IMPACT OF INTELLECTUAL CAPITAL ON FINANCIAL PERFORMANCE OF ORGANIZATIONS: A CASE STUDY FROM THREE DIFFERENT SECTORS OF PAKISTAN

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**Abstract**
The purpose of the study is to explore the impact of intellectual capital on financial performance. This research is employed on three different sectors of Pakistan. Banking, Manufacturing and Oil and gas development are employed. For the measurement of intellectual capital Ante pulic’s VAIC model is used. Correlation analysis used to demonstrate the relationship among intellectual capital and financial performance. The results of the study depicts that intellectual capital has significant impact on financial performance, and the component of VAIC has positive and significant impact on ROA.

1. **INTRODUCTION**;  
Businesses are competing in ever growing and competitive environment, and to sustain the businesses they have to face and cope many challenges in national and also international context, if the firms want to sustain and survive they have to attain a unique competitive edge. All the assets of a firm can be imitated but not the intangible assets. A new type of competitive edge is becoming prominent. (Johnson, Neave and Pazderka, 2002). That is the intangible resources and capabilities of an organization but the effective use and management of that new knowledge is the key factor in attaining and maintaining the competitive advantage. (Galende, 2006). Companies are now competing in knowledge base economy operations and functions are being performed by knowledgeable workers. (Kline). That situation leads to the concept of knowledge base economy. Businesses are focusing on the value creation through the knowledge, skills and intangible resources, rather than the typically relying on financial resources or financial structure. Intangible resources, knowledge and competitive advantage are refers as the “Intellectual capital” that is known as the most important source of value creation and competitive advantage. (Drucker, 1993; Grant, 1996). It leads companies to obtain a competitive edge (Lev & Zarowin, 1999; Ruta, 2009; Yang & Lin, 2009). Intellectual Capital refers the resources that can create the value for an organization, and determine the competitiveness of the enterprises. Intellectual capital refers to a set of knowledge assets which affects organizations in developing competitive situation. (Sullivan, 2000). In accounting perspective the intellectual capital with the concept of going
concern is very much important. Now the companies that observe the importance of intellectual capital are just able to survive in competitive markets and can attain competitive edge.

According to a consensus, The concept of intellectual capital is multidimensional, that is the combination of human, structural and relational resources of the organization. (Mertium, 2002). Static approach refers, that the concept Intellectual Capital allows attaining the stock of internal and external resources that a firms owned at a specific time. (Bontis et al). According to the Edvinsson and Melon (1997), Intellectual capital refers to the “knowledge that can be convert into value”. It shows that, the effective management of intellectual capital will increase the value and financial performance of the organization. Karmen Jelsi wrote in his hand book of “Intellectual capital” that the core benefit of effective management of intellectual capital is that it increases the market value of organization, it improves the communication skills, proper utilization of resources, enhance value creation ability, good image, it will satisfy the customers, value creating human capital, motivating the employees and most efficient business processes.

According to Business Dictionary, financial performance means, the monetary measurement of the results of firm’s processes and operations e.g. return on equity, assets, investment etc. Every organization gives importance to its physical resources but the inefficiency of their IC can reduce the effectiveness of their physical assets that can cause the low financial performance. However, the importance of intellectual capital was revealed, but firms faced many problems regarding its management, measurement and reporting (Andrikopoulos, 2005; Kim & Kumar, 2009; Nazari & Herremans, 2007). Many researchers said that the hidden value of intangible resources was not revealed in the financial statement and that hidden value is intellectual capital. That hidden value is the difference between Book value and Market value. Nowadays, to create intellectual capital is the source of economic value to the production of material goods (Chen, et al., 2005). The purpose of this paper is to investigate the relationship between intellectual capital and financial performance. The main problem statement of this study is the impact of intellectual capital on the financial performance in the context of Pakistan.

Though the management and measurement of IC is difficult but researchers developed several models to measure IC directly or indirectly. The most proper method to measure intellectual capita is VAIC developed by the Public (2000). VAIC stands for “The value added efficiency of intellectual coefficient”. That measures Intellectual capital with the following determinants that are; value added efficiency of capital employed VACE, value added efficiency of Hunan capital VAHU and value added efficiency of structural capital STVA.
2. LITERATURE REVIEW;
Intellectual capital is being under study from several years and several studies has been conducted to explore and define the intellectual capital and its effects on the financial performance. Intellectual capital is thought as the resource that have no physical existence like trade mark, logo, copy rights its true but unique and creative abilities of human mind and brain and also unique skills of worker is also known as the intellectual Different researchers define the intellectual capital in different ways. According to Edvinsson and Malone 1997, the gap between Market value and book value is the real value of Intellectual Capital. IC is also defined as the “Knowledge that can create value for the organization”. The combination of individual knowledge and organization’s knowledge is proved as the sustainable competitive advantage. (Bontis, 2000). The market value is the real worth of an organization that cannot be explained by the book value. Market value has its own hidden value and it can be defined as the replacement cost. Intellectual capital has the positive impact on financial performance and also on market value. (Mind, shu, and Yuhchang (2005).

About the measurement of intellectual capital, there are two school of thoughts. (Mavridis, 2004). First school of thought is concerned with the cost. Second school of thought is concerned with the profits of the firm. First school of thought, measure the intellectual capital through the gap between Book value and Market value. Second school of thought, measures the intellectual capital through the efficiency of human capital and structural capital. There are three components of intellectual capital that are Human capital, Structural capital and Relational capital according to Edvinsson and Malone, 1997 ; Mavridis and Kyrmizoglou, 2005; Wall, 2007; Ruta, 2009; Maditinos et.al,2011.

The knowledge, skills and abilities of employees that they have and also their interests, values, Behaviours and attitude is known as the Human capital. (Subramaniam and Youndt, 2005). It is clear that human brain is the core source of knowledge creation that is due to permanent electrochemical change in brain. And an organization can store, accumulates and codify that knowledge of individual’s knowledge in databases and organizational structure. On the basis of that accumulated and structured knowledge, we can talk about the organizational knowledge that is referred as the organizational knowledge and a mechanism to spread and align the knowledge throughout the organization, technological capital is the capital that relates to the technological knowledge. According to CIC, 2001, The difference between these two capitals is due to the difference of their implications, and different strategies are required for their exploitation and accumulations. (Tseng y Goo, 2005).
In companies property, structural capital is most prominent, that Structural capital is the capital that combines all the intangible assets of the organization it includes, patents, copyright, logo, models, methods, knowledge, software’s and trademark. Structural capital is shareable. For example; computer software is a structural capital and people of an organization are allowed to use that software so it is shareable.

The art and technique of managing firms resources and to attain competitive advantage is called Performance.(Sri Iswati, MuslichAnshori, 2007). Financial performance is the conversion of organizations performance into monetary terms. Through researches, it is proved that Intellectual capital can create value for an organization. (Edvinsson and Malone, 1997).

For the measurement of intellectual capital Public (2000) develop a VAIC method. According to him, The gap between market value and book value is intellectual capital and that intellectual capital is made up of human capital and structural capital. VAIC method can measure the IC through both tangible and intangible assets of an organization. It measures the intellectual capital indirectly through three components. 1. VACA, value added efficiency of capital employed. 2. VAHU, value added efficiency of human capital. 3. STVA, value added efficiency of structural capital. It means that \( VAIC = VACA + VAHU + STVA \).

However there is some limitation in the VAIC method. But it is most suitable method because all the data that is required in it, is quantitative data that can be easily obtained and analysed by the researchers. The other methods of measuring intellectual capital are not realistic, due their judgement base like Tobin Q’s method. VAIC is preferable due to its reliability, intangibility and simplicity. (Maditions et al, 2011). VAIC is an ideal method due to its components that derived and based on the accounting data that is verifiable and analysable and cannot be customized by the company that is being analysed. The drawback of other methods is that they are customized and can be fit according to the particular company. According to Firer & Williams, 2003. Other methods of measuring intellectual capital are customized so cannot be generalized.

3. CONCEPTUAL FRAMEWORK;

The conceptual frame work of study shows the independent and dependent variables and their effects on each other. It is proved that intellectual capital has significant impact on the organization’s financial performance and profitability. (Chen at al, 2005). The financial profitability is the main interest of the owners and that profitability is influenced very much by the intellectual capital.
3.1. Hypothesis;
H1=VACA has significant impact on ROA.
H2= HUVA has the significant impact on ROA.
H3=STVA has the significant impact on ROA.
H4=VAIC has the significant impact on ROA.

4. RESEARCH METHODOLOGY;
4.1. sample and data selection;
In this study simple random sampling technique is being used. And sample is selected from the different sectors of Pakistan. Through the selection of different sectors, we are trying to prove the impact of intellectual capital on the whole country it is also helpful for the other countries to analyse the impact of IC in these sectors. In selected population there are three samples that are being used by us to analyse the impact of IC on Financial performance.1. “OIL AND GAS DEVELOPMENT COMPANY LIMITED”. 2. “FAUJI FERTILIZER COMPANY LIMITED”.3. “MUSLIM COMMERCIAL BANK”. Data is collected from the annual reports of the companies. Data is collected by the standardize quantitative measurement instruments. We collect the quantitative data to analyse the impact of IC on Financial performance. Selected sample is included in well-known and big organizations of Pakistan.
4.2. Variable definitions;
There are two types of variables in the study.

1. Independent variables.
2. Dependent variables.

1. Independent variable;
There are four independent variables. 1. VACA that is the, value added efficiency of capital employed. 2. VAHU that is the value added efficiency of human capital. 3. STVA that is the value added efficiency of structural capital and 4. Is VAIC, that is the value added efficiency of intellectual coefficient. VAIC method is developed by the Ante pulic.

The method to calculate the VAIC is;

- \( \text{VAIC} = D + A + C + P \).
  - D stands for depreciation. A stands for amortization, C stands for cost of the employees like salaries etc. and P stands for the operating profit of the organization.
- \( \text{ICE} = HUE + SCE \). Whereas VAIC is the total sum of the intellectual capital efficiency and the capital employed.

Above independent variables are calculated by the equations. That is as bellow;

EQUATIONS;
- \( \text{CE} = \text{Total assets} - \text{current liabilities} \)
- \( \text{HU} = \text{total investment on employees} \)
- \( \text{SC} = \text{VA - HU} \)
- \( \text{VACA} = \frac{\text{VA}}{\text{CE}} \)
- \( \text{VAHU} = \frac{\text{VA}}{\text{HU}} \)
- \( \text{STVA} = \frac{\text{SC}}{\text{VA}} \)
- \( \text{VAIC} = \text{VACA} + \text{VAHU} + \text{STVA} \)

2. Dependent VARIABLES;
Factors of intellectual capital effect the financial performance. (Paula Kujansivu; Antti Lönnqvist, 2005). There is one dependent variable in the study that is Financial performance with its indicator that is Return on assets. That is calculated by the equation given below. There is the significant relationship between VAIC and return on assets. Shiu (2006b)

EQUATIONS
- \( \text{ROA} = \frac{\text{NET INCOME}}{\text{TOTAL ASSETS}} \)

4.3. STATISTICAL ANALYSES;
In the study to prove the hypothesis, correlation analysis is being used. Through the correlation analysis the significant impact of independent variables can be easily seen on dependent variable. Table 1 shows the results of correlation analysis.
<table>
<thead>
<tr>
<th></th>
<th>VACA</th>
<th>VAHU</th>
<th>STVA</th>
<th>VAIC</th>
<th>ROA</th>
</tr>
</thead>
<tbody>
<tr>
<td>VACA</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAHU</td>
<td>.643</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STVA</td>
<td>.573</td>
<td>.992</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>VAIC</td>
<td>.999</td>
<td>.673</td>
<td>.605</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>1.000</td>
<td>.650</td>
<td>.581</td>
<td>1.000</td>
<td>1</td>
</tr>
</tbody>
</table>

5. RESULTS;
The above table shows that intellectual capital has significant impact on financial performance. The above table shows that VACA has strong positive relation with VAHU and correlation is significant 0.643 each other. STVA has the significant relation with VACA with 0.573 to each of others. STVA has the correlation of 0.992 with VAHU. VAIC is significantly correlated with 0.999 with VACA and is correlated with VAHU with 0.673 and also correlated with STVA with 0.605. ROA is significant with VACA at 1.000, ROA is significantly correlated with VAHU at 0.650, ROA is correlated with STVA at 0.581 and also correlated with VAIC at 1.000. The significance level of correlation is 0.01. The table shows that ROA is more significantly related with VACA and VAIC having the correlation of 1.000 with both of them.

6. CONCLUSION;
It is proved that the Intellectual capital has significant impact on financial performance. The correlation analysis proved that the hypothesis of the study is proved that H1, VACA has the significant impact on return on assets. H2, value added efficiency of human capital has significant impact on return on assets. H3, value added efficiency of structural capital has significant impact on return on assets and H4, value added efficiency of intellectual capital has significant impact on return on assets. All the factors mentioned in the hypothesis are strongly and positively effects the financial performance of the organization. VACA and VAIC has the greater impact on return on assets. VACA cause to increase the motivation level of employees that results in the form of higher productivity capacity of employees. VAHU is helpful for an organization to enhance the individual skills of the employees that enables them to create the unique and competitive
strategies for the organization. STVA is the actual property of the organization that makes the organization unique and distinguishes from the other organizations. That makes the organization able to make competitive and sustainable advantage.

7. RECOMMENDATIONS;
In the light of literature review, discussion about variables, hypothesis and the results of study we came to the decision that intellectual capital is the most important factor for the enhancement of the financial performance of the any organizations. Organizations must have to pay attention on the intellectual capital resources that cause the improvement in the financial performance of the organization.

8. LIMITATIONS OF THE STUDY;
The first and basic limitation of the proposed study is the limited sample. Sample size is too short. Though the selected sample is very good in the contest of the country but it cannot covered the whole region of the Pakistan. Second, the data that is being collected for the study is short. The data must be of minimum 10 years. But this study analyse the data of just four years.

9. FUTURE DIRECTIONS;
Kaplan and Norton, 2004. Says that intellectual capital helps the organization and managers to betterly assess the intangible assets for the estimation of their value. The proposed study can be conducted in the intellectual intensive industries like pharmaceutical industries. Explore the way to examine the impact of IC efficiency on the total capital of a firm. Study can be conducted in a manner that Investigates the ways to enhance the intellectual capital for the firm. study can be conducted with the moderating effect of leadership styles like the impact of IC efficiency on profitability with the moderating effect of leadership styles.

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