

# The rate of using financial and non-financial indices in performance measurement of power distribution company in Markazi Province

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## Abstract

According to conventional assessment indices of institutions or financial indices, balanced scorecard pays attention to non-financial indices which are mainly control and log indicators. In this direction, while having a close relationship between these two indices i.e. financial and non-financial indices, we are trying to verify organization objectives and strategies by applying all facilities and attitudes of organization towards a main perspective. The function of different parts of organization is constantly evaluated by four perspectives of balanced scorecard including financial perspective, customer's perspective, internal processes and developing and learning, and finally their development and improvement is tested.

**Keywords:** performance management, financial indices, non-financial indices.

## Introduction

By passing time, organizations' need to performance measurement systems is more complete than the past, and it is getting vital. Also, limitations of accounting conventional systems have been more evident to measure performance, and organizations have started inventing systems which measure organization's unnoticeable assets- while conventional systems are not able to measure them. Many organizations use these systems with accounting conventional systems to measure performance. However, most of intellectuals and managers believe that the combination of these two systems cannot maintain all dimensions of organization completely. Thus, organizations need a system that in addition to measuring all dimensions of organization, it can also measure the organization's position in order to achieve its function and perspective. Also, this system should

be able to help organization managers have planning and strategic decisions. Conventional indices of performance measurement are based on accounting profit figures, and they are not able to measure real performance of company's profit for various reasons including ignoring the cost of providing capital, disregarding decisions effects and following events such as reaching new market and having attitudes about the past, not paying attention to unnoticeable assets and also intellectual potentials which participate in useful processes, and also production new technology, producing new products, abundant manipulation of profit by using different methods of accounting and management. Thus, investors especially shareholders need indices which are able to measure the performance of company's management properly in order that they can observe its effects on share price. In the age of knowledge-based economy and useful activities, the companies do not only rely on their physical vectors. In fact, financial evaluations are not the only indicator of company's past performance. Balanced scorecard (BSC) is a modern method to measure management performance and the rate of access to company's strategies.

In this approach, it has separated from conventional approach of performance measurement. The main essential of balanced scorecard concept is changing in performance measurement method. In fact, the principle of balanced scorecard is based on a constant assessment strategy which includes unnoticeable assets.

The focus of this research is balanced scorecard (BSC) - a performance measurement system which can provide organizations' needs.

## Statement of problem

Balanced scorecard benefits from both financial and non-financial indices. This category focuses on the importance of being balanced in these indices,

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and presents a model in which we deal with the performance measurement of four perspectives: financial perspective, customer's perspective, internal processes and developing and learning.

In this research, we are about to seek this problem to figure out how financial and non-financial indices are used for performance measurement. Balanced scorecard method focuses on this point that one should not only pay attention to financial indices in performance measurement, but also other indices should be considered extensively. The importance of assessment in financial perspectives is that the result of other perspectives activity (non-financial indices) is determined in this perspective. Financial evaluations are good indicators for reflecting of past events. Financial evaluations are called functional indicators or lag indicators. They show the results of past actions. Balanced scorecard method considers maintaining these functional indicators and indicators relating to future functional stimuli i.e. lead indicators. In balanced scorecard method, functional and lead evaluations are determined based on organization perspectives and strategies.

### Main research questions

According to above-mentioned materials in explaining problem, Main search questions are as follows:

- 1- Do functional assessors' experts pay attention to non-financial indices?
- 2- Do functional assessors' experts who are familiar with balanced scorecard put much importance non-financial indices rather than who are not?
- 3- Do functional assessors pay attention to all available indices in non-financial perspectives equally?
- 4- Do functional assessors pay attention to all indices and financial ratios equally?

### Research hypothesis

Four main hypotheses have been defined for this research as follows:

First hypothesis: functional assessors have more tendencies to use financial indices rather than non-financial indices.

Second hypothesis: functional assessors who are familiar with balanced scorecard put much importance on non-financial indices to rather than who are not familiar with them.

Third hypothesis: functional assessors do not put importance on all non-financial indices equally.

Fourth hypothesis: functional assessors do not put importance on all financial indices equally.

### Scientific objectives

Nowadays, balanced scorecard (BSC) is one of the most important issues in accounting management. According to positive effect of this category on accounting and management, undoubtedly, dealing with different indices and perspectives will be useful in efficiency of organization management in financial and non-financial sectors. Additionally, it results in developing theories and theoretical issues of accounting.

### Applied objectives

In this research we will follow this problem if performance measurement in Power Distribution Company of Markazi province draws attention to non-financial indices as functional indicators. Also, their indicators (classification) preference is studied, and we mention that functional assessors put much importance on which one of financial and non-financial indicators. Thus, the present research will follow the objectives below:

1- knowing financial and non-financial indices needed for functional assessors of Power Distribution Company in Markazi province.

2- Classifying the importance of financial and non-financial indices.

Doing research method and collecting information

In this research, library research is used for theoretical issues and finally we designed a comprehensive questionnaire to abridging the materials with a research among experts who are familiar with the balanced scorecard, and we have studied the research problem and refusing or confirming the hypothesis by checking its information and also by doing interviews with experts if necessary,

Besides books and journals, Internet network and informational sites are also used to fulfill theoretical issues.

### Methodology

#### Research spatial territory

Research spatial territory is limited to Power Distribution Company in Markazi province which is responsible for distribution in five parts in Power industry: domestic, public and passerby, agricultural, industrial and commercial.

#### Research time territory

The presented information about this research subject has been studied during 2008-2009.

### Operational definitions

*Balanced scorecard (BSC):* Balanced scorecard changes the organization strategy into a comprehensive series of functional indicators which form a strategic framework. Balanced scorecard does not focus on fulfilling financial objectives merely, but is also considered as a tool for non-financial objectives which every organization require them to fulfill its financial objectives. Balanced scorecard perspectives have different but continuous steps which form a sequence of cause-effect objectives, and describe the organization strategy in a map frame and strategic design and it includes two dimensions: financial and non-financial dimensions.

*Functional indices:* Measuring tools and leading different perspectives are balanced scorecards which should include characteristics such as connection, repetition capability, accounting and availability which contain financial indices, customer, internal processes, developing and learning.

*Functional assessors:* Functional assessors are experts and managers who are familiar with different methods of performance measurement and are able to express their opinions about considered company's function.

*Financial indices:* Financial indices are the same conventional indices of performance measurement such as financial ratios (current ratios, net profit ratio, liability ratio, activity ratio, liquidity ratio, etc.).

*Non-financial indices:* Non-financial indices include customers, developing and learning company's internal processes.

*Lead indicators:* These indicators show that how predicted objectives will be come true, for example the percentage of used capacity or time reduction of production cycle.

*Functional indicators:* These indicators show the effects and results of lead indicators, for example reduction of finished price which is occurred due to increasing capacity or decreasing production time.

*Financial perspective:* Financial indices are one of the most important part of balanced scorecard system especially in profit organizations. Indices of this perspective tell us those successful parts of objectives which are indicated in three other perspectives (customers' perspectives, developing and learning of company's internal processes), lead to financial results and findings. We can do our best to improve customers' satisfaction, enhance quality and decrease production delivery time, but if these measures do not lead to evident results in our financial reports, they do not worth. Classical indicators usually show off in their financial perspective. Some examples for these indicators and

indices are: profitability, which is evaluated by applied capital return and recently economic value added has been used instead of or beside it. Additionally, income growth and increasing exploitation or applying assets are also well-known indices of this perspective.

*Customer's perspective:* in general, factors like quality, delivery time and price are effective on choosing product or service by customer. In past decades, commercial organizations due to much demand rather than supply and also limitation in production technology did not pay more attention to effective factors on choosing customer and after that only quality factor was considered as competitive advantage of leading companies. But today's by passing time and because of improvements which have been occurred in technology, competition in companies is neck by neck from different aspects such as quality. Thus, at the present time other competitive factors especially price is considered as the most important factor for choosing customers and competitive advantage of leading companies.

### Internal process perspective of business

In internal process perspective, organizations must recognize processes which can continue creativity for customers and shareholders. Research of each objectives which is indicated in customer's perspective, requires doing one or more effective operational processes. These processes must be indicated in internal processes perspective and develop appropriate indices in order to control their improvement. we may need a completely new sequence of operational processes to meet customers' and shareholders' needs or expectations.

### Statistical population and research sample

In this research, statistical population includes assistants, managers and bosses of Power distribution Company of Markazi province which are familiar with concepts and functions of balanced scorecard. In this research statistical population is considered as a equal sample to obtain better results from hypothesis test. Because the number of statistical population is 90 people, 90 questionnaires were distributed among the people of statistical population which 80 questionnaires out of this number were given back, but statistical analyses has been carried out on these 80 questionnaires.

### Hypothesis testing

*First hypothesis:* Functional assessors have more tendencies to use financial indices rather than non-financial indices.

*Hypothesis H0:* Functional assessors have not more tendencies to use financial indices rather than non-financial indices.

*Hypothesis H1:* Functional assessors have more tendencies to use financial indices rather than non-financial indices.

Hypothesis H1 is considered a refused Hypothesis and Hypothesis H0 is considered as a confirmed Hypothesis.

The rate of descriptive statistics scores relating to tests has been mentioned in the table below.

**Table 1. Descriptive statistics for hypothesis 1**

Standard deviation	Mean	N
37/10	7/65	80

When we want to evaluate the relationship between two nominal variables and their dependent variable,  $\chi^2$  parameter test is used. The summary of test external tables of this hypothesis which is computed by SPSS software presented as follows:

**Table 2. T-test for the variables in hypothesis 1**

The result of test analysis about H0 Hypothesis	Sig	df	The rate of test statistics
H0 Hypothesis is refused	001/0	3	9/68

Since the rate of test statistics is larger than the rate of mean and also the obtained Sig level is less than 0/05, Hypothesis H0 is refused and Hypothesis H1 is confirmed, that is, we are sure as much as 95% that functional assessors have more tendencies to use financial indices rather than non-financial indices. Consequently, first hypothesis is accepted.

### Second hypothesis testing

*Second hypothesis:* functional assessors who are familiar with balanced scorecard issues put much importance on non-financial indices rather than who are not familiar with them.

*Hypothesis H0:* functional assessors who are familiar with balanced scorecard issues do not put

much importance on non-financial indices rather than who are not familiar with them.

*Hypothesis H1:* functional assessors who are familiar with balanced scorecard issues put much importance on non-financial indices rather than who are not familiar with them.

Hypothesis H1 is considered a confirmed Hypothesis and Hypothesis H0 is considered as a refused Hypothesis.

We use Mann-Whitney test in order to compare the assessors who are familiar with balanced scorecard with the assessors who are not familiar with balanced scorecard. The summary of test external tables of this hypothesis which is computed by SPSS software presented as follows:

**Table 3. Mann-Whitney test**

sig	t	Mean difference	Mean sum	Mean	N	Test subjects
0061/0	704	2/2	94/16	5/38	80	Assessors who are familiar with balanced scorecard.
			87/13	7/40	80	Assessors who are not familiar with balanced scorecard.

Since the rate of test statistics is 704 and the obtained Sig level is 0/0061 which is less than 0/05, Hypothesis H0 is refused and Hypothesis H1 is confirmed, that is, we are sure as much as 95% that

functional assessors who are familiar with balanced scorecard put much importance on non-financial indices rather than who are not familiar with them. Consequently, this hypothesis is accepted.

**Third hypothesis test**

*Third hypothesis:* functional assessors do not put importance on all non-financial indices equally.

*Hypothesis H0:* functional assessors put importance on all non-financial indices equally.

*Hypothesis H1:* functional assessors do not put importance on all non-financial indices equally.

Hypothesis H1 is considered a confirmed Hypothesis and Hypothesis H0 is considered as a refused Hypothesis.

ANOVA was used for doing this hypothesis test. The used test statistics in this hypothesis is Fisher hypothesis. The summary of test external tables of this hypothesis which is computed by SPSS software presented as follows:

**Table 4. ANOVA test for hypothesis 3**

sig	F	SM	df	SS	Sources of variance
		11/23	2	22/46	Between groups
00001/0	1/2	8/10	237	2560	Within groups
		-----	239	22/2606	total

Since the obtained rate is  $F=2/1$  and is smaller than rate  $F$  in table (4/42), and Sig level is 0/00001 and is less than 0/05, therefore Hypothesis H0 is refused and Hypothesis H1 is confirmed, that is, we are sure as much as 95% that functional assessors do not put importance on all non-financial indices equally. Consequently, this hypothesis is also accepted.

**Fourth hypothesis test**

*Fourth hypothesis:* functional assessors do not put importance on all financial indices equally.

*Hypothesis H0:* functional assessors put importance on all financial indices equally.

*Hypothesis H1:* functional assessors do not put importance on all financial indices equally.

Hypothesis H1 is considered a confirmed Hypothesis and Hypothesis H0 is considered as a refused Hypothesis.

One-way variance analysis test is used for doing this hypothesis test. The used test statistics in this hypothesis is Fisher hypothesis. The summary of test external tables of this hypothesis which is computed by SPSS software presented as follows:

**Table 5. ANOVA test for hypothesis 4**

sig	F	SM	D.F	SS	Sources of Variance
		8/25	3	5/85	Between groups
00001/0	6/14	6/4	316	1458	Within groups
		-----	319	5/1543	total

Since the obtained rate is  $F=6/14$  and is smaller than rate  $F$  in table (7/61), and Sig level is 0/00001 and is less than 0/05, therefore Hypothesis H0 is refused and Hypothesis H1 is confirmed, that is, we are sure as much as 95% that functional assessors do not put importance on all financial indices equally. Consequently, this hypothesis is also accepted.

formance measurement in Power distribution company of Markazi province in Iran also draws attention to non-financial indices, and the appraisers who are familiar with balanced scorecard put too much importance on non-financial indices rather than appraisers who are not familiar with this card, but they do not put importance on all financial and non-financial indices equally.

**Conclusions**

According to presented literatures in this research, we can interpret the obtained results in a way that per-

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