



ANALYZING THE MODERATING ROLE OF KNOWLEDGE MANAGEMENT IN THE RELATIONSHIP BETWEEN INTELLECTUAL CAPITAL AND ORGANIZATIONAL PERFORMANCE

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Abstract

The objective of this study was twofold: to empirically examine the impact of intellectual capital on organizational performance, and analyzing the moderating role of knowledge management on the proposed relationship. Sample size was 400 but 352 questionnaires were useful for statistical purposes. Reliability was measured by using cronbach's a while construct validity was

assessed by exploratory factor analysis. Convergent validity was evaluated by using composite reliability and average variance extracted. Hierarchical linear regression analysis was applied to check the proposed hypotheses. Results support hypotheses 1a, 1b and 1c which claimed that human capital, relational capital and structural capital positively influence organizational performance whereas evidence concerning the moderating impact of knowledge management on the association between intellectual capital and firm performance was not supported by the results of this study. Findings of this research are uniformly helpful for academics and professionals. Limitations and further research directions are also enlisted.

Keywords: Human Capital, Relational Capital, Structural Capital, Knowledge Management, Organizational performance

INTRODUCTION

Galbraith (1969) was the first author to define intellectual capital (IC) as “an invisible asset of a firm” and since then IC has been given immense consideration. Significant support recommends the vital role intellectual capital plays in real life (Lin, Lee, Chao, & Liu. 2015), selling prices are very greater than the actual prices in the corporations as “Apple, Microsoft, Google, Amazon, etc.,” and the primary element behind this phenomenon is IC. Contemporary businesses are giving grand importance to IC which entails human capital (HC), structural capital (SC), and relational capital (RC) as compared to conventional material resources which are equipment, land, finance and labour. Resource-based view (RBV) theory supports this study which claims the resources of business, especially intangible ones, are more possibly will add to a business’s achieving and maintain greater performance (Eisenhardt & Schoonhoven, 1996). Bounfour (2003) in his study of 100 US companies uncover that the improvement in IC leads to superior firm performance.

Corporations must seize adequate IC to allow them to effectively race in the worldwide market since intangible capitals are attaining a more principal role in accomplishment and endurance than material commercial resources (Ling, 2013). IC literature is teeming with the studies investing the influence of IC on firm performance (Mehralian, Nazari, Akhavan, & Reza, 2014). Prior studies investigated the impact of IC on monetary and non-financial performance in multiple sectors but there is a scarcity of research examining the influence of IC on the performance of the banking sector of Pakistan. In the knowledge-based economy, the key aspect of the potential achievement and durable productivity of organizations is said to be the IC

(Kianto, Andreeva, & Pavlov, 2013). Consequently, the prevailing business milieu necessitates investigating the effect of IC on firm effectiveness of banking sector of Pakistan.

OP is the hub of business studies which is an intricate and multifaceted phenomenon to study (Gharakhani & Mousakhani, 2012). Wheelen & Hunger, (2000) describe the performance as “an end result of an activity” while the OP is the sum of all activities and process of organization. OP should be evaluated and measured by the administration so that the firm means and assets may be utilized in a superior fashion. OP is monitored and evaluated by supervisors for the reason that it indications to a provision of superior consumer worth, advancement in the evaluation of firm knowledge and superior management of resources which affects the status of a business. (Larsen & Wetherbe, 1999) posits that “efficiency (productivity), organizational effectiveness and industry ranking” are the utmost commonly employed methods of OP. (Robbin & Coulter, 2003) define efficiency as “minimum utilization of resources and getting maximum output” and effectiveness is “how well the job gets done”. Moreover, inconsistent results of firm performance are owing to variation in firm assets which entail both tangible and intangible assets (Harris, McMahan, & Wright, 2012). For that reason, enhancing firm performance does not exclusively rest on the effective exploitation of tangible assets but as well on intangible assets, for instance, the successful knowledge management (Mills & Smith, 2011) and the activities of human resources (Moideenkutty, Al-Lamki, & Sree, 2011).

Knowledge plays a vital role in this era of the knowledge-based economy (Argote & Ingram, 2000). Knowledge has emerged as the most valuable resource for variety of firms in today’s competitive and constantly altering economic milieu (Arora, Sairam, & Srivastava, 2002). The most crucial basis of business competitive advantage is its organizational capability to engender and hoard knowledge (Choi & Lee, 2002). In order to make business knowledge more fruitful in such a volatile business atmosphere, firms are always encountering challenges (Khaliq, Shaari, Abdul, Isa, & Ageel, A, 2013). The role of knowledge management (KM) and intellectual capital (IC) in gaining competitive advantage has been highlighted by academia and practitioners alike in the current past (Shih, Shih, & Chu, 2010). One of the KM practices is knowledge sharing (KS) which helps a business in developing organizational effectiveness (Obeidat, Zyod, & Gharaibeh, 2015). The effect of IC or knowledge management (KM) has been greatly studied but little studies empirically investigated the interface impact of IC and KM on organizational performance. Several researches substantiated that the framework to deal with intellectual capital is supplied by KM (Housel, & Nelson, 2005; Shih, Chang, & Lin, 2010). Previous studies also revealed that KM develops IC into value (Housel & Nelson, 2005; Jih, Helms, & Mayo, 2005). Shih et al., (2010) concluded that the creation of knowledge is extremely pertinent to IC in the banking sector which in turn affects the accretion of human capital. The

possible moderating role of KM on connection between IC and firm performance is empirically inspected by very scarce studies. Keeping in mind the (Roos, Bainbridge, and Jacobsen, 2001) study, it would be interesting to investigate the moderating role of KM on the link between IC and performance of banking sector of Punjab, Pakistan.

Banking is one of the major financial industries of the world as well as of Pakistan which is facing intense competition not only in world but also in Pakistan. Maintaining superior firm performance is the principal goal of any business operating in any sector without the exception of banking industry. Hence, boss should recognize and deal with the fundamental drivers of firm performance in their business (Pike, 2005). Scholars and professionals have unearthed that intangible assets like knowledge and customer relationship are source of greater OP in variety of businesses which in turn build IC (Edvinsson, 2013). Tan, Platts & Noble (2004) establish that if businesses do not take into account intangible assets their authority and prophecy method of performance may not be as valuable. Previous studies have examined the impact of IC on OP (Krambia-Kapardis & Thomas, 2006; Jerman, Kavcic & Kavcic, 2009) little research has empirically studied the influence of IC on performance of banking industry of Punjab, Pakistan. Nonetheless, it is exclusively unclear in what way the diverse rudiments of IC add to produce a superior firm performance (Bontis and Fitz-enz, 2002).

The scope of this research is distinctive in the banking industry of Pakistan since the managers of banking sector are not well conversant with conception of IC. The aim of this investigation is to survey the moderating role of KM in liaison with IC and performance of banking sector of Punjab, Pakistan. None of the research has empirically investigated the anticipated relationship in banking industry of Punjab, Pakistan. Besides, the current study draw its significance from being carried out in the Pakistani banking sector which is critically experiencing the relentless universal rivalry and call for taking advantage of all feasible prospects to augment organizational performance.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The expression IC was first invented by J.K. Galbraith in 1969 (Chang & Hsieh, 2011). Most of the scholars and professionals are unanimous that there is no universal definition of IC and its reason is that the conception of IC is in the embryonic stage (Khalique, Shaari, Isa, Ageel, 2011). Stewart (1997) has termed IC as follow: “packaged useful knowledge” (p. 67). IC might be enumerated in two corresponding orders. The first course deals IC as an element and spotlight on the wealth IC may generate. Tobin’s Q and the value of variation are the classic examples. Market capitalization and book value techniques are used to gauge IC (Edvinsson & Malone 1997; Knight 1999). The second course deals IC as separable. Edvinsson & Sullivan

(1996) and Sveiby (1997) enumerated IC as a result of organizational and human capital. Stewart (1997) expanded the IC into three components by introducing customer capital.

Stewart demonstrated that IC is an entire stash of the joint awareness, instruction, scientific know-how, dexterity, proficiency, intellectual property, consumer allegiance and group management which might be employed to generate the value of commodities and services in corporations. IC derived from a variety of intangible assets, for instance, worker's aptitude, information, learning, expertise, rational nimbleness, trademark name, consumer liaison and business configuration (Bontis, Keow & Richardson, 2000; Shaari, Khalique & Isa, 2010). As specified previously, this study takes into account following three facets of IC, namely: human, relational and structural capital.

Human Capital

The utmost vital element of IC is human capital. Human capital is contemplated as the core of IC (Khalique et al. (2011a) and it is defined as the shared knowledge, dexterity, novelty together with the capability of workers (Bontis, et.al, 2000). Isaac, Herremans, & Kline, (2010) claimed that human capital is linked with worker's information, ability, talent, aptitude and novelty. Khalique et al. (2011a) demonstrated that human resources engender IC in the course of their capability, approach and logical quickness. For that reason, human capital is a central constituent of IC. While working on the resource-based view (RBV) theory, Wright, (McMahan and McWilliams, 1994) contends that HC is a source of sustained competitive advantage. The RBV theory states that businesses assess the powers and limitations of their sources and then choose an approach which is feasible. In these days' fast-paced, dynamic competitive ambiance, HC is indispensable for success (Subramaniam & Youndt, 2005). HC theory holds that knowledge affords persons with superior cognitive skills, resulting in enhanced output and resourceful action (Davidsson & Honig, 2003). It pursues that competence concentrate on whether or not persons have the compulsory stages and amalgamation of knowledge and dexterity to perform the duties that they are accountable for (Hitt, Bierman, Shimizu & Kochhar, 2001). Hi-tech corporations call for persons, who are conversant with exceptional analytical talent and have the aptitude to make a value judgment.

Besides, HC theory concentrates on the significance of a business's workforce based on the framework of performance (Brown, Adams & Amjad, 2007). HC focal point is worth that is put into a corporation's trade, eventually in the form of success, exclusively by its supply of workforce (Dakhli, de Clercq 2004). Colombo & Grilli (2005) contend that businesses with superior HC (e.g. higher education and expertise) lead to the greater entrepreneurial ruling. Enhanced worker performance may lead to greater organizational performance only if HC keep

on developing performance (Hsu, 2007). On the basis of literature review, we can say that business with greater HC will have superior firm performance which will form the basis of competitive advantage. HC swells when personnel amass specific comprehension, expertise and savvy. This lets them correspond competently and successfully, which diminishes administrative fault, so augmenting worth and developing performance (Luthans & Youssef, 2004). Hence, for a business, HC has a positive link with firm performance.

H1a: Human capital is positively linked to organizational performance.

Relational Capital

RC is described as the origin for joint action in communities (Burt, 1992). RC take care of the flow of assets via a societal configuration. RC is demarcated as the corporation's implied group of accessible assets and unending contact put into practice through exchanges among persons or business (Kostova & Roth, 2003; Shipilov & Danis, 2006). It means that the uniqueness of RC will diverge equally the dealings under assessment and the funds that may be engaged via these associations. RC in business augments the excellence of its associates and the affluence of knowledge swapped amongst exchange cohorts. RC represents in how it makes possible communications and the swap of knowledge. A business can expand vital information or aid from its dealer, consumers, and other extrinsic associates. RC literature contends that the increase in the stage of interface amid allies leads to the establishment of organizational customs (Nelson & Winter, 1982). This argument is supported by social exchange theory (Macneil, 1980). It contemplates inter-organizational affairs in the framework of a societal configuration whereby businesses are mutually supporting and count on reciprocation. Social exchange muse on the bond instead of the business in which way an intricate individual and managerial configuration develop between businesses.

Trust is a vital course of association in social exchange (Morgan & Hunt, 1994). This procedure modest the influence of control and establish the awareness of equality in a barter bond. A previous record of collaboration involving businesses has been created to diminish the swap perils (Deeds, & Hill, 1998). RC instituted through former interactions can surrogate for unambiguous treaties (Dyer & Singh, 1998). Mutual outlook increases in response to an understanding of a reliable cohort which kindles learning as the affiliation grows (Doz, 1990). Relationship swap results in constructive upshot. Businesses that opt for an association viewpoint as their deliberate approach inescapably have to center on the liaison with their clientele and other stakeholders. Numerous scholars have regarded customer relationship with the utmost imperative factor of RC (Duffy, 2000). The studies on RC imply that by connecting customers who have had a secure and entrenched interaction with a business demonstrated

enhanced organizational performance (Bonner & Walker, 2004). A lot of industrialized businesses are getting drawn in closer interaction with their traders with the intention of utilizing their expertise, competence and knowledge for developing novel goods quickly and at a little price. As a result that close relationships with dealers have an optimistic effect on the performance of the firm (Walter, 2003). Reuer, Zollo & Singh (2002) assert that repetitive ally-peculiar affairs have a vigorous influence on accrued understanding than recurring broad knowledge interaction. Thus, we propose the following hypothesis:

H1b: Relational capital is positively linked to organizational performance.

Structural Capital

Structural Capital (SC) is one of the vital elements of IC which is believed to be the adhesive of the corporation. SC is represented by each form of the non being stockroom of knowledge consisting of databanks, organizational diagram, guidebook of processes, tactics, customs and guidelines (Bontis et al., 2000; Shaari et al., 2010; Khalique et al., 2011). Normally, SC of a business encompasses framework, organization guidelines and actions (Khalique et al., 2011a). SC defined by Roos, Roos, Edvinsson & Dragonetti (1998) “what remains in the company when employees go home for the night”. In accordance with Shih, et al. (2010), SC primarily offers the atmosphere that assists human resources to infuse their HC to craft and influence its knowledge to augment the business performance. IC has been acknowledged, dignified, seized and influenced to fabricate a superior prized resources and enhance the firm performance (Wang, 2011). OP is greatly influenced by IC (Khalique et al., 2011). Sharabati, Jawad & Bontis (2010) in their study of Jordan pharmaceutical industry established that IC is a fundamental element to boost novelty, creativeness along with firm performance.

SC contains supporting configuration and environment which facilitate HC to play its role. SC is used to describe both the material and immaterial framework of the business, that is, operational structure, procedures, catalogs, calculated tactics, customs and information technology (IT) (Alwis, 2004; Walsh, Enz & Canina 2008). Organizational attributes like culture of the business, structure of management and processes, networks of knowledge and values of business also fall under the domain of SC (Roslender & Fincham, 2004). SC, in the hotel sector is generated by performing tasks like room functions cuisine and drinks operations (Walsh et al., 2008). Vital elements of SC in hotel sector are IT, culture, and business processes (Nemec, & Mihalic, 2007). Same is the case of banking sector. Thus, we propose following hypothesis:

H1c: Structural capital is positively linked to organizational performance.

Organizational Performance

Organizational performance (OP) is thought to be the vital subject of both business and philanthropic organizations. To enhance OP is something that the majority of business attempt to realize (Uzkurt, Kumar, Kimzan, & Eminoglu, 2013). Few aspects narrated by previous studies to have an impact on business performance and its enhancement contains business ethos (Agbejule, 2011), strategy and milieu of business (Tuanmat & Smith, 2011), learning of human resources and organization (Molina & Callahan, 2009), and workers participation and attachment to business objectives (Bhatti, Waris, Zaheer & Rehman, 2011). OP has been defined by numerous scholars in variety of ways. According to Gharakhani et al., (2012) performance denotes the capability of a business to produce results and actions at a suitable rank. Additionally Ramayah, Samat & Lo, (2011) enumerated that OP denote the point that an organization fulfils its individual requirements and its ally requirements with the intention of survival. Moreover, Ho (2011) denoted that OP “as a measure of how well an organization achieves its objectives”. OP is evaluated by variety of ways by performing different methods and it may have diverse objectives (Abu-Jarad, Yusof & Nikbin, 2010). Nevertheless, doing this job is very difficult once it come around evaluating OP subject exclusively to pecuniary methods is inadequate, non-fiscal processes must also be exercised (Tseng, S. 2010). Zack, McKeen & Singh, (2009) recommended that OP must be evaluated on five aspects which are: “innovation, rate of new product development, customer satisfaction, customer retention, and operating costs”. Conversely, Clarke, Seng & Whiting, (2011) suggested four aspects for assessing OP which is: “return on assets, return on equity, revenue growth, and employee productivity”. Operational and financial measures are employed in this research to evaluate OP as recommended by (Wang, Wang & Liang, 2014)

Operational Performance

In the present day’s business atmosphere businesses must try hard to work in the most competent and successful manner (Slack, Chambers & Johnston, 2004). Its reason is that businesses are facing changes created by these economic milieus which are exceptionally vibrant and uneven (Santa, Ferrer, Bretherton& Hyland, 2010). Operational performance denotes “the performance related to organizations’ internal operation, such as productivity, product quality and customer satisfactions” (Feng, Terziovski & Samson, 2008) p. 26. Besides, Manikas& Terry, (2010) mentioned operational performance as the capability to assess the upshot of the processes of business. Moreover, operational performance is referred to as non-pecuniary facet of a business shared and public associations and viable accomplishment features that manipulate the effectiveness of its process (Luo, Huang, and Wang, 2012).

According to Peng, Schroeder & Shah, (2011) enumerated following five aspects of measuring operational performance which are “cost, quality, delivery, flexibility, and innovation”. The logic behind popularity of such non-fiscal measures is because of that they are employed as a source of transmitting a business approach and idea into an instrument that sway performance and bring about greater economic performance (Fullerton & Wempe, 2009).

Financial Performance

The most extensively employed measure of OP is financial performance since the profit of OP typically emerges in the financial outcome of a business (Chang & Lee, 2012). Ho (2011) defined financial performance as “the extent to which the organization performs in relative profitability, return on investment, and total sales growth” (p. 120). Besides, Luo et al., (2012) denoted fiscal performance as realization of a business’s monetary objectives that may be revealed in the upshot of pecuniary as well as market sign. Hernaus, Bach & Vuksic, (2012) denoted that financial performance can be measured against following dimensions, namely: “return on assets (ROA), return on equity (ROE), return on investment (ROI), profit margin, earning per share, and value per employee”. On the other hand, (Katchova & Enlow, 2013) mentioned that the most popular measure to evaluate financial performance of an organization is ROA and ROE. It is pertinent to mention here that OP should not be exclusively measured by financial performance which solely is inadequate to advance financial outcomes (Tuanmat & Smith, 2011). Gruian (2011) declared that operational performance leads to financial performance; so it can be rightly said that there would be no financial performance without operational performance. Accordingly businesses must take up a performance- assessing method which glances afar evaluating just financial performance (Chang & Lee, 2012).

Moderating Effect of Knowledge Management Strategy

Information technology and human factor have great dominance in contemporary KM research (Gloet & Berrell, 2003; Gloet & Terziovski, 2004). Sveiby (1997) in his study highlighted two aspects of KM which are people focused and technology focused. On the other hand, Hansen, Nohria, & Tierney (1999) identified two diverse KM strategies which are “people-to-documents approach” and “a person to- person approach”. Nonaka & Takeuchi (1995) propounded KM model which consists of “externalization, combination, socialization, and internalization”. Externalization is source of processing implicit knowledge into explicit knowledge; explicit to explicit knowledge sharing through communication channel is called combination. Tacit to implicit knowledge sharing is called socialization and explicit knowledge is transformed into implied knowledge by way of internalization (Nonaka & Takeuchi, 1995). To some extent,

Sveiby's (1997) technology-centered policy and Nonaka and Takeuchi's (1995) externalization and combination style are greatly similar while Sveiby's (1997) people-centered policy resembles to socialization and internalization style of Nonaka and Takeuchi's (1995). KM can be operational or strategic KM. Operational KM emphasizes the use of information technology among personnel whereas strategic KM deals with business approach and the expansion of knowledge experts (Perez & de Pablos, 2003). It can be concluded that operational KM focus on technology and at the same time strategic KM focuses human beings. Technology- focused and people-focused KM strategy is used in this study as moderator. The technology- focused policy is influenced by information technology and takes into account the material facet of knowledge management (Sveiby, 1997; Hansen et al., 1999; Perez & de Pablos, 2003). The method of codification and credentials are used to store and preserve knowledge in order to make workers knowledge more open and manageable (Sveiby, 1997; Ponelis & Fairer-Wessels, 1998; Hansen et al., 1999).

The constructive tools of knowledge codification and sharing entails credentials like software, communiqué remarks, networks, user handbook and business policy papers (Ponelis & Fairer-Wessels, 1998; Hansen et al., 1999; Perez & de Pablos, 2003). This approach has been adopted by multinational corporations (MNCs) which embrace commercial golden folio, training lessons, rivalry aptitude, and additional elements, like information on universal fiscal, public, political, scientific, and market fashion in their catalog (Stewart, 1997; O'Dell & Grayson 1998.; Wang & Ling, 2005). The people-focused strategy is led by business learning which shed light on implied characteristics of KM (Sveiby, 1997; Hansen et al., 1999; Perez J .R & de Pablos, 2003). The people-focused approach stresses the creation and allocation of knowledge by means of communications amongst people (Stewart, 1997; Sveiby, 1997; Ponelis & Fairer-Wessels,1998). Staff interaction can be accelerated by the development of societies of practice, rotation of personnel on different assignments (Stewart, 1997; Doyle 1998; Di Stefano & Kalbaugh, 1999), knowledge swap (Bartlett & Ghoshal 2000) and the concentration of administrators into the culture of business (Pai, 2005).

Roos et al. (2001) proposed the moderating link of KM strategy on business entities following different strategies but did not empirically investigate this connection. Additionally, people-focused approach is akin to the people-oriented knowledge management strategy, while their technology-oriented knowledge management strategy is analogous to process-focused strategy. A people-oriented corporation is driven by its human and relational capital. Well-informed and experienced personnel (human capital) deliver superior firm performance who exploits these characteristics to generate special interaction with their clientele (relational capital) (Roos et al., 2001). Previous international HRM literature proposed that proficient

worldwide directors (human capital) with sturdy intercontinental set-up (relational capital) augment a business’s competitiveness (Antal, 1993). Therefore, a people-oriented knowledge management approach may possibly moderates the link between human capital and business performance along with relational capital and business performance. A process-centered corporation is driven by its organizational assets (structural capital) and organizational affairs (relational capital) (Roos et al., 2001). Superior firm performance may be delivered via consumer relationships (relational capital), official training and staffing practices (structural capital) and by supplementary consistent organization-oriented manufacturing style. The following hypotheses are anticipated on the basis of above deliberations:

H2a: Knowledge management strategy (people-focused) acts as moderator between human capital and organizational performance.

H2b: Knowledge management strategy (people-focused) acts as moderator between relational capital and organizational performance.

H2c: Knowledge management strategy (technology-focused) acts as moderator between structural capital and organizational performance.

H2d: Knowledge management strategy (technology-focused) acts as moderator between relational capital and organizational performance.

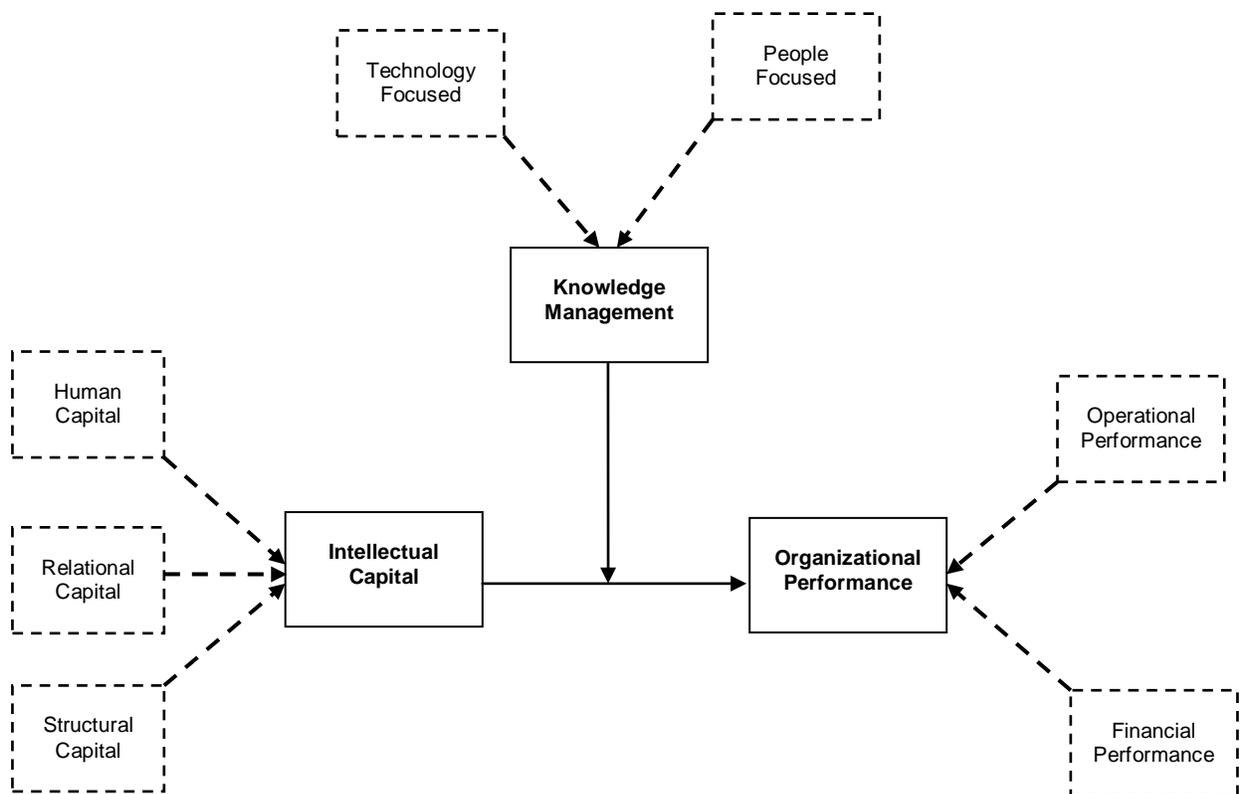


Figure 1 Conceptual Model

METHODOLOGY

Hypotheses were tested by running regression analysis and the moderating impact of KM on IC and performance of banking sector has been checked by running linear hierarchical regression by using SPSS version 20.

Statistical population and sample

All the management staff providing customer services in the banking sector of Punjab was the target population of this study. These include branch manager, relationship manager, assistant manager, cash officer, business development officer (BDO), operations manager, mobile cash officer (MCO), teller, loan officer, customer services officer (CSO), general banking officer (GBO) etc. A brief but comprehensive introduction and objective of the study was clearly mentioned on the top of the questionnaire. Further the participants of banking staff were briefed about the purpose of research by researcher via telephonic conversation, email and also by face-to-face meetings. Convenient sampling technique was employed to gather data from banking staff. Questionnaire was sent to participant by email using Google docs. Collection of data took almost three months. Overall 400 questionnaires were sent to respondent at their email addresses. Two follow-up emails were sent to non-respondents. 367 questionnaires were returned out of 400. Out of these 12 questionnaires were incomplete and were expelled from later scrutiny. 352 questionnaires were used in subsequent analysis and making a response rate of 88% which is thought to be a good response rate.

Control variables

Age and size (counting capital together with amount of workers) of firm has been introduced as control variables in the analysis. Organizational performance is influenced by age and size of firm (Hannan & Freeman, 1984; Youndt, Subramaniam & Snell, 2004; Reed, Lubatkin, & Srinivasan, 2006). Intellectual capital entails the generation and dissemination of knowledge which is evolutionary and it alter with age (Youndt et al., 2004). Size of firm play role in expansion of intellectual capital by means of the access to assets (Youndt et al., 2004; Serenko, Bontis, & Hardie, 2007). Age is evaluated as the number of years ever since the business was started (Reed et al., 2006). Size is reckoned as (1) firm capital and (2) number of personnel (Reed et al., 2006).

Data collection instruments

Three aspects are used to measure intellectual capital which consists of human, relational and structural capital. Survey items of human, relational and structural capital are adopted from

literature from the study of (Nixon kamukama, 2013) which contain eight questions on HC, six questions on RC and four questions on SC. OP is measured by using operational and financial performance which is adopted from (Wang, Wang and Liang, 2014) and include four items on operational performance and three items on financial performance. KM strategy questionnaire used in this study was taken from (Ling, 2013) which consists of seven questions and entails four items on technology-oriented KM and three items on people-oriented KM. Five points Likert-scale was used to measure participants response where one was for strongly disagree and five for strongly agree. Instrument used in this study was decoded from English to Urdu version with the intention of augmenting the apprehension of the subject. Three professors of management sciences reviewed both the English and Urdu version of instrument. Further the research instrument was pre-tested by ten officers of different banks. The instrument was made final after making minor amendments.

Analytical procedure

Hierarchical linear regression analysis was performed by using software SPSS version 20. Pilot study was conducted with five bankers from different banks to test the face validity. Content validity was confirmed by extensively reviewing concerned empirical and theoretical studies pertinent to survey constructs while Exploratory Factor Analysis (EFA) with varimax rotation method (Hair, Black, Babin, Anderson & Tatham, 2010) was used to test construct validity. Assumptions of EFA were satisfied i.e. that sample size should be greater than 200 and further it should be homogenous.

Those items were considered which have eigenvalue greater than 1 and factor loadings greater than 0.40 Items that did not satisfy this norm were removed. Tsai, Lai, & Hsu (2013) contend that the threshold value for measuring reliability is 0.07 which is measured by using Cronbach's α and the composite reliability (CR) tests. Convergent validity is measured by using CR and average variance extracted (AVE) and threshold value for measuring CR is 0.07 and 0.05 for AVE (Gefen, Straub, & Boudreau, 2000; Hur, Ahn & Kim, 2011; Ho, 2015) (see Table 1 in Results section).

RESULTS

The hypotheses of the study have been investigated to calculate the conceptual model and to examine the impact of predictor variables on outcome variable by using SPSS version 20. The precondition for performing regression analysis is that data must be normally distributed. Skewness and kurtosis tests have been conducted for analyzing normality of data. The lowest value for skewness was -0.537 while the highest value was -1.651. On the contrary, the kurtosis

value was in the range of 0.105 to 1.384. Values of skewness and kurtosis falling in the array of ± 2 denoted that normality of data was not a problem because data was distributed normally. The findings of KMO test demonstrated that the measurements for the entire questions were > than the threshold value of 0.50 and on the other hand the Bartlett's test of sphericity displayed significant numbers for all the questions ($p < 0.05$) giving a clear indication that factor analysis was suitable. Findings from regression analysis may not be free from the effect of multicollinearity because of soaring correlation among the exogenous variables. Multicollinearity was gauged by Variance inflation factor (VIF). The VIF for exogenous and endogenous variables was 1.027 which is < than the reference value of 2.5 as proposed by (Allison P.D, 1999). Hence multicollinearity did not have effect on data.

Harman's single factor test was conducted to check the Common Method Bias (CMB) Williams, L. J., & Anderson, S. E. (1994) due to the fact of utilizing single means of data. The Harman's test confirmed that CMB was not an issue in our data since exploratory factor analysis anchored in unrotated resolution did not explicate the bulk of the variation. It clarified merely 17% of variation. The minimum value of exploratory factor analysis (EPA) was 0.517 while the highest value was 0.858. Table 1, indicates that values of EFA, CR, AVE and α , is greater than threshold value of 0.04, 0.07, 0.05 and 0.07 respectively. SO all construct items are valid and reliable.

Table 1 Reliability and Validity

Variables	Items	Factor Loading (EFA)	CR	AVE	A
Intellectual Capital (HC)	HC1	0.823	0.839	0.513	0.869
	HC2	0.735			
	HC3	0.671			
	HC4	0.714			
	HC5	0.654			
	HC6	0.633			
	HC7	0.798			
	HC8	0.643			
Intellectual Capital (RC)	RC1	0.563	0.991	0.687	0.717
	RC2	0.711			
	RC3	0.744			
	RC4	0.678			
	RC5	0.622			
	RC6	0.757			
Intellectual Capital (SC)	SC1	0.831	0.866	0.507	0.769
	SC2	0.751			
	SC3	0.873			
	SC4	0.733			

Variable	Sub-Variable	Correlation	OP	FP	TF	PF
Organizational Performance(OP)	OPP1	0.793	0.973	0.601	0.850	
	OPP2	0.771				
	OPP3	0.740				
	OPP4	0.687				
Organizational Performance (FP)	FP1	0.875	0.857	0.531	0.743	
	FP2	0.783				
	FP3	0.631				
Knowledge Management (TF)	TF1	0.564	0.710	0.609	0.801	
	TF2	0.492				
	TF3	0.611				
	TF4	0.701				
Knowledge Management (PF)	PF1	0.499	0.733	0.595	0.767	
	PF2	0.661				
	PF3	0.544				

Correlation Analysis

Table 2 displays the Correlation analysis is helpful in computing the vigor and course of a linear connection among the diverse variables of a conceptual model (Ahmed Attia, Ingy Essam Eldin, 2018). All the dimensions of IC (human, relational and structural capital) have positive and significant correlation with organizational performance (financial and operational). On the other hand, IC have positive link with KM strategy (technology-focused and people- focused) and KM also have positive association with organizational performance (financial and operational).

Table 2 Descriptive statistics and Pearson Correlation

Variables	Mean	SD	1	2	3	4	5	6	7	8	9
Firm age	6.021	2.069									
Firm size	8.147	2.587	0.310**								
Firm Capital	6.755	2.244	.360**	0.569**							
Human Capital	3.849	0.637	-0.121	0.096	0.035						
Relational Capital	3.544	0.632	0.655	0.071	0.047	0.056*					
Structural Capital	3.364	0.809	0.018	0.124	0.017	0.464**	0.687**				
Financial Performance	3.041	1.045	-0.023	-0.087	0.071	0.271**	0.379**	0.344**			
Operational Performance	3.205	0.651	0.021	0.191*	0.078	0.753**	0.602**	0.737**	0.459**		
Technology-Focused Strategy	3.530	0.733	0.003	0.158	-0.022	0.601**	0.694**	0.539**	0.368**	0.467**	
People-Focused Strategy	3.007	0.819	0.069	0.114	0.129	0.543	0.344**	0.410**	0.299**	0.497**	0.560**

* $p < .05$, ** $p < .01$ (two-tailed)

Regression analysis results—main model

Table 3 indicates the results for accepting or rejecting of hypotheses. First, HC ($\beta=0.236$, $p < 0.001$), RC ($\beta=0.301$, $p < 0.01$) and SC ($\beta=0.379$, $p < 0.05$) positively and significantly influence OP (model 2). Further the impact of HC ($\beta = .461$, $p < .001$), RC ($\beta = .314$, $p < .001$) and SC (β

= .131, $p < .05$) on OP is also positive and significant. Similarly, the results of SC on OP is also positive and significant where ($\beta=0.185$, $t=3.284$, $p=0.01$) (Model 5). Hypotheses H1a, H1b and H1c of the study were supported by results.

Table 3 Hierarchical Linear Regression

Predictors	Organizational Performance (Regression coefficients)					
	Financial Performance			Operational Performance		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Firm age	0.261**	0.031	0.011	0.174***	0.003	0.051
Firm size	0.274*	0.059	0.120	0.116*	-0.008	0.005
Firm	0.154	-0.079	-0.139	0.193***	0.024	0.018
Human		0.236***	0.873		0.461***	0.599**
Relational		0.301**	0.515		0.314***	0.311
Structural		0.379*	-0.747		0.131*	-0.091
KM1 (TF)			-0.631			0.429
KM2 (PF)			0.899			-0.319
KM1 × HC			0.187			-0.016**
KM1 × RC			0.249			0.061
KM1 × SC			-0.216			-0.151*
KM2 × HC			-0.319+			-0.033***
KM2 × RC			-0.301*			-0.040**
KM2 × SC			0.567*			0.192*
F(full model)	311.188***	291.475***	118.600***	529.498***	2802.259***	1254.301***
Adjusted	0.921	0.916	0.918	0.917	0.995	0.998
Degree of	2,136	5,139	13,135	3129	6125	14172

+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Hierarchical regression analysis results—the moderating effect

To study the impact of intellectual capital (human capital, relational capital and structural capital) on organizational performance (financial and operational performance), knowledge management (technology-oriented and people-oriented) was entered in the model. The outcomes are given underneath. There is positive ($\beta = .187$, $p < .05$) (Model 3) moderating influence of people-focused KM on the association between human capital and firm financial performance. Technology-focused KM negatively ($\beta = -.249$, $p < .05$) (Model 3) moderates the link between relational capital and monetary performance. Similarly, technology-focused KM moderates the affiliation between structural capital and fiscal performance in a negative manner ($\beta = -.216$, $p < .05$) (Model 3). Human capital and financial performance of business is negatively ($\beta = -.319$, $p < .10$) moderated by people-focused KM (Model 3). Likewise, relational capital and financial performance of business is again negatively ($\beta = -.301$, $p < .10$) (Model 3) moderated by people-focused KM. Human capital and relational capital in combination with

people-focused KM delivers negative financial firm performance. A people-focused KM positively ($\beta = .567$, $p < .05$) (Model 3) moderates the relationship between structural capital and financial performance of a firm.

Technology-oriented KM negatively ($\beta = -.016$, $p < .01$) (Model 6) moderates the link between HC and operational performance of firm. Conversely, technology-focused KM positively ($\beta = .059$, $p < .05$) (Model 6) moderates the link between relational capital and operational performance of business. Negative ($\beta = -.151$, $p < .05$) (Model 6) moderation exists between technology-focused KM and structural capital and operational performance of corporation. People-oriented KM delivers negative ($\beta = -.033$, $p < .001$) (Model 6) moderating results between human capital and operational performance of business. Relational capital and operational performance of business is negatively ($\beta = -.040$, $p < .01$) (Model 6) moderated by people-focused KM. Structural capital and operational performance of firm is positively ($\beta = .192$, $p < .01$) (Model 6) moderated by people-oriented KM.

Undeniably KM has positive moderating influence on intellectual capital and firm performance but we established some unanticipated moderating outcomes. People-oriented KM negatively moderates the human capital and firm performance relationship which does not support hypothesis 2a. Likewise, people-oriented KM negatively moderates the association between relational capital and organizational performance which is against hypothesis 2b. Again technology-oriented KM negatively moderates the link between structural capital and performance of business which does not provide support to hypothesis 2c. The moderating influence of technology-oriented KM on the association between relational capital and organizational performance is statistically insignificant which again does not offer support to hypothesis 2d.

Model Fitness

Model fitness is shown in table 4 which was evaluated against goodness-of-fit index (GFI), normed fit index (NFI), root mean square error of approximation (RMSEA), comparative fit index (CFI) and adjusted goodness-of-fit index (AGFI). Achieved values are greater than standard value which indicates that data fit well in the model and was suitable for proposition testing.

Table 4 Goodness of Fit Indices

Sr.#	Indices	Proposed By	Threshold Value	Results
1	GFI	Byrne (1998)	≥ 0.90	0.923
2	NFI	Gefen et.al (2000)	≥ 0.90	0.954
3	RMSEA	MacCallam et.al. (1996)	<0.08	0.074
4	CFI	Gefen et.al (2000)	≥ 0.90	0.961
5	AGFI	Bamber et.al (2000)	≥ 0.80	0.837

DISCUSSION

The analysis of the theory, features and aspects influencing OP propounds that OP and the predictors of OP in services industry like banking sector is a matter of concern which has captured significant attention of managers, human resources, scholars and specialist to realize their business goals. The model of the study has been judged against similar models from intellectual capital literature which verify this model is logical and further substantiates the outcomes of the study that intellectual capital directly predicts OP. Moreover, Obeidat et.al., (2017) contended that IC is significantly connected to OP, which is corresponding to the results of this study. The hypotheses 1a, 1b and 1c of the study have confirmed that greater level of IC result in superior firm performance. In reality, it can be claimed that success or failure of a business depends on efficient application of IC (Chopani, Zare, Ghasemi & Gholamzadeh, 2012). Knowledge assets are very vital for business and IC is one of them which are indispensable for gaining and preserving greater OP in the contemporary business milieu.

The outcomes of this research verified that IC measured by human, relational and structural capital positively and significantly contribute to OP. IC plays a significant role with reference to OP and productivity (Firer & Stainbank, 2003). For that reason, businesses around the world are making extra endeavors in spending not only in tangible resources but also in intangibles resources likewise. The results of all studies carried out to investigate the bond between IC and OP are not constructive. Kamath (2008) mentioned in his study that IC has no link with OP. For illustration, Firer & Stainbank, (2003) established that human capital has negative yet significant impact on OP. One of the *raison d'être* of these inconsistent findings is that OP has been greatly studied in the perspective of tangible assets with little concentration rest on intangible assets.

KM positively acts as moderator between IC and business performance. But this survey delivered surprising outcomes. The outcomes of this survey illustrates that knowledge management does not positively moderates the association between intellectual capital and performance of banking industry in Punjab, Pakistan. The finding of this survey is in line with (Ling, 2013) which claims knowledge management does not positively moderate between IC and organizational performance.

CONCLUSION

The aim of this study was to analyze the moderating role of knowledge management in the relationship between intellectual capital and organizational performance of banking sector of Punjab, Pakistan. A conceptual model was proposed and tested empirically by using a sample of 352 officers working in the banking industry of Punjab Pakistan. The outcomes of the survey

exhibited that elements of IC which are HC, RC and SC is positively and significantly linked to the performance of banking industry of Punjab, Pakistan which is corresponding to (Zeglat, & Zigan, 2013; Yang-li and Zhao Zhao 2017; Mehralian, Nazari, & Ghasemzadeh, 2018). The evidence regarding the moderating impact of KM on the association between IC and firm performance was not found which is similar to the study of (Ling, 2013). The potential contribution of this research in the body of knowledge was that it empirically studied the moderating role of KM on the affiliation amid IC and firm performance in the banking sector of Punjab, Pakistan. Intellectual capital plays a vital role in building firm intangible assets and competitive advantage. More specifically, every business can attain its objective and accelerate firm performance through intellectual capital.

LIMITATIONS AND FURTHER STUDIES

This study has some restrictions which can be overcome in further research. First, this study was specifically conducted in the banking industry of Punjab, Pakistan. Further research may be conducted in different industries to generalize the results of this study. The interrelationship of various elements of IC was not tested while future studies can investigate the interrelationship of different dimensions of IC. This research investigated the role of IC on organizational performance whereas future study may study the role of IC on innovation performance. Last but not least; further study may take into account mediating variables like employee satisfaction and organizational commitment.

RESEARCH IMPLICATIONS

This study has diverse practical and theoretical propositions for the workers of the banking industry. Scholars are extremely keen to find out how the performance of the business is influenced by intellectual capital. It is highly recommended to replicate this model in other countries and in different industries. From a practical approach, it is suggested that bosses should pay heed to IC in developing firm performance. This study recommended that by evaluating the influence of HC, RC and SC on firm performance allow managers to get insight regarding major performance drivers. Moreover, the three categories of IC (HC, RC and SC) have positive effect on organizational performance. First, Human capital is the asset of an organization which helps in augmenting firm performance. Second, the results also offer fresh perceptions concerning the significance of structural capital. Second, information and skills entrenched in organizational methods and practices (related to structural capital) are pivotal for businesses looking to tap into new market prospects internationally to deliver greater value to clientele and to enjoy novel expertise or merchandises more than its worldwide opponents.

Organizations are directed to employ information technology to accumulate worker knowledge or operation practices which will help businesses to respond to organizational changes immediately. Finally, the better the configuration between the right form of intellectual capital, the better the contributions made by intellectual capital towards organizational performance.

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