Indian Journal of Fundamental and Applied Life Sciences ISSN: 2231– 6345 (Online)
An Open Access, Online International Journal Available at http:// http://www.cibtech.org/sp.ed/jls/2014/01/jls.htm
2014 Vol. 4 (S1) April-June, pp. 1441-1457/Maryam et al.
Research Article

STUDY OF THE GAP BETWEEN THE CURRENT AND THE DESIRABLE PERFORMANCE OF THE ASPECTS OF BALANCED SCORECARD SYSTEM IN SARCHESHMEH NATIONAL COPPER INDUSTRIES Co

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ABSTRACT
There is nowadays no guarantee to survive in the market for long-term in light of the complicated economic environment and the commercial competitors. In other words, considering the development of companies and separation of ownership from management, the assessment of performance is of high importance. That is why balanced scorecards that consist of financial and non-financial modules, having integrated and precise focus on the performance of the organizations, expanded as a frame to assess the suitable and comprehensive performance. Therefore the main objective of this research is to study the gap between the current and the desirable performance of Sarcheshmeh National Copper Company. The method to collect data was survey method and a questionnaire was used. In order to analyze, parametric inferential statistical methods were used, in order to study the difference between the two dependent variables, t test was used for dual and dependent samples, and in order to do ranking of variables, Friedman non-parametric test was applied. The statistical society of the current study was the experts, supervisors and directors of Sarcheshmeh National Copper Co. and the number of samples that were used according to Cochran formula was comprised of 77 people. The outcomes of this study showed that Sarcheshmeh National Copper Complex could not cover the desirable performance of the dimensions of balanced scorecard and ranked the highest as far as the current financial performance dimension is concerned and the lowest as far as the growth and learning dimensions are concerned. Also it ranked the highest as far as the desirable performance of growth and learning dimensions were concerned and the lowest as far as the financial dimension is concerned.

Keywords*: Balanced Scorecard System, Gap between Desirable and Current Performance, Sarcheshmeh National Copper Comple*

INTRODUCTION
There is nowadays no guarantee to survive in the market for long-term in light of the complicated economic environment and the commercial competitors. In other words, considering the development of companies and separation of ownership from management, the assessment of performance has played a significant role because in one hand, the directors of companies are held accountable before the owners for the resources that they have got hold of and on the other hand, the investors need suitable tools to assess the company's performance for investment. That is why the organizations whose performance has improved and enjoy good flexibility to be responsible for the environment will be successful in this direction. According to what was said, the directors are obliged to assess the performance of the organization to be able to identify their weak and strong points and use them to achieve the objectives and strategies of the organization. As it is evident, Iran's copper industries which are in charge of a huge part of the non-oil exports of Iran and are one of the main bases of the state economy will not be an exception and would pressingly need to go under performance assessment. Thus the current study attempts to identify the gap between the current and desirable performance of Sarcheshmeh National Copper

Industries Co. by studying its performance and presenting suggestions to push the company toward what it should be from what it currently is.

STATEMENT OF THE FACT

Assessment literally means to find the value of something and what is meant by assessment is a process through which the organization is assessed and studied officially in certain time intervals (Javaherizadeh et al, 2011). Lord Kelvin, the British Physicist, speaking about the necessity of assessment says: "Whenever we could measure and express what we speak about in form of figures, we could claim that we know something about what we are talking about, otherwise, our knowledge and understanding is incomplete and will never be mature." (Najafi et al, 2008). Performance assessment is one of the main responsibilities of each organization and in fact one of the dimensions of management. When the directors are not aware of their performance, they cannot understand their unused and potential capacities, and therefore they cannot apply suitable and required strategies by the organization to reach their objectives and perspectives. In the past financial indexes were used more often to measure the performance of organizations that were by themselves good indexes to assess the companies' achievements because competitions on those days depended on reduction of the cost price resulting from saving in huge scale and production. But sophistication of the economic relations and issues on the eve of the 21st century made the weak points of these indexes appears more than in the past. During the researches that were conducted by the American National Association of Accountants in 1987, it was shown that 60% of 260 financial managers and 64 executive directors of the American companies were unhappy with the performance assessment system of the company (Iranzadeh and Barqi, 2009). On the other hand, it is a long time that the gap between what is desired and what currently exists in different areas, whether individual aspects or organizational and or group aspects have been discussed. The scientists have always sought measures to remove this problem in different areas, but this problem is displayed more from a management aspect because the studies showed that more than 90% of the strategic programs of the organizations fail which is caused by the aforementioned weakness (Jafari Eskandari et al, 2010). Kaplan and Norton, the professors of Accounting, Harvard University, understanding the shortcomings of the different performance assessment models using financial indexes, published an article in Harvard marketing journal and introduced balanced scorecard as a modern and comprehensive management model for performance assessment (Tahari Mehrjerdi et al, 2012). The mentioned method that uses non-financial indexes in addition to financial indexes to assess the organization was massively welcomed by the directors and turned to a tool to achieve the company's objectives and strategies. This method as a performance assessment system provides the directors with the possibility to remove the weak points and to compensate the shortcomings of the financial indexes considering the intangible assets of each organization that are of special importance in the current era (Tabari and Arasteh, 2008). The directors of the organizations, using this system, would be able to identify the gap between the current and desirable performance of the companies and attempt to fill this gap so that the company could move toward what it should be from what it has already been. According to the last assessment conducted in 1997, Iran's reserve of copper mines forms about 3% of the world reserves of copper mines. Based on the conducted studies, Iran is located on the international belt of this metal as far as the reserves of copper mines are concerned and these reserves continue from northwest to southeast of the country. On 3 July 1972, Sarcheshmeh Kerman Copper Mines Joint Stock Company was established and its name changed to National Copper Industries Company of Iran that got hold of all the activities of the copper mines of the country. The responsibilities of this company are exploiting and developing copper mines, processing the products of mine stones and copper. The said Company's management system changed to an integrated management system in 2006. Considering the important performance of Sarcheshmeh Copper Company, this question is raised whether there is a significant difference between the current and desirable performance of Sarcheshmeh National Copper Industries Co.

Research Article

PERFORMANCE ASSESSMENT AND ITS MODELS

Performance assessment is to measure the performance through a comparison between the current and desirable or ideal situation according to pre-determined indexes that they have certain characteristics (Alvandi and Mansouri, 2007). Performance assessment is one of the main and principal tools of senior management to materialize the objectives and programs of the organization. Performance management shows the degree of productivity of the activities and programs of the organization. Productivity means the degree of achieving the objectives and programs efficiently by using the resources optimally. Generally speaking, the performance assessment system could be known as an orderly process of assessment and measurement and comparison of the degree and method to achieve the desirable situation. In fact it is a comparison between what exists and what is desirable (Motmeni et al, 2012). The required information about the situation of an organization is obtained by using performance assessment. In addition to this performance assessment system, it provides an approach to identify the situations, weak and strong points, strategies and a correct understanding of the progress of the organization and the current situation of it. The financial dimensions were measured traditionally almost by 1975 and performance assessment of organizations was used, but due to the limitations that were imposed by financial measurements, determination of non-financial measurements was also determined by the researchers (Ehsanifard, 2011). On this basis, many models have already been identified by the researchers in different countries to assess the performance, but these models are different due to the type of organization whether governmental, profitable, ministries, etc. However the most important are summarized in table 1 due to their state of usefulness in the successful countries (Mostabseri and Mousavian, 2007).

Table 1: Different Performance Assessment Models

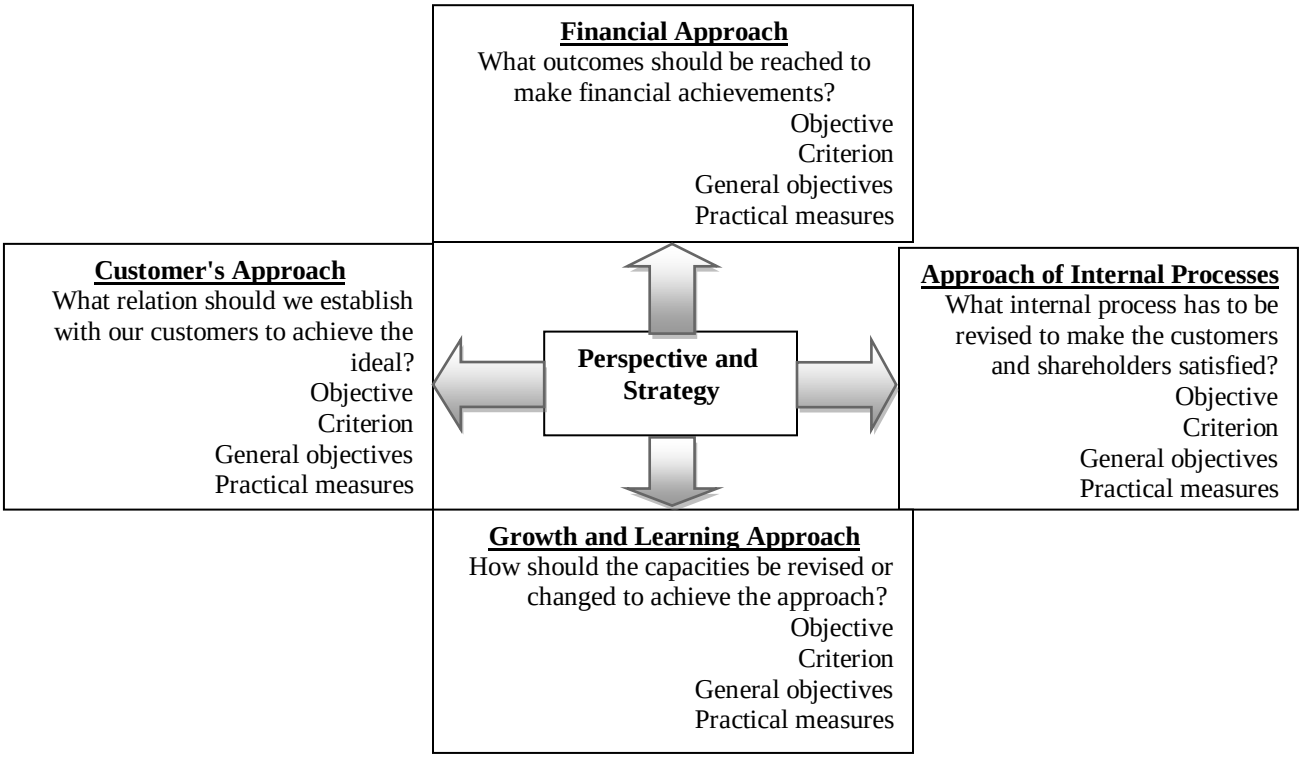
Different Performance Assessment Models		
Balancing (integrated) models	Superior and self-assessing organizational models	Models based on time and costs
SMART system	DEMING model	Half-life chart
Performance charter model	ISO model	SCORE model
BENCHMARKIN Modeling model	BALDERIGE quality model	
Object-centered Management model (MBO)	Promotional model of Organization (EFQM)	
Smart Management System model (HOSHIN)		
Balanced Smartcard model (BSC)		
Emphasis on all assessment dimensions in management areas, production, operation, financial and human resources process based on implementation and promotion of strategy	Emphasis on assessment of management area and production process based on outcome and improvement of process quality	Emphasis on assessment of financial area and production process based on control of the spent time and costs

(Ehsanifard, 2013)

As it is shown in the above table, BSC which is the subject of the current study is one of the performance assessment models. Briefly speaking, BSC is a top-down system over the organizational performance where the general perspectives should be classified as the first stage (general objectives) and then following a stable structure and organizational infra-structure, the directors should decide which one of our strategies could help us reach our objectives. But this method was initially introduced as the modern method of performance assessment. Then it was welcomed by the directors as a tool to materialize the company's strategies. Strategies define the method to adjust the capacities of an organization with the existing opportunities in the market to materialize the general objectives of the organization.

BALANCED SCORRECARDS APPROACH

Kaplan and Norton found out in their studies that successful companies do not rely only on financial measurements to assess their performance, but they assess their performance from four different angles, perspectives and views. The perspective of the balanced scorecard in organizational performance consist of four financial, customer, internal processes and growth and learning perspectives which are in connection with the four accounting and finance, marketing, value chain and human resources responsibilities (figure 1). Kaplan and Norton believe that the directors should look at performance from several angles to administer the current organizations in the current complicated trade environment (Azar et al, 2013).



GRAPH 1: Amounts of balanced score card

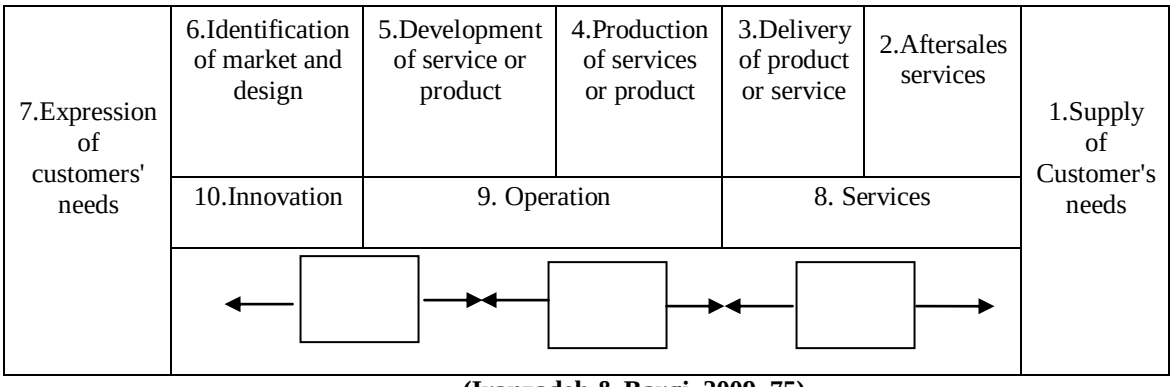
Financial Approach

Financial measurements are the important components of the balanced assessment system. Particularly in profitable organizations, the measurements of this aspect tell us what the ultimate outcomes and financial achievements of successful implementation of the objectives will be that were determined in three other aspects. In most organizations, financial indexes are of high importance and the financial outcomes as the

important result of the performance of an organization are the necessities to study the weak and strong points of the organizations.
In financial studies, the directors respond to the following questions:
1. How is an organization as far as its shareholders and profit are concerned?
2. How should the investment direction of an organization be?
3. What are the shareholders' demands and expectations from the organization?
4. What are the necessary objectives, actions and executive programs to materialize the beneficiaries' expectations?

Customer's Approach
In order to select the objectives and the measurements about the customer's approach, it is necessary to respond to two vital questions.
1. Who are the target customers?
2. What is the value of our suggestion to render services to them? (Kaplan & Norton, 2004)
Most organizations believe that they know their customers and know what products and services should be presented to them. In fact, they supply everything to all customers and their actions represent the strategy of everything for all. Michael Porter believes that the organizations cannot achieve competitive privileges when there is no concentration on a special part of customers and their desired value (Tabari and Arasteh, 2008).

Internal Process Approach
From the internal process approach, the organizations should specify processes to be able to continue creating values for the customers and ultimately their shareholders by getting hold of the superiority there. Materialization of each of these objectives that are determined by the customer's approach requires one of several operational processes in an effective and efficient fashion (Kaplan and Norton, 2007). This approach defines how the trade processes should act in order to attract the satisfaction of the customers and shareholders. The added value chain is used in this approach to analyze the method of creating value for the customer and ultimately reach the desirable outcomes. This model relies on three main processes of innovation, operation and after-sales services from identifying the customers' needs to meeting their requirements (figure 2). Innovation process: In this process, the hidden or new needs of the customers are identified and the services and products that supply the mentioned needs are designed and produced.
Operation process: In this process, the current products and services are produced and submitted to the customer. After sales process: In this process, the necessary aftersales services and delivery of the goods are presented to the customers (Iranzadeh and Barqi, 2009).



(Iranzadeh & Barqi, 2009, 75)
GRAPH 2: Value Chain of Internal Processes

To study the local processes dimension, the directors answer the following questions:
-What activities should be done in order to meet the customers' demands and expectations followed by the shareholders and what are the key processes to do these activities?

Human's Growth and Learning Approach

Objectives that lead to growth and learning of organization will expand in this approach. However when the objectives of the customer dimension and internal processes dimension are determined, the existing gap between the staff skills and capacities and the current level of these skills will appear. Learning and growth could reduce this gap (David Fred R, 2008). In fact the objective of this approach is to provide infra-structures and resources that make the materialization of the objectives of the organization possible in other aspects. The organizations invest in their other infra-structures including human resources, systems and methods in addition to research, development and equipment to be able to achieve their long-term financial objectives. To study the growth and learning dimension, the directors answer the following questions: Who should do the determined activities and processes? What capacities and abilities should exist in human workforce, information technology and organizational infra-structures to handle the tasks efficiently and effectively? In the studies that were conducted in the past, it was shown that balanced scorecards are suitable techniques to determine the performance assessment indexes. BSC model was used in production, service and non-for-profit and governmental organizations effectively.

RESEARCH BACKGROUND

Tabari and Arasteh, 2008 conducted a study to assess the performance of the organization to remove the problems that exist on the way of implementing the strategies of the organization. The statistical society of the study were the individuals and documents and information available in the company including 240 staff members, the annual financial statements of the company as well as the existing information in the internal processes of the company. Meanwhile a questionnaire was used to assess the satisfaction index of the staff. The outcome of the study indicates that the company has been successful in growth and learning dimension and the customer dimension and it is recommended to avoid interim decisions to increase the production as far as internal processes are concerned. Financial proportions should be used to find out the weak and strong points of the company in financial dimension. Iranizadeh and Barqi, 2009 expressed the company's actual performance degree in each of the studied indexes of balanced score method taking the pre-determined objectives into consideration. The statistical society of the study was a selected sample comprising of 259 tenured and contracted staff of the company who completed the questionnaire. In this direction the hypotheses were raised relying on the average actual performance at each of the studied indexes in customer dimension, internal process dimension, financial dimension, growth and learning dimension that were speculated against the performance. The outcomes of this study indicate that the model could present a suitable image by comparing the studied indexes and the actual performance in order to promote the performance of the organization, to confront the challenges of globalization and to increase the competitive ability in the international environment.
In a study conducted by Atafar et al, 2011 with the statistical society comprising of the experts and supervisors of the different sections of Part Safheh Isfahan Company, students and lecturers of industrial engineering of University of Science and technology of Mazandaran and Isfahan using questionnaire and interview tools, the objectives such as compilation of suitable strategic plans using BSC, prioritization using expansion of the fuzzy quality performance and specification of strategic applicable plans using ZOGP were studied. The results of this study clarified that the decision-making techniques could be used well by a structured methodology to design BSC.
Azar et al, 2011 studied 'assessment of balanced performance emphasizing on BSC indexes' in 38 tile and ceramic companies of Yazd. It was raised in this study that using BSC on its own is impossible due to

not having a basic line and standard against which the performance of the organization is measured. For this reason the covering analysis technique of data was used to remove this shortcoming. The objective of the study is to present guidelines to the directors in order to improve and create balance in the raised indexes of the balanced scorecard. According to the outcome of this study, suggestions were presented to the executive officials of the inefficient units to plan for increasing efficiency and optimal performance.

In a research conducted by Rahimi et al, 2012, the performance of the companies providing consultation and technical services in the field of agricultural engineering of Kermanshah and Zanjan provinces in the agricultural year 2009-2010 was studied. The statistical society of this study was all the managing directors of the companies providing consultation, technical and engineering services of the two provinces that were 166 people. In order to assess the performance of these companies, 33 indexes were selected and the questionnaire was prepared. According to the obtained results, the active consulting, technical and engineering services companies had better performance in these provinces in the area of educational and development activities, but their survey and technical performances were not that suitable and the companies of Zanjan province had a better situation to implement private activities and the job satisfaction of the managing directors of these companies were at a better level in comparison with the managing directors of the companies of Kermanshah province. Some suggestions were made to the directors of Kermanshah companies to improve the situation.

In a study conducted by Motmeni, et al, 2012, the objective to assess the performance of the branches of one of the insurance companies using a merger of fuzzy multi-criteria decision-making (MADM) and balanced scorecard was expressed. The tool of the study was a questionnaire that was prepared using 23 key indexes and the statistical society consisted of the insurance directors and experts in the branches of one of the insurance companies of Iran in Qom, Fars, Semnan, Boushehr and Hormuzgan provinces. Analyzing the obtained results, the weak and strong points of each branch were identified. The results showed that the financial dimension is considered as the most important criterion to promote the branch from the customer's view and plays the main role in the growth of the insurance branch. Eventually the presented methodology was compared using similar common methods and its application was recommended to the insurance companies.

Ali Asghar Ehsanifard, 2013 merged the two BSC and EFQM models to assess the performance of the districts 3 and 18 of Tehran municipality. In this direction, the hypotheses relied on the fact that there is a balance among the four angles of organizational incentive, management of resources, performance and beneficiaries and that this balance leads to improvement of the performance and the citizens' satisfaction in municipality respectively. Thus presentation of suggestions is considered as the outcome of the study.

Cott et al, 2011 studied using balanced scorecards to manage the performance in public organizations of New Zealand. The tools of this study were questionnaire and interview and the main objective of the research was to study using balanced scorecard as a management tool and to identify the issues and challenges in implementing BSC in governmental sector. In this direction the following questions were raised: Do the governmental organizations in New Zealand use BSC as a performance management tool and what the privileges of the directors' understanding of BSC as a performance management tool are? What are the factors and obstacles leading to BSC implementation? The outcomes of this study indicated that the rate to use and comprehend BSC as a measurement tool is accompanied by low performance and in addition to this role, performance management has been abused and the users' understanding of when implementing BSC is deemed as a key challenge. Another study conducted by Yang and Islam, 2012 under the title of 'impact of leadership change on the job satisfaction (balanced scorecard approach)' was conducted in insurance companies in Taiwan. The research studied the impact of leadership development on job satisfaction using the commercial aspect of balanced scorecards. The statistical society of this study was the staff of sales department of four insurance companies. The results obtained from conducting this study indicated that the directors' suitable behaviors assist rising the job satisfaction of the staff and the job satisfaction of the staff is reflected in reducing the costs of the internal processes.

In the study conducted by Qing-lian et al, 2012, the efficiency of hospital operation rooms from medical treatment, research and educational aspects was studied in Shanghai, China. The objective of this study was raised as making a performance assessment system for the operation rooms and using the fuzzy method to change the directors' intellectual understandings of the organization information to approve and improve them. The obtained results from the study expressed that the model could assist the organization to assess and reconsider its strategy and generally adopt a modern management approach in practice.

Houck, 2013 conducted a study in one of the biggest forensic medicine centers in New York, the US, using BSC indexes and questionnaire and studied the efficiency of this center and raised the outcomes of the study as follows: He determined the combined model of performance indexes suitable to achieve the operational objectives. He added that these could help the leaders to use BSC to compensate the short-term pressures by giving knowledge and weight to the laboratory requirements in long-term. Wann and Ying-Kai Liao, 2013 conducted a study under the title of 'covering approach toward balanced scorecard to assess the performance of the airlines'. They studied 38 main airlines, aiming at merging the DEA-BSC models to assess the operational outcome of the airline companies. The results of the study showed that the airlines are inclined to have better performance to increase the capital and reduce the operational costs by showing excellent performance at efficient borders.

REASEARCH METHOD

The current study is of applied type as far as its objective is concerned and is of descriptive-quantitative type as far as its implementation is concerned. It is descriptive because it describes the current situation without manipulating it and it is quantitative because it questions the different organizational ranks. The statistical society consists of the complete set of individuals that have some of the shared criteria. It is not sometimes possible to study the research society and under such circumstances, the selected and studied society could be used instead of the sample society. The sample is a group of the research society that represents that society and has more or less the specifications of the entire society (Tabibi et al, p 171).

The sampling method in this study is of simple random type. In simple random method, the samples are all selected according to the principle that all members of the society are similar and have similar specifications. The important issue in sampling is often to determine the size/volume of the sample. The size of the sample should be so big to represent the society so that its outcomes could be generalized to the society. In order to determine the size of the sample, Cochran formula was used:

$$n = \frac{N Z^2_{\alpha/2} S^2}{N d^2 + Z^2_{\alpha/2} S^2}$$

n= 77 = shows the size of the sample
N= 140 = shows the size of the statistical society
0.05 = α = shows error percentage of the acceptable certainty index criterion
s^2 = 0.11 = shows sample variance from the pilot questionnaire
d = 0.05 = shows the certainty degree or desirable possible precision

The tool to collect data in this study was questionnaire. In this study in order to calculate the face and conceptual validity of the questionnaire, firstly the indexes were selected studying the research literature and then they were revised and finalized according to the views of the professors and experts in the relevant industry at several stages. Therefore it could be claimed that the questions of the questionnaire have the required validity. Cronbach's Alpha method was used to determine the reliability degree of the questionnaire. If the Alpha coefficient is higher than 0.7, the questionnaire will have an acceptable reliability (Momeni, 2007)

Table 2: Calculation of Reliability of Questions of the Questionnaire

Variable	Quantity	Cronbach's Alpha
Financial dimension of the current performance	17	0.815
Growth and learning dimension of the current performance	19	0.926
Customer's satisfaction dimension of the current performance	17	0909
Internal processes dimension of the current performance	13	0.807
Current performance	66	0.956
Financial dimension of the desirable performance	17	0.725
Growth and learning dimension of the desirable performance	19	0.919
Customer's satisfaction dimension of the desirable performance	17	0.922
Internal processes dimension of the desirable performance	13	0.724
Desirable performance	66	0.933

The above table presents Cronbach's Alpha and the number of the questions related to the variables of the questionnaire. Since the Cronbach's Alpha amount of the variables is higher than 0.7, the test has an acceptable reliability. Out of the 77 samples that responded, 67 were male and 10 were female which shows that 87% of them were male and 13% were female. Also about 8% were single and 92% were married. About 57% of the samples were between 36-57 years old and about 71% of them held Bachelor's degree, 21% Associate's degree and 8% Master's degree. On the other hand, about 31% of the samples have been working for 16-20 years, 27% for 11-15 years, 20% for over 20 years, 12% for 6-10 years and 10% for less than 5 years.

Main Hypothesis of Research

There are differences between desirable performance and current performance of Sarcheshmeh National Industries Company.

Minor Hypothesis of Research

1. There are differences between desirable performance and current performance of Sarcheshmeh National Industries Company in financial dimension.
2. There are differences between desirable performance and current performance of Sarcheshmeh National Industries Company in growth and learning dimension.
3. There are differences between desirable performance and current performance of Sarcheshmeh National Industries Company in customer dimension.
4. There are differences between desirable performance and current performance of Sarcheshmeh National Industries Company in internal processes dimension.

RESEARCH FINDING

Main hypothesis: There are differences between the desirable and current performance of National Copper industries Company of Iran. To test this hypothesis, considering the dependence of the sizes to the

group under study, the zero hypotheses and counter hypotheses were raised as follows and t test was used for dual (dependent) samples.
Zero hypothesis: There is no difference between the desirable and current performance.
Counter hypothesis: There is difference between the desirable and current hypothesis.

Statistics of dual samples			
	Average	Quantity	Criterion Deviation
Desirable performance	3.9676	77	.29549
Current performance	2.9665	77	.41845

Test of dual samples								
	Dual differences					t	Degree of freedom	Level of significance
	Average	Criterion deviation	Error of average standard	95% certainty distance for the difference				
				Lowness	Highness			
Desirable performance-Current performance	1.00109	.45769	.05216	.89721	1.10498	19.193	76	.000

Considering t statistic (19,193) and the level of significance (0.00) which is smaller than 0.05, the zero hypothesis is rejected at 95% certainty level and this means that there is a significant difference between the desirable and current performance in financial dimension. Since the mean and calculated statistic are positive, the desirable performance level of National Copper Industries Co. of Iran is significantly higher than the current performance. In fact there is a negative gap between the current and desirable performance and the National Copper Industries Co. of Iran could not cover the desirable performance.
Hypothesis 1: There is a difference between the desirable and current performance of National Copper Industries Co. from financial dimension.
To test this hypothesis, considering the dependence of the sizes to the group under study, the zero and counter hypotheses are raised as follows and the t test was used for dual (dependent) samples.
Zero hypothesis: There is no difference between the desirable and current performance in financial dimension.
Counter hypothesis: There is difference between the desirable and current hypothesis in financial dimension.

Statistics of dual samples			
	Average	Quantity	Criterion Deviation
Financial dimension of desirable performance	3.6042	77	.36448
Financial dimension of current performance	3.1259	77	.46554

Test of dual samples								
	Dual differences					t	Degree of freedom	Level of significance
Financial dimension	Average	Criterion deviation	Error of average standard	95% certainty distance for the difference				
				Lowness	Highness			
Desirable performance- Current performance	.47830	.45743	.05213	.37448	.58212	9.175	76	.000

Considering the t statistic (9,175) and the level of significance (0.00) which is smaller than 0.05, the zero hypothesis is rejected at 95% certainty level and this means that there is a significant difference between the desirable and current performance from financial dimension. Since the mean and calculated statistic are positive, the desirable performance level of National Copper Industries Co. of Iran is significantly higher than the current performance from financial dimension. In fact there is a negative gap between the current and desirable performance in financial dimension and the National Copper Industries Co. of Iran could not cover the desirable performance in this dimension.

Hypothesis 2: There is a difference between the desirable and current performance of National Copper Industries Co. from growth and learning dimension.

To test this hypothesis, considering the dependence of the sizes to the group under study, the zero and counter hypotheses are raised as follows and the t test was used for dual (dependent) samples.

Zero hypothesis: There is no difference between the desirable and current performance in growth and learning dimension.

Counter hypothesis: There is difference between the desirable and current hypothesis in growth and learning dimension.

Statistics of dual samples			
	Average	Quantity	Criterion Deviation
Growth and learning dimension of desirable performance	4.2043	77	.43794
Growth and learning dimension of current performance	2.7099	77	.60787

Test of dual samples								
	Dual differences					t	Degree of freedom	Level of significance
Growth and learning dimension	Average	Criterion deviation	Error of average standard	95% certainty distance for the difference				
				Lowness	Highness			
Desirable performance - Current performance	1.49440	.78274	.08920	1.31674	1.67206	16.753	76	.000

Considering the t statistic (16,753) and the level of significance (0.00) which is smaller than 0.05, the zero hypothesis is rejected at 95% certainty level and this means that there is a significant difference between the desirable and current performance from growth and learning dimension. Since the mean and calculated statistic are positive, the desirable performance level of National Copper Industries Co. of Iran is significantly higher than the current performance from growth and learning dimension. In fact there is a negative gap between the current and desirable performance in growth and learning dimension and the National Copper Industries Co. of Iran could not cover the desirable performance in this aspect.

Hypothesis 3: There is a difference between the desirable and current performance of National Copper Industries Co. from customer's satisfaction dimension.

To test this hypothesis, considering the dependence of the sizes to the group under study, the zero and counter hypotheses are raised as follows and the t test was used for dual (dependent) samples.

Zero hypothesis: There is no difference between the desirable and current performance in customer's satisfaction dimension.

Counter hypothesis: There is difference between the desirable and current hypothesis in customer's satisfaction dimension.

Statistics of dual samples

	Average	Quantity	Criterion Deviation
Customer's satisfaction dimension of desirable performance	4.1748	76	.46351
Customer's satisfaction dimension of current performance	3.0460	76	.50378

Test of dual samples

	Dual differences					t	Degree of freedom	Level of significance
Customer's satisfaction dimension	Average	Criterion deviation	Error of average standard	95% certainty distance for the difference				
				Lowness	Highness			
Desirable performance - Current performance	1.12884	.57441	.06589	.99759	1.26010	17.132	75	.000

Considering the t statistic (17,132) and the level of significance (0.00) which is smaller than 0.05, the zero hypothesis is rejected at 95% certainty level and this means that there is a significant difference between the desirable and current performance from customer's satisfaction dimension. Since the mean and calculated statistic are positive, the desirable performance level of National Copper Industries Co. of Iran is significantly higher than the current performance from customer's satisfaction dimension. In fact there is a negative gap between the current and desirable performance in customer's satisfaction dimension and the National Copper Industries Co. of Iran could not cover the desirable performance in this aspect.

Hypothesis 4: There is a difference between the desirable and current performance of National Copper Industries Co. from internal processes dimension.

To test this hypothesis, considering the dependence of the sizes to the group under study, the zero and counter hypotheses are raised as follows and the t test was used for dual (dependent) samples.
Zero hypothesis: There is no difference between the desirable and current performance in internal processes dimension.
Counter hypothesis: There is difference between the desirable and current hypothesis in internal processes dimension.

Statistics of dual samples			
	Average	Quantity	Criterion Deviation
Internal process dimension of desirable performance	3.8907	77	.37580
Internal process dimension of current performance	2.9790	77	.51415

Test of dual samples								
	Dual differences					t	Degree of freedom	Level of significance
Internal Process dimension	Average	Criterion deviation	Error of average standard	95% certainty distance for the difference				
				Lowness	Highness			
Desirable performance - Current performance	.91163	.63733	.07263	.76697	1.05628	12.552	76	.000

Considering the t statistic (12,552) and the level of significance (0.00) which is smaller than 0.05, the zero hypothesis is rejected at 95% certainty level and this means that there is a significant difference between the desirable and current performance from internal processes dimension. Since the mean and calculated statistic are positive, the desirable performance level of National Copper Industries Co. of Iran is significantly higher than the current performance from internal processes dimension. In fact there is a negative gap between the current and desirable performance in internal processes dimension and the National Copper Industries Co. of Iran could not cover the desirable performance in this aspect.
To compare the desirable performance of the dimensions of balanced scorecard system and the theoretical mean and considering the fact that the average of variables is higher than 3, it could be said that the mean of all the variables is significantly higher than the average level. Considering table 6, the highest difference is associated with the growth and learning dimension and the smallest difference with the financial dimension. While comparing the current performance of balanced scorecard system dimensions and the theoretical mean, it was clarified that the average financial dimension of the current performance and the growth and learning dimension of the current performance are significantly different from the theoretical mean, and for the mean of customer's satisfaction dimension of the current performance, the internal process dimension of the current performance and the current performance in general are significantly at the average level of theoretical mean, and considering the mean of variables, the mean of the financial dimension of the current performance is significantly higher than the average level, and the mean of the growth and learning dimension of the current performance is significantly lower than the average level (table 7). This information indicates that Sarcheshmeh National Copper Industries Co. has been significantly successful only in the area of the current performance in the financial dimension.

On the other hand, considering Friedman's test table, it could be said that there is a significant difference at the certainty level of 95% between the average ranking of the dimensions of the current performance. Considering the average table 8 of ranking of the dimensions, first to fourth ranks were allocated to financial dimension, customer's satisfaction, internal processes and growth and learning dimensions respectively. While taking the information of table 9 that there is a significant difference between the average ranking of dimensions of desirable performance into consideration, it could be said that the growth and learning dimension of desirable performance has the highest rank and the financial dimension of the desirable performance the lowest rank as far as Sarcheshmeh National Copper Industries Company is concerned.

Table 3: t test of a sample for desirable performance variable and its dimensions

Variable	Comparison of observed average with constant figure 3				
	Average	t statistic	Degree of freedom	Level of significance	Average difference
Financial dimension of desirable performance	3.6042	14.547	76	.000	.60424
Growth and learning dimension of desirable performance	4.2043	24.131	76	.000	1.20432
Customer's satisfaction dimension of desirable performance	4.1748	22.096	75	.000	1.17479
Internal processes dimension of desirable performance	3.8907	20.797	76	.000	.89067
Desirable performance	3.9676	28.735	76	.000	.96763

Table 4: t test of a sample for curre performance variable and its dimensions

Variable	Comparison of observed average with constant figure 3				
	Average	t statistic	Degree of freedom	Level of significance	Average difference
Financial dimension of current performance	3.1259	2.374	76	.020	.12594
Growth and learning dimension of current performance	2.7099	-4.188	76	.000	-.29009
Customer's satisfaction dimension of current performance	3.0460	.795	75	.429	.04595
Internal processes dimension of current performance	2.9790	-.358	76	.722	-.02096
Current performance	2.9665	-.702	76	.485	-.03346

Table 5: Result of Friedman's ranking test for dimensions of current performance

Dimensions of current performance	Average rank	Dimensions in comparison with one another
Financial dimension	2.96	First rank
Customer's satisfaction dimension	2.74	Second rank
Internal processes dimension	2.50	Third rank
Learning and growth dimension	1.80	Fourth rank

Indexes of Friedman ranking test			
Quantity	**Chi-square statistic**	**Degree of freedom**	**Level of significance**
76	35.25	3	0.000

Table 6: Result of Friedman's ranking test for dimensions of desirable performance

Dimensions of desirable performance	Average rank	Dimensions in comparison with one another
Learning and growth dimension	3.28	First rank
Customer's satisfaction dimension	3.13	Second rank
Internal processes dimension	2.20	Third rank
Financial dimension	1.39	Fourth rank

Indexes of Friedman ranking test			
Quantity	**Chi-square statistic**	**Degree of freedom**	**Level of significance**
76	106.458	3	0.000

SUGGESTIONS BASED ON RESEARCH

1. Since the current research studies the gap between desirable performance and current performance of Sarcheshmeh Copper Company, it is suggested to consider the entire copper industries as the scope of research.
2. The views of the senior experts, directors and supervisors as the statistical society were used in the current study, thus it is suggested to consider the views of all the personnel vis-à-vis research variables in the future studies.
3. It is suggested to conduct studies regarding the impacts of different environmental variables on four dimensions of the balanced research scorecards

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