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The study of the relationship between intellectual capital and performance in Saderat bank of Tehran

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Abstract

This study aimed to investigate the relationship between intellectual capital and performance of Saderat bank of Tehran. Instruments of the study were Bonti's (2000) questionnaire for the measurement of intellectual capital. Population of the study was companies established in Tehran sadrat branches staffs. Sampling Cronbach's alpha was used to measure the reliability of the instruments. Results showed that reliability of the instruments was very acceptable. Different methods, including inferential and descriptive statistics were used to analyze data. According to the hypotheses of the study, the data was analyzed by SPSS20 through appropriate statistical tests. Results indicated that there was a positive significant relationship between intellectual capital and its dimensions and the performance.

Keywords: Intellectual capital, human capital, structural capital, customer capital, performance

1. Introduction

Intellectual capital is the intangible value of a business, covering its people (human capital), the value inherent in its relationships (Relational capital), and everything that is left when the employees go home (Structural capital), of which Intellectual property (IP) is but one component. The term is used in academia in an attempt to account for the value of intangible assets not listed explicitly on a company's balance sheets. A second meaning that is used in academia and was adopted in large corporations is focused on the recycling of knowledge via Knowledge management, Intellectual capital is used in the context of assessing the wealth of organizations.] A metric for the value of intellectual capital is the amount by which the enterprise value of a firm exceeds the value of its tangible (physical and financial) assets. Directly visible on corporate books is capital embodied in its physical assets and financial capital; however all three make up the value of an enterprise. Measuring the real value and the total performance of intellectual capital's components is a critical part of running a company in the knowledge economy and Information Age. Understanding the intellectual capital in an enterprise allows leveraging of its intellectual assets. For a corporation, the result will optimize its stock price.

The IFRS (International Financial Reporting Standards) committee developed the International Accounting System 38 with the purpose of prescribing the accounting treatment for intangible assets. IAS 38.8 defines an intangible asset as an identifiable non-monetary asset without physical substance. An asset is a resource that is controlled by the entity as the result of past events (for example purchase or self-creation) and from which future economic benefits (inflows of cash or other benefits) are expected.
Intellectual capital is normally classified as follows:

- **Human capital**, the value that the employees of a business provide through the application of skills, know-how and expertise. Human capital is an organization's combined human capability for solving business problems and exploiting its Intellectual Property. Human capital is inherent in people and cannot be owned by an organization. Therefore, human capital can leave an organization when people leave, and if management has failed to provide a setting where others can pick up their know-how. Human capital also encompasses how effectively an organization uses its people resources as measured by creativity and Innovation. Human capital means the knowledge, skills and information in the human resources of an organization. In view of the strategic management of human resources, all the knowledge and skills within the organization are not considered strategic. Thus, determining the types of human capital in the organization and how they can be considered as a source of competitive advantage is the first step in this way. Now, the strategic potential of the organization human capital is analyzed from two dimensions of uniqueness and value (Javanmard & Mohammadian, 2010).
- **Structural capital**, the supportive non-physical infrastructure, processes and databases of the organisation that enable human capital to function. Structural capital includes processes, patents, and trademarks, as well as the organization's image, organization, information system, and proprietary software and databases. Because of its diverse components, structural capital can be classified further into organization, process and innovation capital. Organizational capital includes the organization philosophy and systems for leveraging the organization's capability. Process capital includes the techniques, procedures, and programs that implement and enhance the delivery of goods and services. Innovation capital includes intellectual property such as patents, trademarks and copyrights, and intangible assets.[12] Intellectual properties are protected commercial rights such as patents, trade secrets, copyrights and trademarks. Intangible assets are all of the other talents and theory by which an organization is run. - Structural capital includes all non-human knowledge repositories in an organization, databases and organizational charts, process guidelines and strategies or any other thing that provide more value than its materials with the organization. The structural capital is defined as what remains in the organization when people go their homes at night and it originates from organizational processes and procedures. Structural capital is in the form of hardware, software, databases, organizational structure, patents, trademarks and other capabilities of an organization that supports employees' productivity (Hazel et al. 2013).

- **Relational capital**, consisting of such elements as customer relationships, supplier relationships, trademarks and trade names (which have value only by virtue of customer relationships) licences, and franchises. The notion that customer capital is separate from human and structural capital indicates its central importance to an organization's worth. The value of the relationships a business maintains with its customers and suppliers is also referred as goodwill, but often poorly booked in corporate accounts, because of accounting rules. Chen et al. classified customer's capital in the form of marketing capabilities, the severity of the market and customer loyalty. This attitude affects the role of service and its effect on the causal relationships between employee satisfaction, customer satisfaction, customer loyalty and financial performance. It is the capital within the marketing channels and relationships that the organization creates during

its business development. Compared to human capital and structural capital, it more directly affect the company's values, and increasingly becomes as an important factor. It includes functionality to marketing, market development and customer loyalty (Doaei et al., 2014).

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- **Strategic Alliance capital**, this is focussed on external relationships that drive and support a business. Some examples include relationships with suppliers, partners, outsourcing activities, financing partners, networks and engagements with universities and research partners.

Intellectual capital first emerged in the business world; however, it was also attracted and interested by non-profit organizations. In spite of the perspective and concept of industrial organization, from the perspective of organization based on resources and knowledge-centered, the concept of intellectual capital can be used as a valid framework of strategic management and be a competitive means for non-profit organizations and institutions (Abbas pour et al., 2013).

Today, the effort for competitive advantage leads organizations to the knowledge assets such as intellectual capital. In such circumstances, businesses have realized that sustainable competitive advantage is based on their intellectual capital and their success largely depends on their ability to manage these valuable assets. Intellectual capital is described as a set of intangible and knowledge-based assets of an organization that has a strong effect on the improvement of key competencies and competitive advantage for organizations. Moreover, innovation with recombination of resources, skills and other current assets helps businesses create new knowledge to their own respective profession. Now, in the context of knowledge-based businesses, it is strongly believed that intellectual capital is of high growing importance for the productivity of performance and innovation (Totifar Tehranpour & Zia, 2014).

Studies show that the organization's competitive advantage and superior performance related to the acquisition, maintenance and use of strategic assets (tangible and intangible) caused to create competitive advantage and achieve a strong performance. In recent years, intellectual capital as a key source has been known for performance and value creation. In the modern economy, intellectual capital is the main source of economic development and then other traditional factors of production are of high importance. In such circumstances, intellectual capital has become the key factor to improve organizational performance. On the other hand, those organizations succeed in the knowledge-based economy that can invest in the opportunities of intangible assets (Mousavi et al., 2013). Since intellectual capital and its effect on performance are an issue of interest to many managers and the significance of such research, this study aimed to identify the relationship between intellectual capital and performance of companies based in Tehran braches of Saderat bank.

2. Review of the literature

Table 2. Literature Review

Author	Title	Findings
Wang and Chang (2005)	The effect of elements of intellectual capital on the trade performance of companies	The results indicate that the elements of intellectual affect business performance capital directly except for human capital directly. Human capital affects indirectly the performance through innovative capital, process capital and customer capital, effective performance. In addition, a causal relationship exists between the four elements of intellectual capital. Human capital affects innovation

		capital and process capital. Moreover, innovative capital affects process capital that in turn affects customer capital. Ultimately, customer capital affects the performance.
Ericsson and Rothenberg (2009)	The study of intellectual capital in the market	Using Tobin's Q indicator as a measure of intellectual capital, they examined the relationship between intellectual capital and knowledge management. The results indicated that a significant relationship existed between the dimensions of intellectual capital and knowledge management.
Chang and Hsieh (2011)	The study of the relationship between intellectual capital components and three of the operational, financial and market in Taiwan's stock in the electronics industry	Adjusted value added intellectual coefficient model was used to measure intellectual capital. The results showed that there was a positive relationship between operational performance and the employed capital; however there was no relationship between capital structural and human capital. Moreover, there was a negative relationship between the components of intellectual capital and financial and market performance. Expenditure on R&D had a positive relationship with the three performances but intellectual property was negatively related with operational performance.
Ahmad Dujaili (2012)	The effect of intellectual capital dimensions (human capital and structural capital) on the organizational innovation of automotive and textile industries in Iraq	Findings showed that human capital had a significant positive effect on organizational innovation. However, structural capital had no significant effect on the organizational innovation.
Bathaei (2006)	The effects of intellectual capital on the performance of companies covered by Mines and Industries Development and Renovation Organization of Iran	The results indicated that there was a significant positive relationship between intellectual capital and some indicators of performance evaluation of the companies covered by Mines and Industries Development and Renovation Organization of Iran.
Shojaei & Baghbanian (2009)	The study of the relationship between intellectual capital and organizational performance of Iran's banking industry: a case study, Kurdistan	They believe that in the modern economy, intellectual capital is described as intangible assets, which could be considered as a source of sustainable competitive advantage. Components of intellectual capital have interactions that lead to create value. Previous studies showed significant positive correlation between intellectual capital and organizational performance. The aim of this experimental study was to consolidate the data and research on the three elements of intellectual capital or human capital, structural capital and customer capital and their internal relationships in the banking

		industry of Kurdistan.
Nazem & Motallebi (2011)	Presentation of the structural model of intellectual capital based on organizational learning in Shahid Beheshti University	Results indicated that there was a significant relationship between dimensions of organizational learning and intellectual capital and the most direct effect can be seem from organizational learning on the intellectual capital. Human capital was known as the most important indicator of intellectual capital in the model.
Rezaei (2014)	The effect of intellectual capital components on the organizational entrepreneurship of consultancy, agricultural and engineering services in Znjan	According to the results, all three main hypotheses of the study were confirmed and each of the components of intellectual capital, including human and structural components had a positive and significant effect on the dependent variable. In total, 62% of the variance of organizational entrepreneurship was explained by advisory, engineering and agriculture services in Zanjan. According to the research findings, increased intellectual capital in companies leads to strengthen and develop organizational entrepreneurship of agricultural services companies.

Now, theoretical framework and review of the literature are presented.

3. Hypothesis

Major hypothesis

There is a relationship between intellectual capital and performance.

Minor hypotheses

There is a relationship between human capital and performance.
There is a relationship between structural capital and performance.
There is a relationship between customer capital and performance.

4. Methodology

This research is descriptive according to the purpose of the data processing and descriptive achieve results. In this navigation method is usually used for polls. In this study, to obtain information and data in order to evaluate and test hypotheses, study, library and field use. Gathered with questionnaire that uses Internet tools, theses, books, and articles related to the study of literature and theoretical foundations including the definition of variables and the history of law. SPSS software to check the validity of our research experts and professors and to assess the reliability of Cronbach's alpha coefficient The study is applied research and methodologically correlational. Moreover, the study is a descriptive survey in terms of classification of research for data collection (research design). Population of the study includes all employees, managers and managing directors of saderat bank branches based in the Tehran city. According to sampling formula, sample of the study includes 306 employees. However, 20% was added to the sample size in order to remove the effects of missing and incomplete questionnaires. Thus, 128

questionnaires were distributed among the sample, of which 119 ones were returned and finally 116 questionnaires were collected to analyze data.

Field and library methods were used to collect data of the study. Library method was employed to collect data of the review of literature and field method was used to design questionnaire and distribute among the statistical sample. Instruments of the study were close-ended questionnaires.

- **Reliability of the study**

Chronbach's alpha was used to measure the reliability of intellectual capital and performance questionnaires. Before final implementation, 30 people were randomly selected from the sample of the study. Then, they were given the questionnaires. Reliability of the instruments was computed by data obtained from questionnaires and SPSS18. Reliability indicates internal consistency of the questionnaires.

Table 2. Chronbach's alpha for the intellectual capital questionnaire

Row	Variable	Number of items	Chronbach's alpha
1	Human capital	8	0.777
2	Structural capital	8	0.809
3	Customer capital	8	0.9

Table 3. Chronbach's alpha for the performance questionnaire

	Variable Row	Number of items	Chronbach's alpha
1	performance	11	0.812

According to Table 2, Chronbach's alpha was computed to be above 0.07 that indicates the high reliability of the questionnaire.

5. Data analysis

SPSS software were used to analyze data. Kolmogorov-Smirnov test was used to determine normal or abnormal data and Pearson correlation coefficient was used for acceptance or rejection of the hypotheses.

Analysis of normality of data using Kolmogorov-Smirnov (K-S) test

In order to use statistical methods, it must be first determined that whether the collected data is normal or non-normally distributed. Parametric tests can be used to test the hypotheses and in the case of non-normality of data distribution, non-parametric tests would be used. Therefore, results of Kolmogorov-Smirnov test would be used for each of the dependent and independent variables studied and then appropriate tests would be chosen to verify hypotheses based on the results.
H0: data of the variable i has normal distribution.
H2: data of the variable i has not normal distribution
According to the results of Table 4, if significance level is greater than the error level, H0 will be concluded and if significance level is smaller than the error level, H1 will be concluded.

Table 4. Result of normalization of independent variables

Variable	Sig	Level of error	Result
Intellectual capital	0.698	0.05	normal
Human capital	0.766	0.05	normal
Structural capital	0.709	0.05	normal
Customer capital	0.598	0.05	normal

Source: findings of the study

Table 5. Result of the normalization of dependent variables

Variable	Sig	Level of error	Acceptance of the hypothesis	Result
performance	**0.321**	**0.05**	H_0	**Normal**

Source: findings of the study

According to Table 5, as level of significance is greater than 0.05 for all the variables, therefore, they have normal distribution and parametric tests are used to test the hypotheses.

- **Hypothesis testing**

Table 6. Result of Pearson correlation coefficient

Hypotheses	Result		
	Pearson correlation	sig	

There is a relationship between intellectual capital and performance	0.709	0.000	Accept
There is a relationship between human capital and performance	0.565	0.000	Accept
There is a relationship between structural capital and performance.	0.434	0.000	Accept
There is a relationship between customer capital and performance	0.643	0.000	Accept

Source: findings of the study

According to table 6, as significance level is smaller than 0.05, H0 is rejected and H1; that is there is a relationship between intellectual capital and its dimensions (human, structural and customer capitals) and performance is accepted. As seen in Table 5, there is significant positive relationship between intellectual capital and its dimensions and performance at 99% level of significance.

6. Conclusion

All the research hypotheses in this study (minor and major hypotheses 1 to 3) were confirmed. As path coefficient T of all variables was greater than 1.96, so all the hypotheses were confirmed. It is seen that a significant relationship existed between intellectual capital and the performance of. The results showed that intellectual capital had a significant effect on performance. Of the dimensions, customer capital had the highest effect on performance and capital structure was at the second ranking, followed by human capital at the third ranking and had the lowest effect on performance. It is clear based on the results of this study that intellectual capital disclosure is still very much an academic discussion. There is no evidence at all that intellectual capital disclosure has garnered any traction for Canadian corporations. Only a small percentage of Canadian companies even used the terms in their annual reports. Obviously, using the language of intellectual capital is an important antecedent to developing intellectual capital statements, but Canada seems to be signify cantle behind its Scandinavian counterparts.
It is suggested that managers consider cases such as continuous regular measurement and evaluation of the competency of the company members for more effective planning on the systematic improvement, support of the new members' ideas and establishment of thinking room for stating their views on how to develop and improve services, keep active and dynamic members and encourage them to new ideas and plans, precise evaluation of job satisfaction of the members and providing the ground for their promotion, the assignment of duties to the members in proportion to the expertise and experience and encouraging the members to do their work as a group and in harmony in order to reinforce human capital in the companies under study.

The establishment of networks to communicate with customers and other domestic and international businesses to identify innovative practices and exploitation of these innovations.
It is suggested that managers emphasize providing learning opportunities for the company members, in particular holding short term training courses on the respective areas, establishing encouragement systems in the company for reinforcing the level of creativity, innovation and risk-taking, reinforcement of the relationships within organization and the use of appropriate information systems in the company that

accelerate and facilitate the access to different information for the members, encouragement and support of group works, revision of the hierarchical structure of organization and removal of the obstacles for the increased freedom and independence of the most members of the company in order to reinforce structural capital in the companies under study. In summary, intellectual capital has a very strong impact on the drivers of future earnings, but is largely ignored in financial reporting. A major recommendation for corporations that are concerned with their relationship with the capital markets is to develop strategic and tactical initiatives that provide for voluntary disclosure of intellectual capital. These initiatives may initially be used for internal management purpo ses only. However, an external stakeholder- focus report will more than likely be the ultimate goal.

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