Investigating the Influence of Intellectual Capital on Performance of Iran Private Banking Sector

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Abstract: The close relationship between intellectual capital (IC) and concepts like innovation, learning organizations, performance and other key elements of competition and life of organization, leads to ever increasing use of IC in various organizations. The purpose of this paper is to investigate the influence of IC on Performance. The research data has been collected by questionnaire and from Chief Executive Officers (CEOs) of Pasargad Bank branches in Tehran. 120 valid filled questionnaires have been obtained, representing a response rate of 79%. Performance attributes have been considered based on the aspects of Balanced Score Card (BSC). Results show that, IC has significant and positive effect on organizational performance.

1. Introduction

The development of IC can be traced back to the 19th century. Lawrence R. Dicksee, a leading economic theorist, made a lecture about intangible assets in 1896 (1). Over a long period of time, there was a measurement problem in IC (2,3,4). In 1990s, a significant growth in the case of knowledge and understanding of intellectual capital had happened and IC becomes known as a one of important criteria of value for industries (5). Organization can reach to the competitive advantage and better financial performance by achieving, maintaining and benefiting their intellectual capitals (6).

Regarding vital need to the knowledge in modern life, providing the proper basis to beneficiary from it for organizations are necessary. Science Management supposes Knowledge Management as an efficient way for utilizing knowledge. Knowledge Management (KM) is a vital business strategy that enables an organization in providing optimal use of resources, knowledge, talents and experiences and thereby increases the rate of opportunities and appropriate treatment with challenges, quickly (7). This study examines the relationship between IC - including human capital, structural capital, and relational capital - and performance.

2. Literature review

2.1. Defining IC

Intellectual capital can be defined as intellectual resources that have been "formalized, captured and leveraged" to create assets of higher value (8). In the fast-changing business environment nowadays, the only way to create a competitive advantage is by managing IC, which is commonly known as knowledge management (KM), (1). It is as well-known fact that knowledge, in particular, and intangible assets, in general, are one of the most significant sources of a firm's competitive advantage (9).

IC is becoming a crucial factor for a firm's long-term profit and performance in the knowledge- based economy as more and more firms identify their core competence as invisible assets rather than visible assets (10).

Generally speaking, IC is defined as any creation of the human intellect or mind. However, several researchers across globe have defined and delineated specific concepts of IC in their own way (11,12).

Many researchers provide the following classification for intellectual capital:

i) Human capital: This capital refers to knowledge and the abilities of human resources capabilities to create value in the organization. This capital is generally related to the knowledge among employees and managers and there is the risk of losing this knowledge Due to leave the organization by employees or managers.

ii) Structural capital: it including organizational processes and infrastructure that help the human resources in order to create value such as information systems, culture, policies and distribution channels.

iii) Customer capital: Customer capital: this capital is also called relational capital (RC) and market capital (MC). It refers to the value that the organization gains by its external organizational communication (specifically with customers and suppliers) (13).

2.1.1. Identifying components and measuring criteria of IC

Since introducing the concept of intellectual capital due to the importance of this issue, more than 56 techniques, models and methodologies for the assessment and management of it is presented. Kaplan and Norton (1996) (14) provided a multi-dimensional measurement system in 1996 that helped managers to make decision, The BSC model is one of the series models of score card and the measurement system is comprised of four aspects (15):

i) financial aspect: encompasses accounting traditional measures

ii) customer aspect: the target groups and criteria for different products classify. In addition, marketing-based criteria for customer satisfaction and retention must be considered.

iii) internal business aspect: Internal processes are the management process that occur within the organization and directly involved in organization's ideals and comes from the concept of the value chain.

iv) learning and growth aspect: This aspect encompasses all measures relating to personnel and facilitating systems of learning and dissemination of knowledge.

In case of intellectual capital measurement model, given that SC models are used more and offer more comprehensive picture of current conditions and their capabilities to use in each level of enterprise level, they are choose as a measurement model in this research.

In order to identify the components of intellectual capital in the bank branches, first review the related literature with subject, then intellectual capital components were identified, through interviews with managers and experts that were familiar with the topic and they are divided to three categories of human capital, relation capital and structural capital.

After identifying the components of intellectual capital, the following categories were identified and defined for each of the capitals:

i) Human capital
- Organizational behavior and attitudes
- Capability and competence of staff
- Communication skills

ii) Relational capital
- Customer Relations
- Relations with suppliers
- Relations with business partners
- Customer satisfaction and loyalty

iii) Structural capital
- Customer communication
- IT penetration
- business processes
- Organizational Culture

- Management Philosophy

2.1.2. The role of Intellectual Capital in the banking system of Iran

The banking system in Iran has three tiers of public sector banks, private sector banks and finance and credit institutions. The present study deals only with the second set of banks which includes 233 banks in Iran (150 in Tehran). The ideal area for IC research is banking sector because of three reasons. First of all, the reliable and available data in the form of published data. The next one, the business nature of the banking sector which is "intellectually" and, the last, the whole staff is (intellectually) more homogeneous than in other economy sectors (16). The main reason of choosing a private bank (Pasargad Bank, www.bpi.ir) is the different organizational culture between the managers in the private banking sector and the public one. The managers in private banking sector, especially in Iran, are more flexible in process and respond faster to the customer needs. Private Banks are often able to create synergy between human capital through flexible policies and systems (part of the capital structure) to achieve higher performance. The other differentiates are stem from the number of branches (Structural capital), total labor force (Human Capital) and customers (Relational Capital). On the other hand, technology (element of structural capital) is another target to serve the customers.

Electronic Banking provides good opportunities for banks to serve customers wherever they are and private banks in Iran were among first batch of banks who present private services to customers, issue credit cards.

2.2. Performance

The most challenging dimension in knowledge management (KM) is its recognition as another (or most) important performance factor. It is doubtless a hit to the mechanistic or materialistic preconception while it helps to discover the organic or humanistic aspect of performance process. The intellectual potential (knowledge) can be seen as a tacit and as an explicit phenomenon (17). Performance measurement is a necessary tool to respond to questions about improving productivity in the form of phrases such as efficiency, effectiveness and ability to respond. Kueng (2000) considers the following criteria to describe the concept of performance (18):

i) Performance is not absolute. This means that the performance of processes varies. For example, ordering process performance is not comparable to surgery process functions;

ii) Performance is multidimensional. Given that many factors affect performance, cannot assess performance with a unique index; and

iii) Performance indicators are not independent. The indicators linked together, or complements or are at odds with.

In this study, the Balanced Score Card (BSC) approach is selected as the basis for performance measures. Therefore, performance measurement aspects, i.e. customer, learning and growth, business processes and financial aspects are determined.

3. Research methodology

The conceptual framework of this research is illustrated in Figure 1 in accordance with the characteristics of the banking industry and literature addressing types of knowledge creation and structure of IC. Figure 1 shows the conceptual framework, indicating three dimensions of intellectual capital affecting organizational performance. For studying the influence of intellectual capital on performance, the following hypotheses are examined:

- H. Intellectual Capital influences performance of Pasargad bank's branches.
- H1. Human capital influences performance of Pasargad bank's branches.
- H2. Structural capital influences performance of Pasargad bank's branches.
- H3. Relational capital influences performance of Pasargad bank's branches.

In order to empirically examine the hypothesized relationships, the research constructs are performed. A preliminary version of a questionnaire was designed for this study. An expert interview was conducted to investigate whether or not the questionnaire items are representative of the items. A pilot study was then conducted to ensure the validity of questionnaire. 81 bank branches are selected for this study. The respondents are asked to express their perceptions on intellectual capital and organizational performance. Each item is measured on a five-point Likert scale ranging from 1= very poor to 5= very well.

In this study in order to determine the reliability via pre-testing, questionnaires are distributed among 32 CEO's and vicars of Bank Pasargad of Tehran and after collecting data, the Cronbach's alpha and SPSS have been used. As it is addressed in Tables 1 and 2, data reliability is satisfactory.
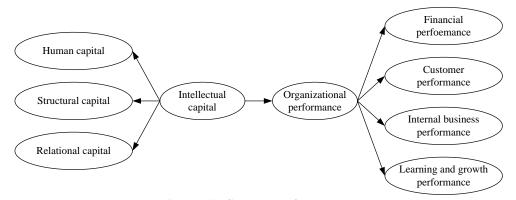

Figure (1): Conceptual framework

Table (1): Reliability results of the questionnaire of measurement of intellectual capital

SC	RC	HC	IC
0.91	0.92	0.96	0.76

Table (2): Reliability results of the questionnaire of measurement of performance

SC	RC	HC	IC
0.87	0.91	0.92	0.84

3.1. Sample and data collection procedure

The hypotheses are tested within the context of the bank. The questionnaire was addressed to the CEO's in each branch. A total of 120 valid filled questionnaires are received, which represents 79 percent of the study population. Both the number of responses and the response rate can be considered satisfactory (19). CEOs are asked to answer the overall current situation about Intellectual capital and organizational performance, with respect to their bank branch. In the following, statistical methods such as regression and correlation analysis are used for testing hypotheses.

4. Findings

To investigate the relationship between intellectual capital and its components (human capital, structural capital and relational capital) and organization performance and its criteria (learning and growth performance, internal business performance, customer performance and financial performance), Pearson correlation test is performed. Findings indicate that there is a significant correlation among variables of research at 0.05 level. According to table 3, all the correlations are significant. This means that any change in one of the variables will significantly influence another variable. The results

of table 4 show that, among all performance criteria (except for learning and growth and financial) there is a positive and significant correlation at 0.01 level, implying that any change in one of the variables make changes in another variable. The highest correlation relates to learning and growth and internal business performance which is 0.674 and from statistical aspect it is significant because the significant value is zero. The lowest correlation value is related to financial and customer performance which is 0.259. This value is significant statistically, because the significant value is zero.

Table (3): Correlations among components of effective variables and intellectual capital

		HC	RC	SC
HC	Pearson correlation	1		
	Sig. (2-tailed)			
RC	Pearson correlation	-0.021	1	
	Sig. (2-tailed)	0.818*		
SC	Pearson correlation	0.131	- 0.148	1
	Sig. (2-tailed)	0.151*	0.106*	

∗Correlation is significant at the 0.05 level (2-tailed)

Table (4): Correlation among components of performance criteria

		LRN	BSNSS	CSTM	FNCIAL
LRN	Pearson correlation	1			
	Sig. (2tailed)				
BSNSS	Pearson correlation	0.674(**)	1		
	Sig. (2tailed)	0/000			
CSTM	Pearson correlation	0.411(**)	0.527(**)	1	
	Sig. (2tailed)	0.000	0.000		
FNCIAL	Pearson correlation	0.142	0.283(**)	0.259(**)	1
	Sig. (2tailed)	0.123	0.002	0.004	

∗∗Correlation is significant at the 0.01 level (2-tailed)

∗Correlation is significant at the 0.05 level (2-tailed)

H. Intellectual Capital affects performance of Pasargad bank's branches.

After examining the relation among dependent variables (IC and its components) and independent variables (performance and its criteria), it is necessary to estimate the relationship between dependent and independent variables using regression analysis. To determine the modality of intellectual capital effect on organizational performance and its criteria, Analysis of Variances by using of SPSS is done that examine linear relationship between intellectual capital and independent variables (overall Significant of regression model). The results are addressed in tables 5 and 6.

H1. Human capital influences performance of Pasargad bank's branches.

In order to determine how the components of intellectual capital effect on performance and its criteria, multiple regression method is used. In this section like the previous section, the linear relationship between intellectual capital components and dependent variables is examined. The results are shown in table 7. Table 8 shows the results of T-Test, that examines the significance of dependent variables coefficient (components of IC) in regression equation of independent variables (learning and growth and internal business performance).

H2. Structural capital influences performance of Pasargad bank's branches.

In this section, the linear relationship between structural capital and organizational performance and its components are investigated. The results are shown in tables 9 and 10.

H3. Relational capital influences performance of Pasargad bank's branches.

In this section, the linear relationship between relational capital and organizational performance and its components are investigated. The results are shown in tables 11 and 12.

Table (5): The relationship between intellectual capital and organizational performance and its criteria

Organizational performance	Financial performance	Internal business performance	Customer performance	Learning and growth performance	
79.986	1.733	1.345	2.123	1.143	F-statistic
0.00	0.018	0.129	0.002	0.302	Sig.
Yes	yes	no	Yes	No	Linear relation

Table (6): Significance of intellectual capital coefficients in the regression equation

Organizational performance	Financial performance	Customer performance	
-4.372	5.999	14.783	t-statistic for constant
0.000	0.000	0.000	Sig. for constant
41.619	5.354	3.463	t-statistic for line slope
0.000	0.000	0.001	Sig. for line slope
0.968	0.442	0.304	β

Table (7): Linear relationship between components of human capital and organizational performance and its criteria

Organizational performance	Financial performance	Internal business performance	Customer performance	Learning and growth performance	
1.425	1.406	2.240	0.614	2.413	f-statistic
0.194	0.202	0.030	0.765	0.019	Sig.
No	No	Yes	No	Yes	Linear relation

Table (8): Significance of intellectual capital coefficients in regression equation

Organizational performance	Learning & growth performance	
15.178	13.906	t-statistic for constant
0.000	0.000	Sig. for constant
1.789	1.379	t-statistic for intellectual coefficient
0.076	0.170	Sig. for intellectual coefficient
0.163	0.126	β for intellectual capital

Table (9): The linear relationship between components of structural capital and organizational performance and its components

Organizational performance	Financial performance	Internal business performance	Customer performance	Learning and growth performance	
1.603	1.685	28.442	6.669	18.734	f-statistic
0.090	0.076	0.000	0.000	0.000	Sig.
No	No	Yes	Yes	Yes	Linear relation

Table (10): Significance of structural capital coefficients in regression equation

Internal business performance	Customer performance	Learning and growth performance	
0.528	5.488	1.808	t-statistic for constant
0.598	0.000	0.073	Sig. for constant
47.674	7.050	13.989	t-statistic for relation capital coefficient
0.000	0.000	0.000	Sig. for relation capital coefficient
0.975	0.544	0.790	β for relation capital

Table (11): The linear relationship between components of structural capital and organizational performance and its components

Organizational performance	Financial performance	Internal business performance	Customer performance	Learning and growth performance	
1.214	0.589	0.784	0.986	1.130	f-statistic
0.262	0.906	0.720	0.484	0.334	Sig.
No	No	No	No	No	Linear relation

5. Discussion

Based on t-test results that show the significance of independent variables (IC) in regression equation of dependent variables (customer performance, organizational performance and financial performance) and according to table 6, the hypothesis of constant is equal to zero about regression equation of customer performance, organizational performance, and financial performance is rejected because of sig.<0.05 . The hypothesis of line slope is equal to zero, about three dependent variable is also rejected. This result reflects the impact of intellectual capital on variables, performance and organizational performance. Therefore, intellectual capital has positive and significant influence on customer performance, organizational performance, and financial performance. Due to β=0.968, the influence rate on organizational performance is more than two other variables.

According to the table 7, in this section only learning and growth and internal business have shown a linear relationship with human capital. Based on results of analysis of variance, components of intellectual capital have linear relationship with learning and growth and internal business performance, but with other variables have no linear relationship. As can be seen in the two tables of 7 and 8, hypothesis of constant is equal to zero, about the dependent variable in the regression equation is rejected because of sig.<0.05. According to t value, human capital has positive and significant effect on learning and growth and internal business performance, and due to 'β' value it has more effect on business performance. Therefore, the hypothesis of independent variable coefficient is equal to zero, in

regression equation of learning and growth and business performance is accepted.

According to table 9, structural capital has significant relationship with learning and growth, customer and internal business performance. The results of t-test show that the hypothesis of constant is equal to zero is rejected about relation capital and structural capital has positive and significant effect on learning and growth, customer and internal business performance. Due to the value of 'β', the most maximum effect relates to internal business performance.

According to significance coefficients of table 11, none of the performance variables has linear relationship with relation capital.

In the knowledge economy age, the creation, formation and utilization of IC have become the key issues for companies to keep their competitive advantages. More and more researchers are focusing their efforts on IC research; however, there are some related important concepts of IC that lack a consensus (2). Therefore, the important issues of IC, such as creation, formation, measurement, valuation, and reporting, are still at an early stage. In general, the IC community is still in a new and developing phase (1).

According to the results of testing the first hypothesis, human capital does not have a linear relationship with the customer's performance criteria and naturally do not affect each other. The main reason of lack of effectiveness is that in human capital there is a criterion as an expert creativity and innovation has been identified that in all branches of study is located in a lower level than other criteria. This criterion includes the indicators such as the ability to implement ideas and bank status with market

condition, the ability to offer new ideas and proposals on service development, and the power of innovation and creativity. Therefore, as it can be seen, these indicators are directly related to market share, customer satisfaction, customer growth and overall customer performance requirements. So even if the organization has focused on investments in human capital and improve the human capital situation, since creativity and innovation of experts located in the lower level, this investment did not act in positive direction and the result would be vice versa because if the experts could not predict the future, naturally the market share and customer satisfaction will be reduced, also the number of lost customers will increase and all of these is to reduce client performance.

As it was expressed in hypothesis H3, relation capital does not have a linear relationship with any of the performance components. Since most of organization's focus are on building customer relationships and improving customer satisfaction, and according to the competitive market in banking, If in addition to focusing on customer relationships, it is focused on environmental and external relations, including relations with relevant governmental agencies, university relations, relations with suppliers and choosing them in basis of appropriate measures, all these will enhance this effect. Because currently the process of selecting suppliers is randomly and has no criteria for its selection, it may increase the costs. Therefore, it is recommended that in some cases, such as providing strategic marketing planning and the use of QFD in order to insert comments of customers, the help is taken on how to design and deliver services to customer and more you focus on customer satisfaction and increase it, thus improve performance. Identify customer needs, customer feedback distribution on the organization, grouping customers based on profitability, turnover and reputation of their trademarks, creating a system for measuring and monitoring customer satisfaction, customer value analysis and cost, are the factors that assist the organization in achieving performance improvement.

Part of co-operational and relational capital is associated with relationship with financial, software, and hardware suppliers. Additionally, part of it related to business partner relationships as well as business process performance that some of the indicators are in relation to organization IT system, coalitions, and co operations. So if the bank's relationships with suppliers of software, hardware and networks to be placed in more favorable conditions and are considered more appropriate criteria for selecting suppliers, organization's IT system weakness will be reduced and pave the way for achieving some IT purpose. Also, if the amounts of coalitions or number

of alliances with other companies increase, it will directly improve business process performance. Therefore increase in relation capital leads to increase in performance of business processes.

Literature review shows that the amount of intellectual capital and also intellectual capital components in branches of which the number of personnel is more than 10 people is more than other branches with smaller sizes (less staff). Meanwhile, customer performance and internal processes and business performance in these branches are located in the upper level; In addition, the overall organizational performance in these branches is at an acceptable level.

Since the branches with a total staff of more than 10 people, usually are among of branches with more than five-year experience and are better known than the other branches and have a better reputation, thus, in attracting customers, retaining customers satisfaction, increasing market share, improving relationships and alliances with other branches and totally improving cooperative and relationship capital are more successful and this will lead to improved customer performance. Also, given their history, their processes were more structured and most of them have ISO certification and documented processes and all activities are implemented according to documented processes. Respectively, performance of their business processes is more desirable. Also, due to their experience, their ability to absorb and utilize the experienced expertise forces is more than small branches with less history of activity, so their human capital is higher than other branches.

6. Conclusions

In this article the impact of intellectual capital and its components on Tehran Pasargad Bank performance was assessed. For this purpose, the data from questionnaires were analysed and presented based on the conceptual model and the impact of intellectual capital and its components on organizational performance was reviewed and the results of statistical tests performed were presented. Results show that, IC has significant and positive effect on organizational performance. The results of this study might help the banking authorities to formulate and implement strategies to develop intellectual capital and guide banks to benchmark themselves in order to improve their value creation as argued by Goh (2005) (20). Knowledge creation in banks should focus on the exchange and sharing of information. It is suggested that the usual approach adopted by banks is brainstorming and workshops, and the connecting approach is team-oriented.

Like all other investigations, this study in addition to its addressed advantages has limitations. The first

limitation that this study is faced is related to the quantitative data. In fact in this study, as it was mentioned earlier, the effect on the performance of intellectual capital in Pasargad Bank branches in Tehran was examined. The problem that should be noted here is that the bank branches do not provide financial information to researchers and it is part of corporate secrets. The second limitation of this study is related to the way of responses to questionnaires. In this regard, some staff and managers were not willing to complete questionnaires which might be due to fear of people and conceptual nature of questionnaire.

Based on the results, practical suggestions can be provided. As it was proposed as a result of the first hypothesis, in human capital the criterion as creativity and innovation is recognized that was in lower level than other criteria in many bank branches. Therefore to increase the positive effect of human capital growth on performance it is necessary to improve this criterion and staff creativity power. For this purpose the following recommendations could be considered:
i) allowing employees to attend training courses such as entrepreneurship, creativity, initiative etc.;
ii) welcoming the staff ideas that will improve the marketing and encourage the best ideas, because in this case, the expert's motivation and satisfaction will also increase;
iii) using the idea collecting system and applying the raised ideas; and
iv) identifying creative people outside the company and hiring them.

Generally, it is recommended to improve the innovation and creativity of staff which result in growing of market share, customer satisfaction and number of customers and business effectiveness.

According to the findings, the following subjects are suggested for future research:
i) investigating the effects of entering the value of intangible assets and intellectual capital into financial statement on value of corporate and its stock. Due to the fact that intangible assets and intellectual capital as a physical capital are valuable, it is necessary to investigate how it is possible to enter their value into financial statement and their effect on value and price of corporate stock must be examined.
ii) identifying and analyzing intellectual capital management strategy with regards to strengthen and improvement of organization performance. In this study, the effect of intellectual capital on organizational performance is investigated. It is recommended to, identify the intellectual capital management strategy and to investigate the outcomes of its implementation as a case study;
iii) examining ways to encourage the organizations to apply intellectual capital. In this case, it is also recommended to identify the encouragement strategies

and then evaluate the effects of their implementation in several companies; and
iv) implementing this study in a Joint-stock Company. Because of the transparency of financial information of these companies and possibility of accessing to financial statement of them in the stock market, collecting the financial information of these companies is much easier than others.

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