

Research Article

THE PROPOSED FUNCTIONAL MODEL AND INTELLECTUAL CAPITAL ON THE FINANCIAL PERFORMANCE OF BANKS

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ABSTRACT

This study examines the impact of intellectual capital components on improving economic performance indicators of Meh Eghtesad Bank of Qazvin. Organizations are getting into a knowledge-based economy are economic, in which knowledge and intangible assets as the most important competitive advantage of organizations are recognized. One of the components of intangible assets intellectual capital is an important effect on performance and implementation of strategic organization is. Statistical universe of this research inclusive all the personnel settled in 13 branch for 5 years of Bank mehr e eghtesad in ghazvin province by choosing 65 years, Branches. Statistical methods used in this research for investigate a linear relationship between the dependent and explanatory variables, and Pearson's correlation coefficient to assess the linear relationship between the explanatory variables variance inflation factor (VIF) were used. Also, for analysis of test data Lymer, Hausman, significance of regression coefficients(t), significance of regression model(F) self-correlation Watson cameras are used by using Topsis, Econometric views, Gams softwares and regression test, association coefficient test calculation and analysis of data implementation. Time scope this research from 2008 until end of 2013.

Keywords: Intellectual capital, Financial performance, Customer (relationship) capital . Performance Measurement

INTRODUCTION

Knowledge and information are prime commodities in today's 'knowledge-economy' where economic enterprises are increasingly knowledge-based and technological driven. Knowledge firms have a large proportion of their investment in intangible assets and this poses a real challenge both for financial and managerial accounting that traditionally have not adequately reflected the investment and performance of intangibles in financial statements.

While many definitions abound, most experts seem to agree that an organization's intellectual capital is best described in terms of three main components (Bontis, 1999):

- (1) Human Capital. The collective knowledge, education, skills, attitudes and experience(s) of a firm's employees.
- (2) Structural Capital. The collective (and often proprietary) routines, systems, processes and information within an organization (including its culture) that help - or hinder - employees in their pursuit of organizational performance excellence.
- (3) Relationship Capital. The value of relationships with those stakeholders external to the organization, such as customers, suppliers and regulatory agencies

LITERATURE REVIEW

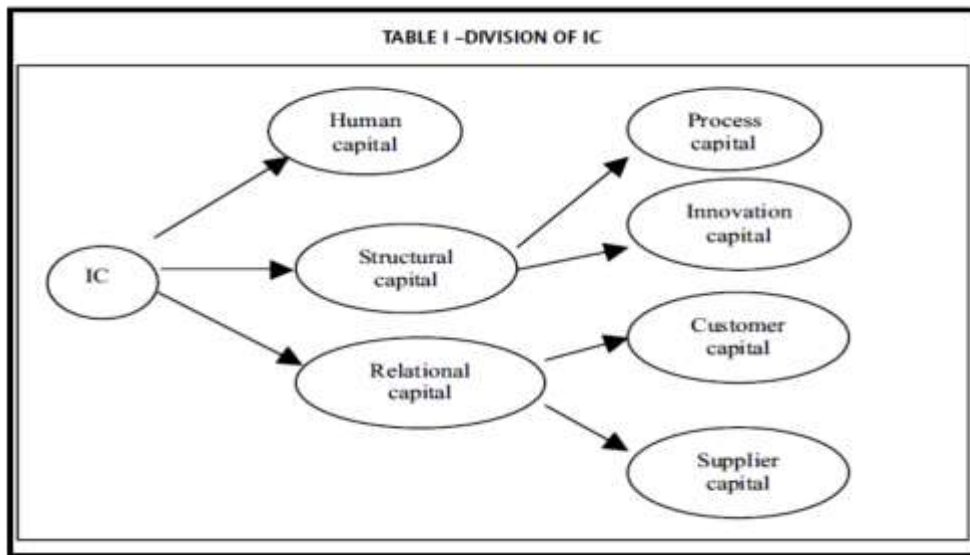
Intellectual Capital

While earlier writers may not agree on the precise definition and shape of IC, there is broad consensus that it contains human capital, structural capital and relational capital (Bontis, 1998; Edvinsson and Malone, 1997; and Edvinsson and Sullivan, 1996; Lynn, 1998; Roos *et al.*, 1997; and Stewart, 1991,

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1997). Human capital captures the knowledge, professional skill and experience, and creativity of employees.

Structural capital consists of innovation capital (intellectual assets such as patents) and process capital (organisational procedures and processes). Relational capital captures the knowledge of market channels, customer and supplier relationships, and governmental or industry networks.



Intellectual Capital (IC) is one of important strategic asset in knowledge base economy. There are number of definitions of IC since its origin in fact that both knowledge based and economic based approaches exists. The knowledge economic is that where production and its distribution with the use of knowledge is a main force for creating growth and wealth defined by The Organization for Economic Co-operation and Development (OECD 1996). The human intellectual ability is a key intellectual and strategic asset which increases the efficiency of firms. The World Bank (1998, p. 1) has indentified the importance of knowledge and intellectual ability: “Knowledge is like light. Weightless and intangible, it can easily travel the world, enlightening the lives of people everywhere”. Itami (1987) argued that IC is an intangible asset which includes technology, brand name, customer loyalty, goodwill and copy rights etc. Intellectual Capital (IC) is a knowledge and information which create the value added efficiency to create wealth of corporations argued by Stewart (1997). Pulic (2001) concludes IC as employees and their abilities to create value added efficiency. The value creation efficiency of organization can be measured both tangible (Capital Employed) and intangible (Human and Structural Capital) argued by (pulic 2000a, b). Sullivan (2000, p. 17) defined IC as “knowledge that can be converted into profits”. IC defined as knowledge which can be converted into value argued by (Edvinsson and Malone 1997). The intellectual assets are intangible in nature which does not contain any financial value. Many practitioners and scholars have indentify three basic components of IC i.e. human capital, structural capital and relational capital (Holton and Yamkovenko, 2008; Yang and Lin, 2009; Mavridis and Kyrmizoglou, 2005; Tayles et al., 2007). IC is recognized as human capital (skill), structural capital (data bases and organizational structure) and relational capital (customer and supplier relations) argued by Bornemann et al. (1999).

Performance Measurement

Simons (1990) observes that performance measurement is tracking the implementation of business strategy by comparing actual results against strategic goals and objectives. Neely (1998) suggests that performance measurement “is the process of quantifying past action”. Strategy is a pattern of resource allocation that enables a firm to maintain or improve performance that creates ‘fitness’ among a

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company's activities. Performance must be measured in order to analyse strategies, as performance is a result of an activity (Porter and Millar, 1985). Atkinson *et al.* (1995) regard performance measurement as the most important, yet most misunderstood and most difficult task in management accounting. Traditional performance measurement employs financial techniques (Usoff *et al.*, 2002) such as Return on Assets and Return on Capital Employed. Such measures have been criticised for being backward looking (Bourne *et al.*, 2000), unable to measure intangible resources (Amir and Lev, 1996) and not suitable for assessing performance of investments in new technologies and markets which firms require to compete successfully in global markets (Fanning 2000).

The financial performance indexes in the Mehr Eghtesad Bank

The banks and financial institutions for reorganization, divide their branches in different degrees based on indexes such as the activity scale and operation volume. This categorization is usually carried out during the desired periods. With attention to the positive and negative effects of branches category variation upon the activity and personnel job status, the assessment of the activities at branches should be performed with a special preciseness.

Regardless of the selection criteria for the assessment of supervision or branches, the common method in most of the banks is point allotment to each of the criteria and points accumulation and eventually categorizing of the branches based on the achievement points.

In this method, for the categorization of branches the statistical methods due to their simplicity and scientific nature can allot the branches or supervision's scale according to the goals and selected criteria with an ease to authorization of a decision maker.

In order to determine the category of each branch under the cover some factors are considered which include the main activities of the branches and since the essential part of these factors are numbers and numeric, so proportionate to each amount a point is considered.

With regards to the above mentioned explanations the rubrics used for the rating can be mentioned as follows:

Table No.1- Performances indexes

Row	Description	Coefficient
1	Fixed Deposits (Resources provision)	35
2	Loans (Resources allocated)	20
3	Performance (Revenue and expenditure)	30
4	Productivity index (revenue to power and fixed deposit to power)	5
5	Budget deviations	10

Previous research:

In this section, results obtained from some similar investigations on intellectual capital conducted in and out of Iran have been presented:

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Table 2: important studies conducted in foreign countries on intellectual capital in banking industry

<i>Author/authors</i>	<i>Year of study</i>	<i>Time period of the study</i>	<i>Subject</i>	<i>conclusion</i>
Maverdis Dimitrius	2004	1 st of April through 31 st of March	Performance of intellectual capital in banking sector of Japan	There is a significant variation between the performance of intellectual capital of Japanese banks, in addition Japanese banks vary from some European banks such as Greek and Austrian banks
Chen Gu	2005	2001 through 2003	Intellectual capital performance of Malaysian commercial banks	Although Hong Kong Bank holds lower physical capital than “Mi” Bank, however since it had the highest coefficient of intellectual capital it was the most efficient domestic bank
Abdullah Yalama And Matin Kaskan	2007	1995 through 2004	Intellectual capital performance of the banks active in Istanbul Stock Exchange	Effect of intellectual capital on profitability in banking sector of Istanbul Stock Exchange is about 61.3% at average and portfolio level
Majd Al-Baneni	2008	1999 through 2005	Study on factors effective on intellectual capital performance in banks: case study on British Banks	Systems of information technology, barriers to entry and return on investment in intellectual capital have negative effect on performance of human capital, whereas bank profitability and bank risk had a positive effect on performance of human capital
Mahish Joushi, Daril Chayli	2010	2005 through 2007	Intellectual capital performance on banking sector: assessment on Australian banks	Human force cost and its value added have a significant relation with value added of intellectual capital. Profitability of human capital is relatively higher than that of structural capital and bank size has a little or no effect on performance of intellectual capital in terms of total asset, number of employees and total equities.

Hypotheses Development:

Based on the subject of the research, the following hypotheses are developed:

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Nevertheless, this study aims to answer the following fundamental question:

To what extent the components of intellectual capital can improve the organizational performance of Mehr Eqtesad bank branches in Qazvin province. The questions raised in this study are detailed as follows:

1. Is there a significant relationship between human capital and indicators of financial performance of Mehr Eqtesad bank in Qazvin province?
2. Is there a significant relationship between the structural capital and financial performance indicators of Mehr Eqtesad Bank in Qazvin province?
3. Is there a significant relationship between communication-oriented capital and financial performance indicators of Mehr Eqtesad Bank in Qazvin province?

Sampling and variable definition:

Statistical universe of this research inclusive all the personnel settled in 13 branch for 5 years of Bank mehr e eqtesad in ghazvin province by choosing 65 years, Branches. Statistical methods used in this research for investigate a linear relationship between the dependent and explanatory variables, and Pearson's correlation coefficient to assess the linear relationship between the explanatory variables variance inflation factor (VIF) were used. Also, for analysis of test data Lymer, Hausman, significance of regression coefficients (t), significance of regression model (F) self-correlation Watson cameras are used by using Topsis, Econometric views, Gams softwares and regression test, association coefficient test calculation and analysis of data implementation. This research is a kind of purpose functional and a kind of administration analytical description. Thematic scope this research instances performance management, management accounting, intellectual property, intangible assets and. Time scope this research from 2008 until end of 2013.

Variables:

As a rule, identification of variables is one of the main stages in every research. Variable, as its name implies, is a character that can change in quantity and usually can assume various numerical value. It actually represents features that researcher can observe, control and manipulate them. Variables generally fall into two categories: independent variable and dependent variable. The main and dependent variable of the present study is performance.

Research Analytical Model

When a model is explained and its determination state is evaluated, estimating free parameters from a complex of observed data should be followed up at the next stage. This stage includes a series of repetitive processes, so that a covariance matrix implied is made in each repetition and is compared with the observed data covariance matrix. Comparison of these two matrixes will lead to the production of a residual matrix and such repetition is continued until the residual matrix reached to the minimum level.

$$\text{Data} = \text{Model} + \text{Residual}$$

The present research model is a functional model which has been formed with considering components of intellectual capital on financial performance of bank. It should be noted that this model helps high- and mid-ranking managers evaluate available outlooks and strategies inside the bank in order to improve and develop their macro banking policies.

In this study, it is tried to consider the most important and salient indicators of bank with regard to the components of intellectual capital in order to select a proper base for on-time and successful management of banks in the country.

The main model of the research is as follows:

$$FPI_{ij} = b_0 + b_1 hc_{ij} + b_2 sc_{ij} + b_3 cr_{ij}$$

Financial performance indicators: Fpi

Human capital : hc_{ij}

Capital structure : sc_{ij}

Investor relations : cr_{ij}

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In this model, financial performance is considered as dependent variable and each of components of intellectual capital is presented as independent variable within the framework of a new model.

In the present research, it is tried to study role of factors and components of intellectual capital, including structural capital, human capital and investor relations, on the financial performance.

****The proposed functional model and Customer (relationship) capital : ****

According to applied model of reporting intellectual capital in bank system and results of 2013 and considering that branches of bank is considered as an independent financial unit with independent offices and according to different lifetime of branches and direct relationship of customers in each branch with life time of each branch, a period of five years from the year 2008 to 2013 until the end of the year are considered in order to harmonization of conditions and the comparison between the branches.

- A) The number of opened accounts in period of five years from 2008 to 2013.
 - The time of accounts opening are important in evaluation.
- B) The frequency of referring to branches and services received in a period of five years from 2008 to 2013.

Descriptive Analysis of Variables:

The descriptive statistics are calculated to let us analyze and define them. In this section the descriptive analysis includes the average, the largest and the smallest standard deviation, skewness and elongation of observations on each of the independent variables, dependent and the control.

Table 3 - Descriptive Analysis of Variables

(Descriptive Analysis of Research Variables (Customer (relationship) capital)								
Dispersion	Skew	max	Min	Average	Deviation	Average	No	
2.298	0.721	1	0.029	0.375	0.304	0.457	65	Function
2	0	207216	7807	83848	55694	86569	65	Documents
3	0	2200	0	1001	468	1043	65	Credits

In descriptive analysis of the variables and for all the variables, central and dispersion parameters are calculated separately.

The dependent variable has 65 observations, it's respectively has the minimum, maximum and the average of 3.1% and 46%. The outcome digit represents a variable with a normal distribution.

The standard deviation is between zero to 30 and it covers the distribution range for the variables.

Perceptive analysis of third hypothesis :

The purpose of the second hypothesis testing is to know whether there's a significant link between structural capital and indexes of financial performance of Mehr Eghtesad bank in Qazvin province. Statistical hypothesis of this research is mentioned below:

H₀: There is no significant relation between communicative capital and indexes of financial performances of Mehr Eghtesad bank in Qazvin province.

H₁: There is significant relation between communicative capital and indexes of financial performance of Mehr Eghtesad bank in Qazvin province.

As it was mentioned in the third chapter previously, in this survey we exploit the model below to test the third hypothesis:

$$PI_{i,t} = \beta_0 + \beta_1 p_{i,t} + \beta_2 ti_{i,t} + \epsilon_{i,t}$$

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For the third hypothesis testing, we can separate the communicative capital into two branches, that is customer documents (p) and payment services (t).

Table 4: Analysis of the independent coefficient variable in the study of hypotheses (relating investment)

Pli, t= $\beta_0 + \beta_1 p_{r i,t} + \beta_2 t_{i,t} + \epsilon_{i,t}$			
Explanatory variables	coefficient	statistics t	Significance level
Intercept	0/376	3/037	0/0000
Customers' Documents	0/091	3/111	0/0000
Credits	0/149	3/408	0/0000
Adjusted coefficient of determination		0/54	
Fisher F statistics		5/403	
Significance level		0/0000	
Watson camera statistics		2/106	
significance level of F-Limer statistics		0/219	
VIF		4	

Based on the results presented in Table 4.9, the coefficient of the independent variable of customer documents in this model is 0/091 and it indicates that in the case of adding 100 units to this variable, the dependent variable will increase at a rate of 9 units. Given the significance level of this variable it can be said that this relationship is significant at the 95%.

The coefficient of the independent variable of credits in the model is 0/149 and indicates that the percentage increase in unit variable, in the case of adding 100 units to this variable, the dependent variable will increase at a rate of 14 units. Given the significance level of this variable it can be said that this relationship is significant at the 95%.

According to the proposed model, we can conclude that there is a significant relationship between related capital of Mehr Eghtesad bank branches and bank performance evaluation indicators.

In the above diagram, effectiveness of each factor of related investment on the performance of Qazvin Mehr Eghtesad bank branches can be observed. As it can be seen, the effectiveness of customer documents (p) against the credits (t) on the performance of Mehr Eghtesad bank seems more dramatic in most branches.

Suggestions

A) Suggestions related to reinforce the communication capital

1. Customer Orientation

- Distributing feedback across the organization
- Identifying the target market
- Indentifying customer needs
- Reinforcing customer orientation attitude

2. Customer relationship management

- Ability to send customer complaints via web
- accountability and timely and continuous tracking of customer complaints and expectations

3. Customer Loyalty

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- Considering customer expectations
 - Building the system of handling the complaints and suggestions
 - Behavioral training to employees when dealing with customers
 - Creating strategic planning and identifying opportunities and threats
4. market orientation
- Creating Target market-oriented climate throughout the organization (internal marketing)
 - Creating strategic planning and identifying opportunities and threats.

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