



Impact of Strategic Resources on Earnings of Firm: A Study of Intellectual Capital on Personal Goods Sector of Pakistan

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Abstract

The study aimed to highlight the importance of knowledge resources and to analyze the effect of intellectual capital on performance execution of the firm. The said objective was mined from the renowned concept of resource based view of strategic management. Intellectual capital was quantitatively measured by applying value added intellectual coefficient method of Pulic (1998) taking the data for last 10 years from 2005 to 2014 from annual performance report of personal goods sector of Pakistan. This was the biggest sector of Pakistan with respect to number of firms listed Pakistan Stock Exchange and contribution in national exports of the country. The findings of the study with respect to the effect of intellectual capital came as per expectation and whereas physical and financial resources depicted unexpected result. As value added intellectual coefficient method consist of capital employed efficiency and intellectual capital efficiency (human capital efficiency and structural capital efficiency). The first constituent of the method had negative and insignificant effect on firm earnings whereas later one had positive and significant value additivity indicating that the more knowledge based resources in the form of human and structural capital firms acquired, the more value they would add in the performance.

Key words: *resource based view, knowledge based resources, intellectual capital, value added, capital employed efficiency, human capital efficiency, social capital efficiency*

1. Introduction

Sustainable competitive benefit is produced by economic resources like assets, competences and proficiencies (Barney, 1991) and these resources are used by the firm to formulate and apply value creating tactics and practices (Hitt & Ireland, 1986; Learned, 1969; Porter, 1981; Thomson, 1983). These resources, on the basis of tangibility and intangibility, are divided into physical capital resources (Williamson, 1975), human capital resources (Becker, 1964) and organizational capital resources (Tomer, 1987) and firm can produce a sustained advantage by

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incorporating empirical condition (i.e. valuable, rare, imperfectly imitable and non-substitutable) in the utilization of resources (Barney, 1991). This led to resource based view (RBV).

RBV states that if a firm wants to enjoy profitability more than the average profitability of competitors in the industry, firm needs to possess strategic resources. Therefore, these resources become necessary for sustainable competitive advantage (Peteraf, 1993; Wernerfelt, 1984). Performance execution of the firm is decided on the apparent side (nature and size) of knowledge of the resources (Amit & Schoemaker, 1993) and extent of tacit knowledge incorporated in the processes of the firm help firm conform, coordinate, and trigger these properties and proficiencies excellently, (Bierly & Chakrabarti, 1996; Grant, 1991; Nonaka & Takeuchi, 1995; Spender, 1996; Teece, 1998) and this initiated the study of knowledge based view under the umbrella of strategic management perspective. Knowledge proves to be the most powerful influential tool and skill of a firm prescribed by Nonaka and Konno (1998). Outlay of staffs, research actions, housing customer capital and structural system is the main attribute of new knowledge-based economy, described by Stewart (1997) and Zeghal (2000). These investments were termed as intellectual capital (IC) and supposed to be main and categorical factors to derive sustainable competitive advantage (Curado, Henriques, & Bontis, 2011; Díaz-Fernández, González-Rodríguez, & Simonetti, 2015; Itami & Roehl, 1991; Nahapiet & Ghoshal, 1998; Subramaniam & Youndt, 2005; Teece, 2000). IC is still underway to have a unanimous definition and constituents (Bhartesh & Bandyopadhyay, 2005; Canibano, 2000; OECD, 2006). IC was defined as “IC as packaged useful knowledge” by Stewart (1997), as “IC to knowledge that can be converted into value” by Edvinsson (1997) and as “IC as being the totality of entire knowledge a firm is capable to use in the course of steering business to create value – a VA for the firm” by Zéghal and Maaloul (2010). Edvinsson (1997) and Stewart (1997) classified IC as human capital (henceforth HC) and structural capital (henceforth SC).

The primary class of IC, for example HC, is alluded to learning and skill as qualifications and capacities of firm staff. This learning moves with the representatives wherever they go and play out their obligations; and whatever is extra as information after workers moves out of the firm, is alluded to second constituent of IC, for example SC. It is essentially business knowledge, information bases, transformational strategies, models and different types of systems utilized for communication among firm and its partners. Experimental hypotheses express that firm can appreciate benefit that it holds effective strategic assets. At first, Capital utilized (physical and money related) was just considered in the class of key asset. Be that as it may, later, when asset based hypothesis was taken under the exchange between researchers, HC and SC under the umbrella of IC were likewise viewed as key asset and essential for acquiring upper performance (Barney, 1991; Peteraf, 1993; Wernerfelt, 1984).

Firm furnished with learning escalated assets has more intensity when contrasted with those which don't have such assets. Worldwide situation of creation has turned out to be very aggressive and is quickly changing because of the accomplishment of innovative headways and new focused ideas. Firms in the created countries has reliably centered around information based generation, while this marvel is less pursued and concentrated in emerging nations. Albeit developing economies more often than not don't concentrate forcefully on building up learning serious assets, they are presently to some degree trying to secure vital assets through information, maybe in light of worldwide focused weight. The logical examinations concentrating on the information execution relationship in the creating scene setting can add esteems to the approach. This examination researches this relationship for an imperative creating nation: Pakistan. To accomplish reasonable development Pakistan is offered with all required key assets (regular and man-made) concerning assembling, exchanging and overhauling ventures. Out of thirty-five recorded segments in Pakistan Stock exchange, the biggest contributory segment and exporter in national exchequer of Pakistan is the personal goods sector (textile). Notwithstanding of its commitment as for cotton creation, number of firms, work, and potential development, this division is disregarded by the administration and strategy creators, to perceive the job of learning in the execution of this area. The center goal of this examination is to connect this hole by breaking down the profitability of scholarly capital assets in including an incentive in firm execution (working, budgetary and securities exchange execution) in personal goods sector of Pakistan.

Structure of the article is as follows: empirical studies in the form of literature review is given after the introductory section. Afterwards, research methodology comprising of data and variable discussion of the study is discussed followed by data analysis and discussion. Conclusion part is discussed in last section.

2. Literature Review

The experimental works demonstrate that human capital aggregations and speculations can extensively influence hierarchical execution (Hitt, Biermant, Shimizu, & Kochhar, 2001). Asset based view researchers push the development of human cash-flow to harvest upper hand, however they disregarded the perils of asset amassing endeavors (Shaw, Park, & Kim, 2013). Breaking down the asset put together stance with respect to the co-operations between human capital misfortunes, speculations and workforce efficiency, Shaw et al. (2013) finds that when interests in representatives are high, human capital misfortunes have a powerless unfriendly impact on firm profitability and when assets for interest in HR are low, human capital misfortunes and firm execution are not essentially related.

Kamboj, Goyal, and Rahman (2015), taking the reaction from Indian directors having a place with different sectorial firms, state experimentally that advertising and operational abilities of the firm have fundamentally certifiable effect on its budgetary execution. Besides, exploring the intervening job of upper hand and store

network the board on the previously mentioned connection, they locate a critical interceding job. Experimental work for the most part delineates that IC significantly augment esteem made by the firm, and in this manner is unequivocally related with its execution (Pucci, Simoni, & Zanni, 2015). The examination of Pulic (1998) on Austrian associations report a high association among Value Addition (VA) and IC, while it is low among VA and capital used (physical and financial resources). This connection advocates the idea, in new learning based economy, that IC is a vital reason for esteem creation for the organizations. Stewart (2002) presumes that limit of the assets in a firm decides the heading of execution to create VA. Of late, utilizing measurements from 150 openly worked firms in Singapore, Tan, Plowman, and Hancock (2007) affirms that contribution of IC in execution of firm shift from industry to industry. In any case, embracing the recently referenced connection among IC and firm execution, their examination delineates that IC affirmatively affects present and future financial execution. Crafted by Firer and Williams (2003) on seventy five openly worked firms in South Africa uncover that IC is unfavorably connected with standard instruments of examination of performance, while the connection between capital utilized (physical and financial) and the proportions of execution is certifiable. Applying the indistinguishable model on Taiwanese innovation firms, comparable impacts are seen in the investigation of Shiu (2006).

Hsu and Wang (2012) found the impact of dynamic capacity on the segments of IC and show its incomplete impact on improving firm execution by examining pooled information of 242 innovative firms from 2001 to 2008. Murale, Jayaraj, and Ashrafali (2010), by examining Indian firms, hypothesize that human capital has the most critical effect on firm esteem making exercises and securities exchange execution. By the esteem making of human capital, firms can build their company's execution. Cheng, Lin, Hsiao, and Lin (2010), investigate the six-esteem creation connections between the four constituents of scholarly capital, recommend a significant alliance among scholarly capital and firm execution. Zéghal and Maaloul (2010), utilizing 300 UK concerns, examined the job of VA as a pointer of IC and its impact on firm execution. They presume that IC affirmatively affects different pointers of firm execution. Sydler, Haefliger, and Prukša (2014), utilizing fiscal intermediaries for human, basic and social capital and longitudinal information for 69 traded on an open market pharmaceutical and bio-tech organizations, expand the possibility that IC does not make costs, rather makes IC resources with enhanced returns. Thus, Ling (2013), taking a legitimate poll from an example of 146 Taiwanese firms, set up a positive connection among IC and business execution, same found by Hejazi, Ghanbari, and Alipour (2016). Numerous scholars have promoted that firm performance can be made the most of by investing in IC (Bounfour, Bismuth, & Tojo, 2008; B. Lev & Sougiannis, 1996; B. T. Lev, 1998; Nimtrakoon, 2015; Ramond & Casta, 2007; Sydler et al., 2014; Wang, Wang, & Liang, 2014). The above discussion leads to following hypothesis:

H₁: Intellectual capital Efficiency has a positive effect on Economic earnings of firm.

H₂: Capital Employed Efficiency has a positive effect on Economic earnings of firm.

3. Research Methodology

The information utilized in this examination comprised of all organizations recorded in personal goods segment on the Pakistan Stock Exchange (PSX), Pakistan, taking ten years bookkeeping information for the year 2005 to 2014. Bookkeeping information was taken from reviewed yearly reports of the organizations, downloaded from the official sites of particular firms. The sector mainly comprising of textile units, was picked utilizing judgment inspecting by keeping in view the contributory components of the individual merchandise area. The information was screened by the accompanying criteria: The organizations for which data was missing due to unavailability of yearly reports in light of merger, repurchase, suspension or delisting were likewise excluded in the investigation. PSX listed 33 divisions containing 557 firms. There were 179 firms gathered in total relating to all segment of textile unites listed in PSX. Subsequent to screening the organizations by applying the previously mentioned criteria, 99 firms, totaling 990 perceptions were left.

3.1 Variables

Economic earnings were used as dependent variable and proxied by Earnings per share (EPS). EPS was operationalized by the ratio of earnings available for common stockholders to shares outstanding. Intellectual Capital Efficiency (ICE) and capital employed efficiency(CEE) were utilized as independent variables to check the aggregated commitment of essential segments of IC (HC and SC) in VA and to quantify each and every asset that guides to add VA individually by applying “value added intellectual coefficient” (VAIC) method initiated by Pulic (1998). The coefficients of VAIC are the productivities of all resources properties operationalized as follows:

1. According to (Donaldson and Preston (1995); DTI (2006)), and Riahi-Belkaoui (2003) the VA was measured as follows:

$$VA = OUTPUT - INPUT$$

Output connote the absolute earnings and consolidate all goods sold in market; inputs comprise all operating outlays excluding the outlays incurred on employees.

2. Capital Employed Efficiency (CEE) measures the commitment of capital utilized (physical and budgetary) in VA. IC itself can't create value. In this way, it is significant to think about physical and financial cash-flow by the owner to have an entire comprehension of the whole of VA delivered by an

association's assets. This coefficient uncovers that how much new yield has been made by one unit of benefit commitments to capital used. This efficiency was estimated as:

$$CEE = \frac{VA}{CE}$$

3. Human Capital Efficiency (HCE) measures the impact of human capital in VA. HC assets contain learning, capability, preparing, background, and instinct of workers of the firm. As per key remuneration idea, staff are repaid based on each commitment they make in the business.

At the season of employing, they are remunerated with occasional pay dependent on capability and encounter and later they are additionally repaid with fiscal advantages on each commitment they make as aptitude upgrade through preparing and bringing new thought through research work. Firms deal with their representatives while they work in as well as in the wake of getting retirement as retirement advantage. Every one of these outlays in the workers are referenced in the yearly monetary report of firm as either staff expense or pay. As per Pulic (2004) and different specialists, worker costs in any shape are estimated as a measure of HC (Lajili & Zeghal, 2006; B. Lev & Schwartz, 1971; Wyatt & Frick, 2010). The HCE further measured as follows:

$$HCE = \frac{VA}{HC}$$

4. Structural Capital Efficiency (SCE) was measured by subtracting HC from VA. SC is not a self-reliant capital. Rather it is dependent on the use of human capital to make it useful. This was calculated as:

$$SCE = \frac{SC}{VA}$$

5. Intellectual Capital Efficiency (ICE) was estimated to analyze the VA of each component of IC (HC and SC) by applying following expression:

$$ICE = HCE + SCE$$

There are distinctive variables which may have effect on various execution zones of the firms, in addition to the independent components used as a piece of the examination. There are various investigations which utilized size and age of the firm as control variable to get clear image of the impact of independent factors on dependent factors. Size factor was measured taking the log of total assets of the firm (Dženopoljac, Janošević, & Bontis, 2016; Riahi-Belkaoui, 2003) and age factor was estimated by taking time between data period and inception of the firm (Autio, Sapienza, & Almeida, 2000).

4. Data Analysis and Discussion

Summary statistics of all variables used in the study are reported in Table 1. Average value of earnings of firms stood at 11.84 which looks optimal on stand-alone basis. However, deviation of the term was very high which indicate about the high volatility of the sector. CEE as a proxy for physical and financial resources invested in firm by shareholders added value of 0.80 against each dollar of investment. HCE is adding better to the firms by contributing 2.33 on average against each dollar invested in employee. Having average age of 30 and size of 7.62, firms were generating more value through intellectual resources as compared to physical and financial resources (ICE>CEE).

Table 1: Descriptive Statistics

Variables	N	Mean	Std. Dev.
EPS	979	11.8445	47.7898
CEE	915	0.8054	5.5592
HCE	917	2.334	6.2363
SCE	919	0.2255	5.1812
ICE	917	2.5582	8.2109
VAIC	94	3.3661	9.9624
AGE	990	30.378	14.808
SIZE	977	7.6299	1.1926

Relationship between the regressed and regressors were measured using Pearson correlation test after checking the normality of the data through histogram and results are given in Table 2. Dependent and independent variables demonstrated mixed relation with 5 % percent significant value. Earnings and physical and financial capital (CEE) has insignificant negative relation which depict unusual result because firm generate value by establishing physical resources through equity investment. However, firm performance was positively significantly related with human capital efficiency (HCE) and same with the in the case of intellectual resources (ICE). Age and size of the firm also had significant positive relation with firm performance. Similarly, independent variables had mixed relationship among

themselves. CEE had significant relation only with VAIC whereas ICE had significant positive relation with all variables except CEE.

Table 2: Correlation Analysis of All Variables

Variables	EPS	CEE	HCE	SCE	ICE	VAIC	AGE	SIZE
EPS	1							
CEE	-0.0170	1						
HCE	0.0804*	0.0088	1					
SCE	0.0347	0.001	0.0251	1				
ICE	0.0831*	0.0074	0.7754*	0.6508*	1			
VAIC	0.0590	0.5644*	0.6450*	0.5378*	0.8296*	1		
AGE	0.1459*	-0.0359	-0.0134	0.0188	0.0018	0.0186	1	
SIZE	0.1361*	0.0129	0.0132	0.0321	0.0304	0.0322	0.1696*	1

*Significant at 5%

Collinearity between the independent variables was checked to highlight the independency of the regressors applying variance inflation factor (VIF) and tolerance level. Model will be suffering from multicollinearity problem if VIF of X variables is more than 5 and tolerance value (1/VIF) of X variables is less 0.2. maximum value of tolerance is 1. We can see from the Table 3 that model did not have multicollinearity problem.

Table 3: Multicollinearity Analysis

Variable	VIF	1/VIF
ICE	1.00	0.999025
CEE	1.00	0.998308
AGE	1.03	0.971092
SIZE	1.03	0.971299
Mean VIF	1.02	

After analyzing multicollinearity, following regression model was measured for testing the above given hypothesis:

$$EPS = b_0 + b_2 ICE + b_1 CEE + b_3 age + b_4 size + \mu \dots \dots \dots (Model 1)$$

Choosing among the best fitted OLS model among fixed effect model and random effect model for panel estimation, Hausman test was applied at 5 % significant level. Results of both model in the form of Hausman are given in Table 4. Fixed effect model was preferred by Hausman test as its probability came less than 0.05.

Coefficients of all regressors except CEE were positive and significant for effecting the EPS of the firm. Intellectual resources of the firm (ICE) were impacting positively and significantly (0.3898) supporting H₁ that Intellectual Capital Efficiency has a positive effect on Economic earnings of firm whereas CEE was negatively and insignificantly bringing change in EPS which does not support H₂ that Capital Employed Efficiency has a positive effect on Economic earnings of firm. The measured effect of ICE on firm performance is consistent with Stewart (2002), Chen, Zhu, and Yuan Xie (2004), Riahi-Belkaoui (2003), Tan et al. (2007), Muhammad and Ismail (2009), Zéghal and Maaloul (2010), B. Lev and Sougiannis (1996), B. Lev and Zarowin (1998), Casta, Ramond, and Escaffre (2006) and (Wang, Wang, Cao, & Ye, 2016).

Control variable (age and size) were also demonstrating the same result and ICE had. the effect of age is significant (consistent with Casta et al. (2006) and Zéghal and Maaloul (2010)). Firm size has a significant, positive effect on the performance, as shown by with Riahi-Belkaoui (2003) also. However, if we compare all coefficients, size of firm had major and largest value of impact.

In the context of personal goods sector of Pakistan which is mainly comprising of textile units, the significant and positive result of ICE asserted that these firm were shifting their focus on knowledge based resources rather than merely focusing on quantity based resources. Since long, developed nations had already made their intentions fixing on human capital efficiency and intellectual capital efficiency. The more the intellectual and knowledge resources personal goods sector collected, the more earnings enjoyed by the firms.

Table 3: Hausman Test

Dependent Variable: EPS				
Variables	Fixed Effect Model		Random Effect Model	
	Co-efficient	P	Co-efficient	P
ICE	0.389843	0.025	0.3875202	0.023
CEE	-0.171911	0.516	-0.1292803	0.617
AGE	1.703092	0.004	0.548436	0.003
SIZE	11.03237	0.012	7.469775	0.000
Const.	-125.3743	0.000	-62.61256	0.000
Coefficients				
	b.	B	(b-B)	
	Fe	Re	Difference	S.E.
ICE	0.389843	0.3875202	0.0023742	0.0309157
CEE	-0.171911	-0.1292803	-0.0426307	0.0534080
AGE	1.703092	0.548436	1.154656	0.5657753
SIZE	11.03237	7.469775	3.56259	3.8403240
Prob>chi2	0.0001			

Note: significant at 5 per cent.

5. Conclusion

This study was conducted focusing on the application of idea generated by resource based view with respect to resources a firm must possess to gain sustainable competitive advantage. This theory advocates knowledge based view which states that knowledge based resources of the firm have more advantage than other resources. If a firm wants to achieve competitive advantage and which should also be sustainable having all empirical condition of resource based view, firm needs to invest in components of intellectual capital.

In this respect, impact of intellectual capital as compared to physical and financial capital was measured on earnings of the firm taking personal goods sector of Pakistan as unit of analysis for the period 2005-2014.

The findings of the study were as per expectation that intellectual capital efficiency of the firm had significant positive addition in the earnings of the firm. Firm generated more value by investing in labor intensive resources. Intellectual capital comprises of human capital efficiency and structural capital efficiency. Human capital efficiency is addition of value in firm performance through employee knowledge whereas structural capital efficiency is value addition through firm knowledge in excess of employee's knowledge. Personal goods of Pakistan is

mainly capital intensive sector where capital has more significance than labor. However, results asserted that firms in the sector acquired intellectual resources and generated positive execution. This finding also highlighted firm in the sector were focusing on accumulation, training, and strategic compensation of human capital. From structural side of intellectual capital, result showed that firms in personal goods sector were somewhat deploying automation and technological advancement to produce value in all steps of textile products. Outcome of physical and financial capital (CEE) was surprising having insignificant and negative effect on firm performance. It was strong intuition that this capital was mandatory for every firm to produce value at all levels, operating and stock market but results demonstrated opposite coefficient. Age and size were used as control variables in the study. They had expected effect on the firm performance. Aging and up-sizing bring maturity and resource space, respectively which played significant role in value addition. By grasping the effect of the above results, firms need to: invest more in its human capital: bring more professionalism among employees through training and development program: adopt modern technology to avoid time delaying and costly measures: replace the obsolete physical resources with updated and competitive resources. With respect to limitation of the study, primary instrument can be used to check the effect of knowledge based resources on firm performance and comparative study can be designed among various sectors of Pakistan.

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