intellectual capital development is less than 0.05 (0.424). It proves that this coefficient is statistically insignificant, null hypothesis is confirmed, and the second research hypothesis is rejected. There is thus no significant relationship between intellectual capital development and earnings management.

The relationships between two independent variables, control variables and the dependent variable were simultaneously examined through a regression model, and its goodness of fit was confirmed. The independent variable of intellectual capital is statistically significant at the error level of %5, but the probability of intellectual capital development is more than %5, so it is not significant at the error level of %5. It demonstrates that in the final model, there is a reverse significant relationship between intellectual capital and earnings management. No significant relationship was observed between the independent variable of ICGΔ and earnings management.

DISCUSSION

Political costs can motivate managers to smooth reported income, especially in big companies. The bigger a company is, the more responsibility it has to respond shareholders and claimants. Some also believe that the bigger a company is, the more accurate it will be observed; therefore, it cannot smooth reported income as much as other smaller companies. However, firm size cannot be the only criterion for assessing income smoothing policies. Large number of employees can also put pressure on the company to achieve its objectives, as a result, the manager may adopt the policies in order to decrease the pressure. Job security can be another reason to manipulate reported earnings, since shareholders may request the manager's dismissal due to the low levels of earnings. Consequently, the manager manipulates the income through selling depreciated assets, decreasing the allowance for doubtful accounts, changing the estimations and accounting methods and so forth. Such policies become destructive when the company's performance cannot justify the value of stock market. Consequently, not only do such policies decrease the stock market value, but also they ruin the company's reputation. Different scholars such as Abbasi and Sedghi (2010) and Bontis (1998) assessed the effects of intellectual capital on stock market value and companies' performance. They all found that intellectual capital, stock market value and company's performance all positively related to each other; therefore, this conclusion can be drawn that companies

with more intellectual capitals can be managed more appropriately, and less earnings manipulation can be seen in such companies. They present transparent information and reported earnings to the shareholders. First hypothesis of this research demonstrates a reverse relationship between intellectual capital and earnings management, so the more the intellectual capital is, the less earnings management is needed.

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