

**THE EVALUATION OF INTELLECTUAL ASSET
PERFORMANCE BY BALANCED SCORE CARDS
(CASE STUDY: CENTRAL BANK OF IRAN)**

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Abstract

Great changes in banking industry have developed a situation in which understanding intellectual assets is of prime significance. Real assets of organizations are employing and application expert human resources, knowledge and human skills and in other words hidden assets. Since traditional evaluation methods are not capable of assessing such assets, organizations need stronger models to consider application of such assets. One of these models is concessionary balanced cards which are talked over in this study for evaluating application of intellectual assets in the central bank. Therefore in formations are gathered through questions which contains intellectual asset index in form of BSC model. Questions of the study were answered through statistical software. The result showed that performance of intellectual assets was not appropriate. To answer other questions, costumer, development, inner processes and financial aspects of the organization were not in a good situation. Among the aforementioned aspects, costumer obtained the first rank and was in a better situation comparing to other aspects.

Key words: intellectual assets, performance evaluation, concessionary balanced cards.

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Introduction

Economy of the societies is a knowledge directed economy. Before knowledge directed economy, industrial economy had dominated many societies. Factors of developing wealth in this economy are physical assets like land, workers, money and vehicles. But in knowledge directed economy, knowledge or intellectual assets as a factor of developing wealth has become more important than physical assets. And intellectual assets especially human assets and resources are of the most important assets of the organization. Moreover potential prosperities of organization root, in their intellectual capabilities. Therefore their considering their organizational situations has become of prime importance.

Stating the issue

Unlike the past in which technology and physical assets were a competitive advantage, this day, companies consider creativity and innovation a key factor of working in business. Complexity of competitions in trade and business as well as customers expectations, necessity of being aware of the organization weak spots and high points has revealed unabated improvement of enjoyment. The foundation and background of a successful management of intellectual assets is evaluating intellectual assets which has got great significance in business management. One of the fundamental tribulations of the organizations is achieving a comprehensive performance evaluation which is also reliable and flexible to give us a capability to obtain precise information from our current position. It is necessary for an organization to be able to categorize its intellectual assets and assign how these assets support strategic goals. (Iim and Dalli more, 2004,181-144). Traditional performance evaluations systems are not compatible with current situations and mechanism mentioned in modern organizations and are not able to evaluate the value resulted from physical assets like staffs knowledge, relationship between customers, suppliers and organization. BSC approach is an answer or reaction to old performance evaluation by considering strategic aspects of organization. Balanced evaluation method as an effective tool for recognizing, explaining and translating physical assets to real and comprehensive ones for beneficiaries, has been a problem solver for organizations and works successful performance of strategies possible. In 2001, concessionary balanced card was recognized as one of the 15 applied management tools which were also effective among managers of different companies around the world. (Myles and Jackson, 2006, 448-503).

Research shows that about 70% of top American and European companies used this tool and many others are about to use it. An intellectual source (balanced score card) did a lot of researches about intellectual assets and reached to this conclusion that only 20% of the available knowledge of organizations are used practically. This is the result of the lack of correct intellectual asset evaluation. (Marr, 2004, 554-676). Balance evaluation method evaluates organization performance as well as traditional finance evaluation by adding 3 more dimension or aspects which are costumers, inner process or business and learning. The above mentioned method pays a special attention to physical assets of organization and makes it possible to cover the paucities and weak spots by fitting them in evaluation model through control, supervision and being informed of physical asset's qualities. (Newn, 2007, 44).

Research questions:**Main questions**

How is the performance of intellectual assets in central Bank of Tehran by using the Balanced score card?

Subordinate questions:

1. How is performance of intellectual assets in customer's point of view from the aspect of marketing ability, marketing power and customer loyalty?
2. How is the performance of intellectual assets in development view point from the aspect of innovation and human resources criteria?
3. How is the performance of intellectual assets in internal view point from the aspect of organization culture criteria, organization structures, organization learning's, operation processes and information systems?
4. How is the performance of intellectual assets in financial view point from the aspect of mixing income, charge reduction criteria?

Reviewing research literature:

According to Seetharama intellectual asset is the difference between market value and office value of a company. In another definition intellectual assets are all the properties which are not reflected in balance sheet, but affect the performance of companies. Three different parts of intellectual assets are: structural assets, human and customer relation asset. (Marr et al, 2004, 554-670). Structural assets are all the sources of knowledge but human sources in an organization which are database, organization charts and processes as well as strategies which provides the organization a value beyond the physical assets. Human asset is stored knowledge of an organization that involves point of views and beliefs of the employees. Customer relationship asset is a knowledge taken from relationships with beneficiaries (customers, partners, suppliers, stock holders) through relation and marketing channels of an organization. As it is mentioned balanced evaluation method evaluates organization performance as well as evaluating traditional financial evaluation by adding three other dimensions which are customers, internal business processes and development. This model is considered an approach which embraces both financial and non financial dimensions and is appropriate for super-competitive environments. In this model traditional finance measurements which are boring and old index balance with non financial measurements which are developed index. (Kaplan and Norton, 2004). On the other hand performance evaluation is official and systematic investigation of the performance of organizations for how they perform based on indicated standards. Balanced evaluation method known as a system of performance evaluation is extracted from the heart company strategies and by indicating vital factors of prosperities in companies which reflects the most important aspects of business and organization help the managers to support their strategic programs and performances. (Chen, 2004, 196-212).

Table number1: Categorize of intellectual asset factors

Bontis	Paying attention to human assets (personal knowledge) structural asset(non human asset), Relation assets (knowledge in relation with environment and organization beneficiaries Considers human asset a source of innovation is ameliorated through personal skills.
Stewart	Its categorization is in form of human assets (employees), structural (knowledge of information technology, design, commercial banks) and relation based (information related to market of absorbing and maintaining wealth).
Roos and his colleagues	Intellectual asset involves human assets (jurisdiction of viewpoints), structural assets (structures, processes, spiritual ownership of organization, cultural assets) communication assets (relationship with internal and external beneficiaries of a company), reconstruction and development assets, (invention right and education in organizations).
Amie brooking	Intellectual asset involves human assets, sub-structural assets, spiritual ownership and market properties.
Eustace and colleagues	Intellectual assets are divided into two groups of physical good, and jurisdiction. Goods (copying right, trademarks, designs, technical knowledge). Physical good (jurisdictions, innovations, structural jurisdictions, marketing jurisdictions and human resources.)
Edvinsson and Malone:	These two researchers consider intellectual assets in to two groups of organization and relationship assets. They also consider organization asset into two groups of process assets and innovation.
Chen:	Considers intellectual asset human asset, relationship asset, innovation asset, structural asset.
Guthire and petty:	Say that intellectual asset-involves structural asset, organization (intellectual ownership embraces copy right, trade marks, company culture, information systems, network making systems. And financial relations). Relation based asset (loyal customers, commercial partners...) and human asset (technical knowledge, education, job related jurisdictions, professional jurisdictions and flexibility
Categorization of economic cooperation and development organization	This categorization points out to human and organization asset. It describes intellectual asset as economic value of these two assets as economic value of these two assets (human and organization).
Lim and Dallimore categorization	These two researchers believe intellectual assess has two main dimension of strategic management with criteria of (human asset company asset, commercial asset and...) and strategic marketing has dimensions of (costumer asset, partner asset, investors asset).
Norton and caplan categorization	These two researchers measure the performance of an organization through costumer dimensions, internal processes, financial, development and learning aspects.

Research method

Information collection methods:

In its goal, application and research method this research is measurement based. To collect the Information about theoretical principles and literature of research topic library sources are used. Question are, are used to collect and analyze the Information. The Question is divided into two parts of demography and questions related to intellectual performance asset in form of BSC. The Question has four diminutions of customer, internal process, development and financial section. Each of these dimensions has got their own criteria. Liker spectrum was used to design the Question.

Data analysis method: to analyze the data descriptive statistics which is an abstract of observed data was used. Perceptive statistics was designed for investigating the situation of index and different dimensions. Friedman test was used to compare and rank dimensions for analyzing data collected from samples and generalizing it to statistical society.

Society and statistical sample

Statistical society of the research is employees of the central bank of Iran.

The bank has got 321 employees. Research sample of 120 employees was gained in which random sampling of the society was used.

Table number 2: descriptive statistic of research criteria

dimensions	criteria	number	mean	diversion
customer	Marketing ability	110	2.78	0.68
	Market power	110	3.13	0.59
	Customer loyalty	110	2.90	0.52
Internal processes	Organization culture	110	2.61	0.91
	Organization structure	110	2.66	0.72
	Organization learning	110	2.55	0.81
	Operation processes	110	3	0.45
	Information system	110	2.71	0.84
development	Human resources	110	2.93	0.57
	innovation	110	2.33	0.65
financial	Income mixture	110	2.76	0.58
	Charge reduction	110	3.05	0.39
	Profit enjoyment	110	2.93	0.80

Research foundlings:

Descriptive measurements of research criteria

In table 2, comprehensive information was presented in form of mean for each of the criteria applicator measuring 4 dimension of the research (customer, internal process, development, financial aspect).

Perceptive statistics for research criteria

In this section we will use mean test of a society to consider the situation of criterion and whether or not they are relearn. Its premise design is as following:

Criteria situation is not appropriate: ($3 \geq M$: H)

Criteria situation is not appropriate : ($3 < M$: H)

Table number3: the results of perceptive statistics for research criteria.

criteria	Mean equals to 3					
	t	Freedom degree	Meanfulness number	Difference of means	95% insurance difference for differences	
					minimum	maximum
Marketing ability	-3.2	109	0.002	-0.212	-0.341	-0.082
Market power	-2.4	109	0.017	0.136	0.024	0.247
Customer loyalty	-1.9	109	0.051	-0.98	-0.197	0.000
Organization culture	-4.3	109	0.000	-0.381	-0.554	-0.209
Organization structure	-4.8	109	0.000	-.331	-0.468	-0.195
Organization learning	-5.6	109	0.000	-.440	-0.595	-0.286
Operation process	0.000	109	1	0.000	-0.086	0.086
Information system	-3.4	109	0.001	-.281	-0.441	-0.121
Human resources	-1.1	109	0.237	-.065	-0.173	0.043
Innovation	-0.1	109	0.000	-.667	-0.790	-0.544
Income mixture	-4.1	109	0.000	-.230	-0.340	-0.120
Charge reduction	1.4	109	0.153	0.054	-0.020	0.129
Profit enjoyment	-0.9	109	0.365	-0.069	-0.221	0.082

The results show that all criteria which were considered were not in an appropriate situation.

Table number 4: descriptive statistic related to balanced score card model

Dimensions	Number	Mean	Diversions
Customer	110	2.94	0.480
Internal processes	110	2.71	0.562
Development	110	2.63	0.565
Financial	110	2.91	0.423

Customer dimension has got mean 2.9 that is lower than 3 and not in a good situation. Internal process mean is 2.7 which is lower than 3. The two other dimension, development and financial, have also got a mean lower than 3.

Since we considered an average above 3 a good situation, these dimensions haven't also got a good situation.

Table number 5: Perceptive statistic related to diminutions of balanced score card model

Criteria	t	Freedom degree	Meanfulness number	Difference of means	95% insurance difference for differences	
					Mean=3	
					minimum	maximum
Customer	-1.2	109	0.207	-0.058	-0.148	0.032

Internal processes	-5.35	109	0.000	-0.287	-0.393	-0.180
Development	-6.78	109	0.000	-0.366	-0.473	-0.259
Financial	-2.02	109	0.045	0.081	-0.161	-0.001

The results of Balanced score card dimensions show a situation that is not appropriate.

Table number6: descriptive statistic of main questions of research

change	number	mean	diversion
Intellectual asset performance	110	2.80	0.342

Table number7: perceptive statistic related to main question of research

Mean=3						
criteria	t	Freedom degree	Meanfulness number	Difference of means	95% insurance difference for differences	
					minimum	maximum
Intellectual asset performance	-0.48	109	0.000	-0.198	-0.280	-0.116

The mean shows that intellectual asset didn't have a good performance in bank; since it is lower than 3.

Ranking dimensions of balanced score card

Friedman test was used to rank dimensions of balanced score card and to recognize its weak spots and high points.

H_0 Premise: between dimensions of BSC in evaluating intellectual assets performances there isn't a meaning full difference.

H_1 Premise: between dimensions of BSC in evaluating intellectual assets performances there isn't a meaning full difference.

Results are shown in the following table.

Table number 8: Friedman test

Statistical criteria	Calculated amount
number	115
χ^2	37/53
Freedom degree	3
Meaning fullness number	0/000

As the abovementioned table shows meaningful number is lower %5, as a result premise 5 is rejected.

Table number 9: prorating dimensions

Customer idea	Ranking mean	ranking
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Customer	3/05	1
Financial	2/84	2
Internal processes	2/13	3
development	1/44	4

Test shows that customer dimension own ranking number 1 and has got a better situation. After that there is financial dimension, internal processes and development dimension.

Table number 10: table of data analysis and the results of answering research question:

Research questions		considerations
11	Main questions of research: How is the performance of intellectual asset in central bank of Tehran using balanced score cards?	The mean for this variant is: 2/17 that is lower than 3. It shows that three parts of intellectual asset that are human, structure and relationship are not in a good situation.
22	Subordinate questions 1 of the research, how is the performance of intellectual asset in central bank in customers view point?	The mean about customers is 2/94 that is lower than 3. Performance of intellectual asset in central bank was considered in three criteria of marketing ability, marketing power and loyalty of customers. The mean for these criteria in order from right to left are as following, 2/78, 3/13, 2/95. About marketing criteria and customer loyalty of the society is lower than 3. Since the average above three is suitable, three for the two above mentioned criteria are not in a good situation average of marketing power criteria is above these that shows intellectual performance is in medium position. While the importance of these two criteria in private banks is 8/2 and 9/7.
33	Subordinate question 2. How is the performance of intellectual asset in central bank in development viewpoint?	The average for this dimension is 2.63 that show the organization is not in a good situation. The average for human resources criteria is 2.93 and for innovation criteria are 2.33. Since average above 3 is suitable these criteria are not suitable. It means banks somehow ignored items like jurisdiction, point of view and creativity and there isn't a mechanism for innovation like mechanisms of investment, operation, cooperation and motivation. In the organization.
44	Subordinate question 3 of research: how is the performance of intellectual asset in central bank of Iran in internal process viewpoint?	In internal process a criterion the mean is 2.74 that is lower than 3 and is not relevant. Considering each of the means of these criteria showed that the mean for organization culture was 2.61, learning criteria of organization 2.55, operation process criteria 3.17 and information system criteria 2.71 that shows each of the criteria are not in a good situation and this is just the operation process criteria which are in average situation.
55	Subordinate question 4 of research: how is the performance of intellectual asset in central bank in financial view point?	Financial criteria have the average of 2.41 that is lower than 3 and not appropriate for organization. Considering income mixture criteria, lowering charges in these criteria shows that the average of income mixture criteria is 2.76, charge reduction 3.05 and profit criteria 2.93. Since average above 3 is appropriate each of them are in medium situation.

Recommendations based of research findings:

According to research literature and the results of statistical analysis the following recommendations are offered to fortify intellectual asset of central bank.

1. Management of central bank can have some programs about increasing customer investments: Promulgating customer directed idea across the organization, educating customer directed idea to employs who visit the customers in person. Recognizing marketing goals, recognizing customer's needs, using strategies to applicator customer's opinions in designing and offering services, fortifying customer directed services among all members of the organization, employing. Educating and developing motivation as well as abele employers to offer good services to customers.
2. Making strategic programs to recognize opportunities and threats of external environment, weak spots and high points of organization, developing a wider scope for work and a purposeful atmosphere for the organization and using vast advertisements.
3. Using advanced and modern structures like team and project based structures in different parts of the organization, using information systems that make information availability simple, sharing knowledge among organization and promulgating culture of knowledge in the organization.
4. Devoting more time and budget to research and developing cooperation and interaction with scientific sources and application top experiences, using recommendation system in the organization to receive employees opinions and one out of the organization to get customers ideas to have a reaction to these suggestions and criticisms.
5. Continuous measurement of employees in indicated time periods, analyzing information gathered from the performance of employees and using its feedback, developing programs and goals and having a system based view toward it.
6. Developing measurement system and job satisfaction in the organization continues evaluation of employee's satisfaction and analyzing this information, making decision, according to results of information analysis to tackle the obstacles and achieving a job satisfaction.
7. Recognizing strategic occupation of the organization. It means recognizing occupations which play an important role in accomplishing organizations goal. Recognizing all knowledge's, skills, behaviors, values and characteristics needed to perform the occupations in the organization, continues measurement of employees jurisdiction and qualification level and using employee promotion programs.

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