The Impact of Intellectual Capital on Earning Quality: Evidence from Malaysian Firms

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Abstract: The role of intellectual capital as an intangible asset is the most controversial accounting subjects in modern era. The objective of this paper is to explain the impact of Intellectual capital and earning quality in 100 Malaysian firms during the years 2000 and 2011, the specific purpose of this research is verifying the distinct effect of intellectual capitals ingredients (human capital, structural capital and relational capital) on earning quality. Two moderating variables have used in this model (firm size and debt to equity ratio). Multiple regressions and panel data analysis have been used to predict this relation. Our findings from the empirical analysis demonstrate that intellectual capital has a positive and significant impact on earning quality, furthermore the effect of firm size on earning quality was positive, but the relation between debt to equity ratio and earning quality was negative.

Key words: intellectual capital, earning quality, debt to equity ratio, firm size.

INTRODUCTION

Today, the intangible assets move into the driver’s seat in successful corporations. Forward looking companies are recognizing the need to measure and manage these assets as carefully as they do their tangible ones. There are several reasons for this change. These companies recognize that human capital drive’s innovation. It is people not building or machines create new product and service ideas, improve processes, and help companies shift direction in order to create new sources of value. On the other hand With development of globalization, Firms can become more sensitive to their customers and gain advantages over their competitors by sharing investment costs across markets and businesses or by leveraging core competences across geographic and product business units (Bartlett, C.A., S. Ghoshal, 1998). With the rapid growth of the global knowledge economy, intellectual capital has emerged as a concept to update the understanding of the competitive edge of business in knowledge-intensive and rapidly changing business environments (Kavida, V. and N. Sivakoumar, 2010).

On the other hand, Earnings quality is one of the most important characteristics of financial reporting systems. High quality is said to improve capital market efficiency, therefore investors and other users should be interested in high-quality financial accounting information. For that reason, standard setters strive to develop accounting standards that improve earnings quality, and many recent changes in auditing, corporate governance, and enforcement have a similar objective. Earnings quality is used in numerous empirical studies to show trends over time; to evaluate changes in financial accounting standards and in other institutions, such as enforcement and corporate governance; to compare financial reporting systems in different countries; and to study the effect of earnings quality on the cost of capital.

Hence, in the present research, it was attempted to investigate the effectiveness of ingredients of intellectual capital on Earning Quality in Malaysian firms in the period of 2000 till 2011 through considering some indices for the pattern of the intellectual capital and depicting them in the framework of data and tangible statistics.

For this purpose, the present paper consists of four sections. After the Introduction, in the second part of the research has been Review of Statement. The third section introduces the implemented model and its variables and in the fourth section, the results of model estimation and conclusion are provided.

Literature Review:

Definition of Intellectual Capital:

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”, 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; Relationship capital; and Structural capital (Paolo Magrassi, 2002).
• **Human Capital:**
  This is defined as the knowledge, skills and experience that employees take with them when they leave. Some of this knowledge is unique to the individual; some may be generic. Examples are innovation capacity, creativity, knowhow and previous experience, teamwork capacity, employee flexibility, tolerance for ambiguity, motivation, satisfaction, learning capacity, loyalty, formal training and education.

• **Relationship Capital:**
  This is defined as all resources linked to the external relationships of the firm – with customers, suppliers or partners in research and development. It comprises that part of human and structural capital involved with the company’s relations with stakeholders (investors, creditors, customers, suppliers), plus the perceptions that they hold about the company. Examples of this are image, customer loyalty, customer satisfaction, links with suppliers, commercial power, negotiating capacity with financial entities and environmental activities. According to Bontis (1998) customer capital is defined as the knowledge embedded in the marketing channels and customer relationships (Bontis, Nick, 1998). Customer capital is also one of the most important components of intellectual capital. Customer capital mainly based on marketing capability, customer loyalty, and relationship with customer and customer satisfactions (Amiri, N.A., 2010).

• **Structural Capital:**
  This is defined as the knowledge that stays within the firm. It comprises organizational routines, procedures, systems, cultures and databases. Examples are organizational flexibility, a documentation service, the existence of a knowledge centre, the general use of information technologies and organizational learning capacity. Some of them may be legally protected and become intellectual property rights, legally owned by the firm under separate title it comprises of all non-humans Storehouse of knowledge in organizations including organizational competitive intelligence, routine, formula, Policies, procedures and databases (Salleh, A. and F. Selamat, 2007). The International Federation of Accountants (IFAC) offers a slightly different classification (see table opposite) (Chen, H.M., K.J. Min, 2004).

  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. Thus, intellectual capital can be defined as follows: “Intellectual capital is the group of knowledge assets that are attributed to an organization and most significantly contribute to an improved competitive position of this organization by adding value to defined key stakeholders.”

**Definition of Earning Quality:**

Earnings quality is one of the most important characteristics of financial reporting systems. High quality is said to improve capital market efficiency, therefore investors and other users should be interested in high-quality financial accounting information. For that reason, standard setters strive to develop accounting standards that improve earnings quality, and many recent changes in auditing, corporate governance, and enforcement have a similar objective.

Earnings quality is used in numerous empirical studies to show trends over time; to evaluate changes in financial accounting standards and in other institutions, such as enforcement and corporate governance; to compare financial reporting systems in different countries; and to study the effect of earnings quality on the cost of capital (Jennifer Francis, 2008).

For the first time the concept of earning quality stated by financial analyst and stock exchange brokers, they induced that, reported earnings are not able to demonstrate the profitability power in the firms. They find that financial statement analyses have many weak points in measuring financial information. For measuring of firms value is not only enough to consider just the amount of income but also the quality of earning is important. The concept of earning quality shows the perspective of potential growth of income and the probable amount of income that may occur in the future. In other word, is not depends to value of dividend only but it depends to our expectation of future of firm, future profitability power and confidence coefficient to earn of future income also. There are many views for evaluating of earning quality that may considered from perspective of earning managements (Jennifer Francis, 2008).

The first view has concentrated on managements approach to earning manipulation, since they believe that investments prefer sustainable earning which increase constantly. This theory stipulated that sometimes proportion variability of income leads to more earning quality.

The second view relates to barton and simko in 2002. Their view was concentrated on earning surprise. This view is based on the proportion of beginning balance of net operating asset to sales. They shows that firm with low of this ratio have met with predicted earnings surprise (Barton, J., P.J. Simko, 2002).

The third view is based on the ratio of operation cash follow to income. It includes the ratio of beginning balance of net operating asset to sale. This simple view has stated by penman in 2001 (Stephen H. Penman, 2001).
Barua in 2006 has studied the criteria of earning quality measurements; this study has done based on the financial information which includes in the conceptual framework of financial accounting standards. He demonstrates that firms with high level of relevance and reliability of earnings have more explanatory power on their regressions of earning and price of shares (Barua, A., 2006).

Although in the main version of johns model has called adjusted johns model. This model for the first time was used by De chow et al (1995). One of the disadvantages of johns model is it ignored the probability of earning managements, but his adjustment corrected this problem. The only adjustment is that changing of income as result of change of the account receivables has been corrected in the occurrence period, which relates to earning management (Dechow, P.M., 1995).

**Intellectual Capital and Earning Quality:**

As mentioned above intellectual capital was divided in three categories furthermore for reviewing the effecting mechanism of IC on earning quality, has stated the trend of human capital, structural capital and relational capital on earning quality.

The link between human capital and earnings quality is interesting for several reasons. First, users of financial statements consider the external reputation of top management to be a key factor in assessing the quality of financial reporting. Second, survey evidence shows that chief financial officers indicate that career concerns, especially those related to external reputation, exert a significant influence on their financial reporting decisions. Third, anecdotal evidence suggests that highly reputed managers rely on earnings management to maintain their reputation for "delivering" earnings to the market.

Obtained result in verifying the relation between relational and structural capital with earning quality have shown that whatever a firm has stronger relationship with its customer, this leads to increasing the number them and attraction of satisfied customer will increase as a result of that the level on income and cash volume in the firm will increase, so the amount of not discretionary (normal) accrual will decrease, then the quality of earning will improve.

Structural capital defined as a level of knowledge and technology which internalized in the firms, whichever the level of this capital going up will affect on the quality of information which communicated to the stakeholders, thus risk averse management will less rely on the information which is based on the discretionary accruals.

**Determination of Research Model and Experimental Results:**

In this paper, whit using the econometrics analysis of panel data, the following model was enforced and assessed. Of course, it should be reminded that the absence of statistical data of some variables in some courses makes the unbalanced inevitable. According to the panel data method, two tests are conducted: The F-test and Husmen test to select the appropriate model (fixed or random effects) was performed. To determine the equivalent of the intercept of the firms with difference in intercept of firms of the F test and for determining fixed effect test methods or random effects of Husmen test used. At this paper has been used panel data econometric approach to estimate the following model, It is noteworthy that the lack of statistical data, makes inevitable some variables in some courses unbalanced approach. Also after studying assumptions of the classical model, since that is the problem of non-homogeneity between groups, in order to resolve this problem, the method of generalized least squares (GLS) is estimated.

The main equation of this paper is as follows:

\[ EQ = \beta_0 + \beta_1HCE + \beta_2RCE + \beta_3SCE + \beta_4FS + \beta_5D + U \]

In the above equations:

- **EQ** (Earnings Quality): measure earnings quality by investigating the level of discretionary accruals. Has used 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: Calculated as:

\[ TA = NI - CFO \]

\[ NI = \text{firm if's net income in year } t \]

\[ CFO = \text{firm if's cash flow from operations in year } t \]

To estimate discretionary accruals for firm I in year t, has used of the Jones, 1991 modified cross sectional model as follow:

\[ \frac{TNA}{A_{i-1}} = \beta_1\left(\frac{1}{A_{i,t-1}}\right) + \beta_2\left(\frac{\Delta REV - \Delta REC}{A_{i,t-1}}\right) + \beta_3\left(\frac{GPPE}{A_{i,t-1}}\right) + u \]
Where:

\[ TNA_{it} = (\text{Total net accruals}): \text{total accruals measured as net income minus cash flow from operations} \]
\[ \text{A}_{i,t-1} (\text{Average total assets}): \text{total assets at the end of year t-1} \]
\[ \Delta \text{REV}_{it} (\text{Change in sales}): \text{change in revenue between year (t-1) and year t. Growing companies naturally their accruals (like their inventory) will increase. The change of this item would not consider as discretionary (abnormal) changes.} \]
\[ \Delta \text{REC}_{it} (\text{Change in accounts receivable}): \text{change in receivables between year (t-1) and year t} \]
\[ \text{GPPE}_{it} (\text{Gross PP&E}): \text{gross property, plant and equipment at the end of year t}. \]

The discretionary accruals for firm I in year t can be computed as follows:

\[ DA_{it} = \frac{TNA_{it}}{A_{i,t-1}} \left[ 1 - \beta_1 \left( \frac{\Delta \text{REV}_{it}}{A_{i,t-1}} \right) - \beta_2 \left( \frac{\Delta \text{REC}_{it}}{A_{i,t-1}} \right) - \beta_3 \left( \frac{\text{GPPE}_{it}}{A_{it}} \right) \right] \]

That, DA represents the discretionary accruals as a proxy of earnings quality.

Each \( \beta \) is the estimated relationship of the independent variable to the dependent variable, and the error term represents the composite effect of all variables not explicitly stated as an independent variable.

- **HCE** (Human Capital Efficiency): \[ \frac{\text{VA}}{\text{HC}} \]
  
  \[ \text{VA=} \text{Value added} = \text{Output-Input} \]
  \[ \text{HC=} \text{personal cost (Salaries and Wages), considered as an investment.} \]
  \[ \text{Output=} \text{Net Premium} \]
  \[ \text{Input=} \text{Operating expenses (excluding personal costs).} \]

- **RCE** (Relationship Capital Efficiency): \[ \frac{\text{VA}}{\text{CA}} \]
  
  \[ \text{VA=} \text{Value added} = \text{Output-Input} \]
  \[ \text{CA=} \text{Capital employed (both physical and financial capital)} \]
  \[ \text{Output=} \text{Net Premium} \]
  \[ \text{Input=} \text{Operating expenses (excluding personal costs)} \]

- **SCE** (Structural Capital Efficiency): \[ \frac{\text{SC}}{\text{VA}} \]
  
  \[ \text{SC=} \text{Structural capital for company,} \]
  \[ \text{SC=} \text{VA–HC} \]
  \[ \text{VA=} \text{Value added} = \text{Output-Input} \]
  \[ \text{Output=} \text{Net Premium} \]
  \[ \text{Input=} \text{Operating expenses (excluding personal costs).} \]

- **FS** (firm size): firm i’s natural logarithm of total assets in millions at fiscal yearend t.
  \[ FA = \text{Log}\text{TA} \]

- **D** = Debt to equity ratio
  \[ D = \frac{\text{Debt}}{\text{Equity}} \]

Two variables Debt to equity ratio (D) and firm size (FS) are Control variables which have been used prior researches for choosing of these control variables.

In this paper, will verify the following hypotheses:

- **The main hypothesis**:
  1- The improvements of explanatory variables of intellectual capital, lead to improvement of the Earning quality.

- **Secondary hypothesis**:
  1- There is a significant relationship between debt to equity ratio and earning quality variables.
  2- There is a significant relationship between the ratio of firm size and earning quality variables.

**The Results of Model Estimation:**

The mentioned equation for 100 Malaysian Firms over the period 2000-2011 and by using the panel data based on fixed effects has estimated. Results for estimated model have reflected in (4-1) table.

The computing F statistic is used to test the equity of the intercepts. Because the computing F is larger than the table’s F, the \( H_0 \) hypothesis; i.e. heterogeneity of the firms, is rejected. Thus, the effects of the Firms groups are confirmed, so different intercepts should be considered in the estimation. In addition, in order to test the selection between the fixed effects and random effects the Hausman statistic is used. According to the results, because the computing X2 statistic is larger than the table’s X2, so the \( H_0 \) is rejected; i.e. the random effects are
heterogeneous and we should use the fixed effects method to estimate. Now we continue with the analysis of the obtained coefficients and values in the conducted estimations.

Table 4.1: Results for estimated model for Malaysian Companies over the period 2000-2011.

<table>
<thead>
<tr>
<th>Explaining variables</th>
<th>Symbol</th>
<th>Coefficients</th>
<th>Prop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Capital Efficiency</td>
<td>HCE</td>
<td>0.791*</td>
<td>0.000</td>
</tr>
<tr>
<td>Structural capital Efficiency</td>
<td>SCE</td>
<td>0.532**</td>
<td>0.072</td>
</tr>
<tr>
<td>Relationship Capital Efficiency</td>
<td>RCE</td>
<td>0.835*</td>
<td>0.022</td>
</tr>
<tr>
<td>Firm size</td>
<td>FS</td>
<td>0.343**</td>
<td>0.084</td>
</tr>
<tr>
<td>Debt to equity ratio</td>
<td>D</td>
<td>-0.115**</td>
<td>0.094</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>F statistic</td>
<td></td>
<td>0.0000</td>
<td></td>
</tr>
<tr>
<td>Hausman χ²</td>
<td></td>
<td>0.0000</td>
<td></td>
</tr>
</tbody>
</table>

Source: Researcher's findings
* indicates the significance of the parameters at 5% level
** indicates the significance of parameters at 10% level
# indicates the rejection of null hypothesis at significance level of 5% and 10%

Conclusion:
The results demonstrate that in the significant level of 5 %, between human capital efficiency and earning quality there is significant and positive relationships, this relation reveals that by growing the level of knowledge and experience between executive management(as a proxy of human capital) they are better able to manage accruals and therefore the quality of earning will increase. In the significant level of 10% between structural capital efficiency and earning quality is positive relation, this matter shows that earning quality somehow are explained by the level of technology and informatics, because this devices will public information in the firms as soon as possible, then this situation will affect on the quality of decisions that managements take. By growing the level of decisions especially on discretionary accruals the quality of earning will increase. Although the impact of technology and modern infrastructure are partially explained in this relation, because the quality of earning have not fully affects just by structural capital.

In the significant level of 5% there is a positive and strong relation between the Relationship capital and earning quality, this matter are based on the fact that when firms customers are satisfy from goods and services they have more positive attitude to the firm, and the level cash turnover will rise, so managements have less interested to use from credit provision to sale their goods, and opportunistic behavior like window dressing and over use of accrual have minimized. Firm size have used as a moderator variable the effect of firm size on earning quality in the significant level of 10% are positive, this matter demonstrate that by growing of the firm's assets (as a proxy firm size) better decisions have been made by the managements about the receivables and discretionary accruals, so this relation is positive and somehow meaningful. The last variable is debt to equity ratio that represent the of debt (leverage) in capital structure, the result of this study shows that there is a negative but not important relation between firms debt to equity ratio and its earning quality, this phenomena reveals that the effect of debt in financial structure on earning quality is negative so sensitive firm are more interested to use from accrual or earning management activity.

REFERENCES


