

Intellectual Capital and Firm Value: A literature review

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Abstract *In this review paper, review of studies pertaining to relationship between intellectual capital and market value of a firm as well as the relationship between intellectual capital and financial performance of firm is done. Attempt has been made to include all the studies conducted all over the World pertaining to the above mentioned theme. Findings of the review shows blend of positive and negative relationship between intellectual capital and firm. This paper will be a great help to the researchers who are intended to work in this area.*

Keywords: *Intellectual capital, Market value, financial performance, Literature review.*

Date of Submission: 11-01-2018

Date of acceptance: 05-02-2018

I. Introduction

Intellectual capital has become a buzz word in the present economic scenario. May it be service sector or manufacturer sector, each sector has found it significant value driver for value creation. And in order to assess the significant impact of intellectual capital on firm performance, several studies have been conducted at micro as well macro level. In this paper an attempt has been to present the review of all the studies conducted on the relationship between intellectual capital and firm value. The output of this study will present the sound base for further research to the researcher working in this very area and also this study will contribute in the existing literature. This paper is divided in three sections, first section delineate the review pertaining to intellectual capital and market value of a firm, second section, will provide review of studies pertaining to intellectual capital and financial performance of the firm, and third and last section, discussion and conclusion pertaining to the review is presented.

II. Intellectual capital and Market value

Lev and Sougiannis (1999) in their study proved that there exists a relationship between innovative capital and market returns. Further in a study conducted by Pulic (2000b) revealed in their study that there is significant relationship between VAIC and firm's market value.

Lev (2001) also proved with the help of his study pertaining to S&P 500 companies for the period of 1977 to 2001 revealed that market value increased almost six fold because of intellectual capital.

In another study Abdolmohammadi (2005) found that it is effective to employ IC on market value. Tseng and James Goo (2005) also found positive significant relationship between IC and market value. Chen et. al (2005) too proved that there exists a relationship (positive) between IC and market value with the help of their study. Wang, Jui-Chi. (2008) empirically tested relationship between Intellectual Capital and their study also proved the findings of the previous studies pertaining to positive significant relationship.

In a study, conducted by Pina Puntilo (2009) on Italian banking industry revealed different results and proved that there is negative relationship between market value and IC. In another study in Italy, conducted by Veltri and Silvestri (2011), findings of their study shows significant relationship between IC and market value of firms. Pal and Soriya (2012) made an attempt to explore the relationship between value added intellectual coefficient and M/B ratio of Textile and pharmaceutical companies in India and found no significant association between the two.

Deep and Narwal (2013) found in their study that value added coefficient pertaining to intellectual capital is having no significant impact on the market value of the companies pertaining to selected firms of Indian textile sector. Ari barkah djamil et.al (2013) conducted a study on 25 banking firms in Indonesia which is listed on IDX to check the impact of value added intellectual coefficient on firms' stock return during the year 2005 to 2009. VAIC methodology is used and also regression model is adopted to investigate the relationship between current and future stock returns and IC and its components. The results observed that IC does not impact on the current stock return but affect the stock return growth. Only HCE is having significant impact on the stock return.

Kharal et al. (2014) check the impact of "value added intellectual coefficient" on organizational performance of oil and gas sector of Pakistan listed in Karachi stock exchange during the year 2005 to 2013. The results indicate that "value added intellectual coefficient" has significant impact on M/B ratio. Nuryaman

(2015) in his study investigated the “impact of the intellectual capital on the firm’s value with the financial performance” pertaining to 93 manufacturing companies which are listed in Indonesia stock exchange. Findings of study revealed that intellectual capital has significant impact on dependent variable.

Kamath (2015) check the relationship between “value added intellectual coefficient” and market value of BSE S&P SENSEX listed manufacturing firms and found VAIC has some relationship with market value of the firms under study. Khan and Raushan (2016) too checked the impact of “value added intellectual coefficient” on firm performance of Indian IT industry. And results were not significant in this case.

III. Intellectual Capital and Financial Performance

Bassi and van Buren (1999) examined 500 US corporations in order to assess the correlation between “value added intellectual coefficient” and financial performance and found a positive relationship. Bontis et al. (2000) in their study revealed that structural capital has a significant correlation with business performance.

Riahi-Belkaoui (2003), in his study concomitant to 81 US multinational firms and findings shows significant correlation between the dependent and independent variable. Firer and Williams (2003), also checked the correlation between “value added intellectual coefficient” and firm performance (ROA, ROE) and their study failed to prove any correlation between the two.

Ante Pulic (2004) in his study on Australian’s banks revealed that banks having greater IC components have better financial performance. Chen et al. (2005), also examined the correlation between “value added intellectual coefficient” and firms profitability using same methodology, found that IC has significant positive impact on profitability.

Cabrita and Vaz (2006) found that SC and RC positively moderate the relationship between HC and firm performance in context of Portuguese banks. Tom, P.H et. al., (2007) in their study examined the “association between the Intellectual capital of firms and their financial performance” and found that both are positively correlated.

Kujansivo and Lonnqvist (2007) checked the correlation between “value added intellectual coefficient” and value of 11 industries from Finland and found unclear relationship between value of efficiency of IC. Yalama and Coskun’s (2007) in their research pertaining to Turkish banking industry. In this study they found mixed results, means some firms are showing positive relationship and some are not. Saengchan (2007) in a study found strong relationship between efficiency of IC and financial performance of banks pertaining to Thailand’s bank industry. Bramhandkar et al. (2007) in their study investigated the relationship between IC and financial performance of 139 drug companies and found that the companies have greater level of IC has better financial performance.

In another study, Tan et al. (2007) examined the 150 Singapore Stock exchange listed 150 companies and found positive association between IC and growth rate of company. In another study, Kamath in the year 2008 checked the relationship between IC and its components with the firm value pertaining Indian drug and pharmaceutical industry and found significant results.

Gan and Saleh (2008) in their study found that among the three constituents of IC, only HCE is has positive significant relationship with financial performance of Malaysian companies.

Chan (2009) examined the relationship between “value added intellectual coefficient” and financial performance and found no relationship between the two. In a study, conducted by Pina Puntilo (2009) on Italian banking industry revealed that IC and business performance doesn’t enjoy any strong connection.

Gosh and Mondal (2009) in their study concluded that IC has no complete explanatory power in explaining profitability. Maheran et. al. (2009) in their study checked the extent of relationship between intellectual capital and firm performance pertaining to Malaysia and they found significant relationship between the two.

In another study, Barros et al. (2010) pertaining to Brazil manufacturing sector, and revealed significant correlation between “value added intellectual coefficient” and value creation. In another study by Kamal et. al. (2010) found significant results in their study pertaining to the relationship between the two.

Joshi et al. (2010) in their study found that HC efficiency than other constituents of IC. And control variables like size, number of employees are having no relationship with IC. Clarke et. al (2011), too found significant results in their study related to Australian listed companies.

Ahangar (2011) also checked the relationship pertaining to Iranian company and found that IC has the explanatory power for the company’s productivity and profitability.

Wang (2011) found quite significant correlation between “value added intellectual coefficient” and return on assets in a study conducted on companies of Taiwan.

Rubina afroze (2011) in a study concomitant to listed commercial banks and found that “value added intellectual coefficient” has significant impact on the financial indicators but has no impact on the EPS and financial leverage. Hsieh (2011a) in his study found not significant result pertaining to the relationship “value added intellectual coefficient” and financial performance of companies.

Cheu et al. (2011) found positive significant relationship between “value added intellectual coefficient” and company profitability of the companies of Hong Kong.

Maditinos, D. et. al. (2011) in their study concomitant to listed companies of found that only human capital has statistically significant relationship with financial performance.

Phusavat et. al. (2011) investigated empirically the effects of IC on firm performance of manufacturing firms from Thailand and found that significant positive effect of IC on firm’s performance.

Mondal and Gosh (2012) their studies examine the correlations and found significant results. Pal and Soriya (2012) too found significant results pertaining to the IC and financial performance. Ekwe (2015) too found positive significant relationship between “value added intellectual coefficient” and financial performance of banks Nigeria stock exchange. Berzkalne and Zelgalve (2013) empirically investigated the relationship between “value added intellectual coefficient” and company value and found mixed results pertaining to the relationship among “value added intellectual coefficient” and company value.

Peric (2013) also investigated the correlation between “value added intellectual coefficient” and financial performance of 32 small wood processing enterprises of Republic Croatia and found partial relationship among the two variables.

Pucci et al. (2013) investigated the association among IC and firm performance and found that there is significant positive association between IC and firm performance.

Sumedrea (2013) in his study checked the influence of “value added intellectual coefficient” on economic performance and findings of the study shows that there is strong link between “value added intellectual coefficient” and economic performance.

Fathi et al. (2013) examined 49 Iranian companies of Trehan stock exchange in order to examine the relationship between “value added intellectual coefficient” and financial performance and found positive and significant impact of intellectual capital and SC on the ROE, ROA and GR. An also they observed significant and positive relationship between CE and HC with the ROE and ROA and also VAIC is significant impact on the financial measures. Joshi et. al. (2013) examined the relationship of “value added intellectual coefficient” and financial performance of Australian financial sector for the period of 2006-2008 and found human capital plays significant role in financial performance. Rest of the constituents of “value added intellectual coefficient” has not so significant relationship with financial performance.

Musali, and Ismail (2014) in their studies examines the impact of “value added intellectual coefficient” of listed commercial banks in Saudi Arabia on the financial performance. The empirical result of the study shows that “value added intellectual coefficient” has significant impact on financial performance. In this study too, it is the human capital which is having significant positive relationship with profitability rather than SC and RC. Deep and Narwal (2014) also found positive significant correlation between “value added intellectual coefficient” and Financial performance in context of Indian Textile sector.

Ranani and Bijani (2014) conducted a study on listed companies in Trehan stock exchange in order to examine the impact “value added intellectual coefficient” on financial performance of 70 companies and found that intellectual capital has significant influence on EPS.

Kharal et al. (2014) checked the impact of “value added intellectual coefficient” on organizational performance of oil and gas sector of Pakistan listed in Karachi stock exchange during the year 2005 to 2013. The results indicate that “value added intellectual coefficient” has positive impact on organizational performance.

Holienka and Pilkova (2014) also investigated empirically the correlation between “value added intellectual coefficient” and firm performance before and after the economic crisis in Slovakia during the year 2008 and 2011. VAIC and regression model are adopted. Findings of the study shows that IC has impact on financial performance. Nuryaman (2015) in his study investigated the impact of the intellectual capital on financial performance pertaining to 93 manufacturing companies which are listed in Indonesia stock exchange. The study revealed that intellectual capital has a positive impact on firm value and profitability.

Janosevic and Dzenopoljac (2015) investigated the relationship between “value added intellectual coefficient” and financial performance of companies listed with Belgrade Stock Exchange in Serbia and found significant relationship among the two.

Bchini (2015) in his study examined the scope of intellectual capital in value creation in the Tunisian Manufacturing companies and found that significant positive relationship between HC, RC and OC with value creation.

Kamath (2015) conducted a study on manufacturing and service sectors which are listed on S & P BSE SENSEX index in order to examine the impact of “value added intellectual coefficient” on the financial performance of firms in India. Findings of the study shows that “value added intellectual coefficient” and its constituents have positive significant impact on profitability and productivity except SC. The overall IC efficiency has impact on profitability and productivity.

Venugopal and Subha (2015) studied the impact of “value added intellectual coefficient” on corporate performance of banking and IT industry and found that “value added intellectual coefficient” has strong impact on firm performance in context of IT and lesser in context of banking industry.

Khan and Raushan (2016) examined the impact of “value added intellectual coefficient” on firm performance of Indian IT industry. Results of the study shows that “value added intellectual coefficient” has significant impact on profitability and productivity of firms.

Ozkan et al. (2016) in their studies analyzed the correlation between the “value added intellectual coefficient” and financial performance of 44 banks and found that HCE and CEE has positive effect on financial performance of banks.

Vladimir dzenopoljac (2017) checked the relationship of “value added intellectual coefficient” and its components on financial performance of Serbian ICT companies. The results of the study found that CEE has significant impact on financial measures of ICT companies and VAIC and its components have significant correlation with all selected dependent variables, physical and financial capital of the companies.

Sardo et. al. (2017) in a study pertaining to non-financial listed firms of 8 European countries, checked the impact of “value added intellectual coefficient” on the financial performance. Findings shows that there is significant impact of “value added intellectual coefficient” on financial performance.

Riad Ahmad (2017) examined the impact of “value added intellectual coefficient” on organizational performance of public hospitals in Jordan and found that HC, SC and RC has significant influence on organizational performance.

IV. Discussion and Conclusion

Intellectual capital is no doubt a buzz word in the current business world. In this paper, almost studies are showing positive significant relationship between intellectual capital market value of a firm except few like in the case of study conducted by Puntilo (2005), findings shows negative correlation between market to book value ratio and IC. The study was conducted on Italian banking sector. Same is the case with Pal and Soriya (2012) and Deep and Narwal (2013), their study also showing no impact of IC on market value of Indian Textile and pharmaceutical companies. Ari barkah djamil et.al (2013) which was conducted on Indonesian banking sector firms, they found that only HCE has positive and significant impact on the stock return. Study of Khan and Raushan (2016) also shows no significant relationship but the studies of Lev and Sougiannis (1999), Lev (2001), Abdolmohammadi (2005), Tseng and James Goo (2005), Wang, Jui-Chi. (2008), Veltri and Silvestri (2011), Kharal et al. (2014), Nuryaman (2015), and Kamath (2015) shows significant positive relationship as well impact of “value added intellectual coefficient” on market value of firm/s under the study.

In case of “value added intellectual coefficient” and financial performance, the study of Bassi and van Buren (1999), Bontis et al. (2000), Riahi-Belkaoui (2003), Ante Pulic (2004), Chen et al. (2005), Cabrita and Vaz (2006), Tom, P.H et. al., (2007), Saengchan (2007), Bramhandkar et al. (2007), Tan et al. (2007), Barros *et al.*(2010), Kamal et al (2010), Joshi et al. (2010), Clarke *et.al* (2011), Ahangar (2011), Wang (2011), Rubina afroze (2011), Cheu at al. (2011), Phusavat, et al. (2011), Mondal and Gosh (2012), Pal and Soriya (2012), Ekwe (2015), Pucci et al. (2013), Sumedrea (2013), Fathi et al. (2013), Deep and Narwal (2014), Ranani and Bijani (2014), Kharal et al. (2014), Nuryaman (2015), Janosevic and Dzenopoljac (2015), Bchini (2015), Kamath (2015), Venugopal and Subha (2015), Khan and Raushan (2016), Ozkan et al. (2016), Vladimir dzenopoljac (2017), Sardo et.al (2017), and Riad Ahmad (2017) are showing strong positive significant correlation between intellectual capital and financial performance but there are few studies which are showing no relationship between the two variables like Firer and Williams (2003), Chan (2009), Pina Puntilo (2009), Gosh and Mondal (2009), Maheran et al. (2009), Hsieh (2011a), Holienka and Pilkova (2014). In addition to this, there are some studies which are unclear about the relationship between the two, for example the study of Kujansivo and Lonnqvist (2007) investigated the relationship between “value added intellectual coefficient” and value of 11 industries from Finland and found unclear relationship between value of efficiency of VALUE ADDED INTELLECTUAL COEFFICIENT. In another study, Yalama and Coskun’s (2007) and Berzkalne and Zelgalve (2013) in their research they found mixed results, means some firms are showing positive relationship and some are not.

And there are some studies which are showing partial relationship means only human capital coefficient is having significant positive relationship with financial performance i.e. Kamath (2008) and Gan and Saleh (2008), Maditinos, D. et. al. (2011), Peric (2013), Joshi et al. (2013), Musali, and Ismail (2014) found that only human capital has the significant impact on the profitability and productivity of the firms. Rest of the indicators of intellectual capital is showing no relationship with financial performance of the firms under the study.

In context of correlation between “value added intellectual coefficient” and market value, majority of the studies are showing significant relationship and but in case of financial performance no doubt several studies are showing significant positive relationship but few are unclear and some are showing partial relationship. So,

it is really tough to reach to a conclusion that intellectual capital has significant role in market value and financial performance in every situation. Therefore, there is dire need to explore it more. There is dire need to empirically test the relationship more in order to reach a concrete conclusion.

Findings of the study shows that majority of the study are showing positive correlation between “value added intellectual coefficient” and financial performance but there are certain studies which are showing unclear or no relationship between the two. In context of “value added intellectual coefficient” and market value, almost all are showing positive relationship except few. Hence, it is not possible to give any statement of strong relationship between IC and firm value as this area need more exploration.

In this study, attempt has been made to include all the studies pertaining to correlation between “value added intellectual coefficient” and firm value, qualitative and quantitative both but there may be possibility that some have not been included.

This findings of the study will definitely made a strong contribution in the existing literature as well provide a sound base to use IC as main driver for value creation or not. Atlast, it can be concluded on the basis of the findings that this area requires more exploration and more studies also be conducted pertaining to intellectual capital and firm value in order to make more clear the role of intellectual capital in firm value.

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Dr. Priti Sharma "Intellectual Capital and Firm Value: A literature review." *IOSR Journal of Business and Management (IOSR-JBM)* 20.2 (2018): PP 01-08.