Study of information content of changes in benefit future profitability of dividend and its relationship with the companies accepted in Tehran stock exchange

Elmira Emsia, Ghazaleh Taheri, Amir Reza Taheri

Abstract— This Article discusses the Information Content of Dividend Changes and its relation with Future profitability of adopted companies in Tehran stock exchange during 1380-1390.

In this regard, In order to assess the Information Content, dividend changes have been applied. Also in order to measuring the benefits, two change variables at Profit before extraordinary items and changes in asset returns are used. In this study, Patterns of correlation analysis are used, and regression for analyzing research hypotheses is applied. According to research results it can be said that dividend changes have Information Content, that substantially and significantly are related to future profitability, and changes in dividend have also positive and significant relationship with future profitability of company.

Key words: Changes in dividend, Information Content of profit and earnings, Profitability, Company growth.

1. Problem Statement

Increasing Development and complexity of economic activities, the emergence of different units, forming independent legal entities, need for accurate information and more important, how to view the information provided in these unites to make domestic and foreign decisions in company, have led to invention of various techniques in companies assessment. Concurrent with the accounting development, these procedures and techniques are developed and are provided for financial analysts and decision makers. In line with this development, team's primary role is clear to everyone. Efforts of researchers along with the need for better information has caused to go beyond their traditional role of the accounting records and recording financial reports of events, and play an important role in the growth and prosperity of the country as the basis of decisions and capital allocation. The stock exchange is the most major way of capital allocation and equipment. Company shares offering in the stock market creates investment opportunity and greater tendency to raise the capital, and maximizing wealth through increasing investment returns has caused investors and buyers pay more attention to company valuation, management performance and changes in stock prices, so every information that is useful for company valuation and performance would attract their attention, thus investors and stock holders always pay special attention to published information by companies, so that much financial information are published by financial statements. Maybe it can be said that among the published information, dividends declared and shared dividends have the highest importance for investors, as these two items always attract stakeholders and analysts attentions. The importance of these two varieties has led to numerous investigations. Many researchers and market participants think that Changes in shared dividend has information value, as Litner in 1996 at a research mentioned that companies can raise their shared benefit under the condition that companies managers believe in company profitability increase. According to the above, it appears that changes in dividend have valuable information about the company's future profitability, so this study investigated the value of Changes in company's cash profit about the future profitability of companies.

2. An overview of the research theoretical literature

Corporate executives with the goal of maximizing shareholder wealth are inevitable of taking four decisions including type of deciding for finance, investment, operation and ultimately profit distribution. Among the above decisions, decision to
3. A Review of research history
Choi et al (2011), investigated changes in dividends paid on future profitability of Korean companies. Based on the results of this study the validity of the hypothesis of information Contents depends on company features such as corporate Governance Structure and the company's growth. Chae et al (2009) have shown that firms with better corporate governance, with higher external financing constraints, pay fewer dividends, as firms with poorer corporate governance, with less external financing constraints, pay more dividends. Naecur et al (2006), examined dividend policy and its influencing factors in the Tunis Stock Exchange. Research findings indicate that profitability and its stability directly and the liquidity of the market share and size inversely impress dividends paid. Nevertheless, concentration of ownership and financial leverage affect the amount of dividends too. Grullon et al (2005) examined the dividend changes and the impact of those changes on future profitability of companies. The results of the study indicate that the dividend changes do not depend on the changes in future income and it cannot be used to predict future changes incomes. Strouratis et al (2004) examined the effect of ownership structure on dividend of Japanese companies. Findings from the regression data for 1992 to 2000 suggest that the impact of managerial ownership and bank ownership on dividend efficiency, particularly for firms with low growth is positive. Shoja (1391) did a comparative study between changes in dividends and changes in share prices of food companies accepted in Tehran Stock Exchange. The result of hypothesis testing, research shows that between dividend changes and stock price changes in food companies accepted in Tehran Stock Exchange, there is no significant relationship. Fakhary and Yousefi .T (1389), explored the relationship of correlation between dividend policy and corporate governance of listed companies in Tehran Stock Exchange. Findings show that there is a significant inverse relationship between corporate governance and dividend index. These findings suggest that stock companies use from dividend for Create credibility. Setayesh and Ghaffary (1388), evaluated the usefulness of the dividend rate on the performance of listed companies in Tehran Stock Exchange. The results of the test show that between the amount of the dividend and the criteria for evaluating the performance of all the companies studied, there is a significant relationship, although the correlation coefficient that was calculated to assess the relationship is weak. Etemady and Chalaky (1384) evaluated the relationship between company performance and cash dividends of 77 companies. They examined accepted companies in Tehran Stock Exchange during 1381 in order to achieve the research objectives of operating data, earnings per share and operating cash flow as criteria for performance evaluation and corporate
dividends for testing by use of correlation analysis trough regression. The results showed that there is a significant relation between the performance and cash dividends of all companies studied, regardless of which industry they belong to. That means if an investor aims to buy the company's shares to have a dividend, he/she can pay special attention to earnings per share operating profit and operating cash flow as key factors in estimating the amount of future dividends.

4. Research methods
In terms of classification research on objective, this research is applied research. The study is classified according to the method and is a descriptive study. Descriptive research aims to describe the methods set out in condition of phenomena. This descriptive type of research is the investigation of the events. On the other hand, this study theoretically is of demonstrative researches and argument aspect is from inductive kind.

5. Collecting data
In order to develop a theoretical basis, library method has been used. And for collecting financial data, field method has been used and various sources have been used, including CDs of Tehran Stock Exchange, Tadbir Pardazeh software, Rah Avard Novin, Information Exchange site and the Stock Exchange Org. For classification, summarization, and creation of database, EXEL is used and for testing hypotheses Spss no. 19 is used.

6. Community and Statistical sample
Statistical sample in this research consists of companies accepted in Tehran Stock Exchange. Easy access to information on companies, standardization and homogeneity, as well as information on choosing these companies, are the reason these companies have the statistical community. With the following limited for statistical sample and balancing it, statistical sample is specified. Samples selected for this study includes companies that have the following conditions:
1) Financial Information is available in the research for the period 1380 to 1390.
2) Financial year is to the end of March
3) Companies that are listed on the Stock Exchange up to date 01/01/1380 (i.e. before 1380 are listed) and the name of the company in terms of listed companies in Tehran Stock Exchange is not removed.
4) Financial terms have not changed in the period under review.
5) Be not among financial institutions and investors.
6) Information is available on the dividend and has no dividend for at least two consecutive years.

7. Research hypotheses
The first hypothesis: Changes of dividend have new information content. The second hypothesis: Changes in information content of divisions' dividend in companies with high growth would be different with companies with low growth. The third hypothesis: Information content of changes in increase of Dividend is different from information content of changes in the dividend reduction.

8. Research Variables
8.1. Dependant Variable
Research Dependant Variable consist of changes in corporate profits and changes in return on assets, that the operation are defined as follows:
a) Changes in profit before extraordinary Items
To measure changes in profit, the amount of changes before Extraordinary items of year "t" over year "t-1" on book value of assets in year t-1 (-1) (i.e. in the year prior to the event (0) ) can be divided that in this research t= 0, 1, 2 .
b) Changes in asset returns
Changes in asset returns (ROA), Is the difference between the return on assets in year t and year t-1. Asset returns (ROA), is defined as (operating profit + depreciation) / of total assets at the end of period.

8. 2. Independent variable
Independent variable of this research is independent variable changes in corporate dividend during the year. For measuring changes in dividend year 0 (In the event year) we do as follows:
$$\% \Delta Div_{i0} = \frac{(Div_{i0} - Div_{i,-1})}{Div_{i,-1}}$$

Where,
$$\% \Delta Div_{i0} = \text{changes in the dividend year} 0$$
$$Div_{i0} = \text{dividend of the year} 0$$
$$Div_{i,-1} = \text{dividend before of the year} 0$$

In this model, we consider a year as year 0 or in the event year, and its changes over the previous year (-1) can be calculated.
Due to changes in the dividend rate, sample firms are divided into three categories: Companies with raise in dividend, Companies with decrease in dividend, Companies with unchanged dividend.

9. Research models
9.1. The first hypothesis test: Study the impact of dividend changes on future profitability (Choi et al, 2011)
$$(E_t - E_{t-1})/B_{t-1} = \alpha_0 + \alpha_1\%\Delta Div_{i0} + \alpha_2 ROE_{it-1} + \epsilon_{it}$$

Where:
$$E_t$$ Is profit before extraordinary items
$$B_{t-1}$$ is book value of the of shareholder’s equity in the year prior to the year 0
\( \% \Delta Div_{t-1} \) is the percentage change in the dividend year 0 (year event) than its predecessor (1) 

\( ROE_{t-1} \) is return on the shareholders in year 0

9.2. The second hypothesis test: Cross-sectional analysis

To strengthen the results obtained for the effect of dividend changes on future profitability (forecasts of future profitability), corporate in addition to the above analysis, use of sectional analysis to model the changes in dividend rate of correlation effects on corporate profits. And to avoid correlation of the model we use following model (Choi et al, 2011).

\[
\frac{(E_t - E_{t-1})}{B_{t-1}} = a_0 + a_1 %\Delta Div_{t-0} + a_2 %\Delta Div_{t-1} + a_3 ROE_{t-1} + a_4 (E_t - E_{t-1})/B_{t-1} + \epsilon_t
\]

9.3. The third hypothesis test: Separated sectional analysis

May change of dividend and changes of future profitability of companies about increasing or decreasing changes in dividend are not equal (symmetric). In order to separate the effect of an increase or decrease in dividend forecasts of future profitability, we use the following model (Choi et al, 2011).

\[
\frac{(E_t - E_{t-1})/B_{t-1}}{E_t - E_{t-1} + ROA_{t-1} + a_1 %\Delta Div_{t-0} + a_2 %\Delta Div_{t-1} + a_3 ROA_{t-1} + a_4 (E_t - E_{t-1})/B_{t-1} + \epsilon_t}
\]

Additional analysis using asset returns (ROA)

Assumption of information load says that Changes of dividend have information load about Future profitability of companies. Use of the different criteria for measuring the profitability change influence (as independent variable) on profitability (as dependent variable), looks essential. So to test and analyze the

10.2. Default regression tests

information content of dividend changes on future profitability change, we use the following model (Choi et al, 2011).

\[
ROA_t - ROA_{t-1} = a_0 + a_1 %\Delta Div_{t-0} + a_2 %\Delta Div_{t-1} + a_3 ROA_{t-1} + a_4 (ROA_t)
\]

10. Statistical Analysis

10.1. Descriptive statistics

Skewness and strain of values of variables are primarily lower which indicate a symmetrical distribution of the variables being closer to the normal distribution (one of the main defaults f regression). Average percentage change in dividends is 74 percent compared to the previous period. This amount reflects the fact that research sample companies always have tried to pay higher dividend payments to their shareholders over the last period. Average rate of return on assets and return on equity is of 16% and 52% respectively. And considering that these values are not much different than their middle (13% and 40% respectively), there is not a huge difference, that it represents symmetry of the relative distribution of these variables. Average changes in the ratio of average variable profit before extraordinary items of book value at the beginning of the year is around 3% And given the proximity of this value to the median value (around 1/5 percent)of this variable represents that the probability distribution is symmetric.
11.1. First model analysis
Statistical analysis of the first hypothesis can be stated briefly as follows:
- According to F statistics obtained, the model used to prove the hypothesis is statistically significant,
- The amount of statistics "t" and level of significance of change variable in corporate dividend in the event year and before event year reflects the positive and significant impact of this variable on changes in company profitability (change in profit before extraordinary items). However, changes in corporate dividend in the two years following the event, is positive but insignificant, but in general, these variables have a positive impact on future profitability and the first hypothesis is confirmed and the primary hypothesis about the information content of dividend changes and impacts on corporate profitability, is approved in Confidence level of 95%.
- In all three research models, (Three consecutive years) variable rate of return on equity has a quite significant and positive impact on the profitability of the company.

<table>
<thead>
<tr>
<th>Depend variable</th>
<th>Year</th>
<th>F statistics</th>
<th>Significance level</th>
<th>T statistics</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes in dividend</td>
<td>0</td>
<td>24/415</td>
<td>0.000</td>
<td>2/499</td>
<td>0.015</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>12/573</td>
<td>0.000</td>
<td>1/980</td>
<td>0.048</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>14/475</td>
<td>0.000</td>
<td>1/741</td>
<td>0.082</td>
</tr>
</tbody>
</table>

- As regards to the fact that the research model in the second year is not significant at the 95% confidence level, Cannot comment on the obtained coefficients from the model.
- The variable of changes in the dividend profit reveals that this variable has had a positive impact on the future profitability, but this impact is not significant statically. In addition, statistics "t" on the quantities of both companies with low growth and high growth did not make a huge difference. According to the results achieved, it can be said the second hypothesis of research about information content of changes in dividend profits in companies with high growth compared to companies with low growth is different, that level in 95% is declined.

Table 1 - Regression default tests

11. research models analysis

Table 2 - Statistical results of the first model.

11.2. Second model analysis
Statistical analysis of the second hypothesis can be summarized as follows.
The following methods were used to analyze the second model:
There are two groups of firms with high growth opportunities and firms with low growth opportunities that Analyses were performed separately for the two groups. The above statistical results for the second proof are as follows:
- According to obtained F statistics and their Significance level, it can be said the research model about companies with low growth, is not significant at level 95% , and in the case of companies with high growth in the confidence level of 95%, it is a significant model.
11.3. Third model analysis

Statistical analysis related to the third hypothesis is summarized as following:

- Statistics “t” and significance level of positive change variables in the dividend represent a positive and meaningful impact of this variable on the future profitability of the company. In other words, the obtained results show that the positive changes of the dividend have upper informational content and have a significant positive correlation with future profitability. So in confidence level 95% we can say there is a positive change in the upper dividend and informational content, about future profitability.

- “t” statistics and Significance level of negative changes variable in dividend show that contrary to what was expected there has been a positive but insignificant impact on future profitability, that of course, this would represent the low information content of this variable.

- On the whole it can be said that incremental changes to the information content of dividend is different from information content of reduction of dividend, and according to what has been seen content information of incremental changes in dividend is more than reduction changes in the dividend.

- Therefore, the third hypothesis will be confirmed.

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Year</th>
<th>Growth condition</th>
<th>F statistics</th>
<th>As significant level</th>
<th>T statistics</th>
<th>As significant level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in profit of divided</td>
<td>1</td>
<td>companies with low growth</td>
<td>1/937</td>
<td>0/091</td>
<td>0/668</td>
<td>0/505</td>
</tr>
<tr>
<td></td>
<td></td>
<td>companies with high growth</td>
<td>2/243</td>
<td>0/050</td>
<td>0/667</td>
<td>0/505</td>
</tr>
<tr>
<td>Change in profit of divided</td>
<td>2</td>
<td>companies with low growth</td>
<td>1/630</td>
<td>0/156</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>companies with high growth</td>
<td>2/140</td>
<td>0/060</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 3. The second model of the statistical results

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Year</th>
<th>Growth condition</th>
<th>F statistics</th>
<th>As significant level</th>
<th>T statistics</th>
<th>As significant level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in profit of divided</td>
<td>1</td>
<td>Positive changes in profit of dividend</td>
<td>14/35</td>
<td>0/000</td>
<td>3/088</td>
<td>0/000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>negative changes in profit of dividend</td>
<td>9/393</td>
<td>0/000</td>
<td>1/462</td>
<td>0/144</td>
</tr>
<tr>
<td>Change in profit of divided</td>
<td>2</td>
<td>Positive changes in profit of dividend</td>
<td>14/35</td>
<td>0/000</td>
<td>3/022</td>
<td>0/000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>negative changes in profit of dividend</td>
<td>9/393</td>
<td>0/000</td>
<td>0/147</td>
<td>0/983</td>
</tr>
</tbody>
</table>

Table 4- Statistical results of the third model

12. The limitations of the research

The limitations and problems that existed in the implementation of the research that should be considered in the interpretation of the research results are as follows:

A) It includes research period of the years 1380-90, and some companies have been chosen as samples of the research that during this period of time have been an active part of Tehran stock exchange and their stock in Tehran is traded.

b) Given that information is the basic pillars for conducting researches, lack of information about the need of this investigation in the case of some of the companies accepted on the Tehran stock exchange was caused all of these companies cannot be tested and reviewed.

c) One of the limitations of research is the correlation between the components of profit and loss. In a table of correlation between these variables is provided for reference. The results of research are somewhat affected by these correlations.

13. Suggestions based on research results
With regard to the first and third hypothesis confirmation and the existence of information content changes in dividend and its relation with future profitability, information content of more incremental changes in dividend than information content of reduction changes of dividend is also recommended:

1. Companies due to prevent cash withdrawal and to satisfy the demands of investor, increase their capital from the place of dividend demands. In the event that this procedure be repeated in several times, May increase demand for the stock and new investment in the hope of receiving stock in namely value instead of cash profit, will buy company shares and if it doesn't repeat in the future, it can cause dismaying investors and have a negative impact on the value of the stock market, Therefore, it is recommended the company follow the policy of split the profit uniformly to prevent a negative impact on the value of the stock and shareholders according to their motivation and goals of the investment portfolio take their decisions.

2. Important cases includes the dividends policy in attracting investors and financing as well as the influence on the company's stock value, therefore, it is recommended that stock market through specific mechanisms or through the formulation of standards by audit organization, require companies to disclosure their policy of share profits.

3. According to the result of the second hypothesis, it is recommended to companies with high growth that to focus on profit as a source of financing and avoid the increasing policy f dividends.

14. Suggestions for future research

1. Studying the relationship between the fluctuations of dividend percentage on stock return.
2. Studying the relationship between fluctuations in the percentage of profit on unusual stock return.
3. The relationship between stock profit percentage with changes in stock profitability.
4. The same long period of research and testing with other statistical methods is done.
5. The effect of fluctuations in the percentage of profit of dividend on cash dividends become tested.

15. Discussion and conclusions

This research was trying to use the various methods and models to examine the information content changes of profit and its relation with the future profitability of dividend. In the companies accepted in Tehran stock exchange the results of analyzing models of research indicate that changes in the benefit of dividend has a sizeable and significant information content that are related to future profitability, and changes in dividend have a meaningful and positive relationship with the future profitability of the company.

The results obtained can be considered from the aspect that changes in dividend reflects signs of improved performance of company's present and future, and in fact, the message may boom the company's future performance and activity. Also, the results showed that most impact of dividend changes were about benefit changes of future year (one year later), and for the next two years have had a lower performance (two years later), In other words, the content information of dividends is about the next year performance, and is provided less information about the performance of the next two years.

Other research results revealed that incremental changes in dividend compared with the reduction changes, has had more informational content and in incremental changes to the benefit of dividend was the biggest focus of investors and stakeholders as the impact of incremental changes in dividends on future profitability is not very significant. In other words, From the perspective of the shareholders and investors, the increasing changes of dividend (positive) represents the signs regarding performance improvements and future profitability, but the reduction changes of dividend (negative) has been not in much attention. Other research results also indicated that the type and severity of impacts on the future profitability of dividend and future profits are not under the influence of the rate of company growth and Information content of dividend among companies with high growth and low growth make not a huge difference.

References:


Study For Effect of Macroeconomic Variables on Environmental Performance Indicators

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Abstract-------Due to the economic, social, cultural and political development of society and the establishment of coordination and alignment between these dimensions, the most basic elements of planning in achieving sustainable development. EPI (Environmental Performance Index), executive functioning political systems in order to reduce environmental stress on human health and natural resources to enhance the dynamic environment and the management of risk estimates. In this study, the effect of macroeconomic variables on environmental performance indicators for 10 countries in the Middle East, including Iran, were studied. Data from the World Bank website and EPI, during the years 2010 - 2000 were collected. Estimated using panel data methods (panel) and STATA software were taken. The results showed that the higher per capita income countries, education (literacy) is greater than the index number closer to 100 would be. It is suggested to achieve high economic growth in addition to preservation of the environment, water resources, soil, natural resources and the capacity utilization of existing manpower as well.

Keywords-------Environmental performance indicators, macroeconomic variables, some Middle Eastern countries, panel data.

I.Introduction

Twenty years after the Earth Summit in Rio, the governments using quantitative metrics such as pollution control and natural resources management challenges are trying to demonstrate their environmental performance improvement. And investment in this field increased. EPI1 has facilitated the comparison of countries. Environmental policies include the effects of environment on diseases, water (its impact on human health), air pollution (its effect on human health), air pollution (its effects on ecosystems) water resources (their impacts on ecosystems) biodiversity, forests, fisheries and aquatics, agriculture, and climate changes.

EPI is calculated according to a total of 20 national-environmental indicators which are classified into 9 categories and provides the ranking of environmental issues management methods for each country. This indicator is evaluated using criteria such as gross domestic product (GDP), the population of each country, the area of each country, etc. After the Industrial Revolution, the countries gradually marched towards industrialization. Raising the level of production was their most important aim in the field of economy and their competition to reach development, started. The rapid growth of GDP in many countries led to intense pressure on environment and caused degradation. Its comparative range has been defined as something between zero to one hundred. So that the closer the environmental performance index is to zero, it reflects a lower value of the index, and the closer it is to one hundred, it constitutes a higher value of the index and a closer position to the desired policy goal. In the field of environmental performance indicator and environmental sustainability indicator, some national and international

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1 Environmental Performance Index
studies have been carried out and some of them can be mentioned as follows:

Samimi and et al (2011) examined the effect of ESI on the economic growth of developing countries. The study results showed that there is a normal and significant relationship between this index and the economic growth and Kuznets U-shaped curve. Sutton Paul (2003) using satellite imagery, empirically studied the effect of environmental sustainability index on the evaluation of ecosystem. He concluded that ESI is effective on the sustainability of ecosystems and in some cases, due to the deficiencies in this index, there will be a separation between consumption and production and ecosystem adaptation.

The present study investigated the effect of macroeconomic variables on the Environmental Performance Index (EPI) in some of the Middle East countries. The purpose of this study was to evaluate the per capita of gross domestic production, literacy index and trade openness on environmental performance index of the studied countries. Therefore it was assumed that the higher the GDPP, the higher is the education level, and the higher is environmental performance index.

II. Materials and Methods

In order to assess the impact of macroeconomic variables on EPI in the case study countries, the panel data method was used. The data were collected from the websites of EPI and the World Bank. The study period was 2000-2010. The general pattern of the model is as Equation (1):

$$\text{EPI} = \beta_1 + \beta_2 \text{GDP} + \beta_3 \text{TRAD} + \beta_4 \text{LI}$$  \hspace{1cm} (1)

EPI: Environmental Performance Index, GDPP: per capita gross domestic production, LI (Literacy Index): the index of literacy and TRAD: the level of trade openness.

As mentioned, panel data econometric model was used in the present study. In order to select OLS model from POOLED, evaluation of fixed effects (FE), random effects (RE), Hausman test and the Lagrangian multiplier- Pagan method (LM) was carried out by STATA 12 software. The test results are presented in Table 1.

<table>
<thead>
<tr>
<th>Result</th>
<th>P-Value</th>
<th>Chi2</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>RE</td>
<td></td>
<td>6.07</td>
<td>0.0280</td>
</tr>
<tr>
<td>RE</td>
<td></td>
<td>0.78</td>
<td>RE</td>
</tr>
</tbody>
</table>

As a result, the random effects model was adopted. The result of the data estimation by random effects is presented in Table 2.

<table>
<thead>
<tr>
<th>Probability</th>
<th>z-statistic</th>
<th>coefficient</th>
<th>Independent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0077</td>
<td>1.36</td>
<td>33.31234</td>
<td>Fixed component</td>
</tr>
<tr>
<td>0.19</td>
<td></td>
<td>0.13934</td>
<td>Index of literacy</td>
</tr>
<tr>
<td>0.13</td>
<td></td>
<td>3.58</td>
<td>Openness to trade</td>
</tr>
<tr>
<td>0.23</td>
<td></td>
<td>0.0000</td>
<td>per capita GDP</td>
</tr>
</tbody>
</table>

As mentioned, the independent variables in the present study are per capita GDP, literacy index and openness of trade share and the effects of each of these variables were assessed on environmental performance index. It is expected that the higher per capita income has a positive effect on environmental performance index (It was mentioned that the closer EPI to 100, it indicates a higher and better performance). Based on the results, the coefficient of the GDP variable is negative, but it is statistically significant. It can be argued that there is a reciprocal relationship between environmental performance index and per capita GDP. But since in this study, the selected studied countries of the Middle East are among developing countries and in some cases underdeveloped countries (such as Iraq, Egypt, etc), therefore the GDPP coefficient appears with a negative sign. And reflects the fact that the more a country is backward and less-developed, it will enjoy less «EPI» environmental performance sub-Indices (water
resources, environmental health, water treatment, ecosystem adaptation, agriculture, fisheries, etc) and therefore it will have a lower per capita income and per capita production. The openness of the trade share has had a positive and significant effect on environmental performance index and actually this reflects the fact that stronger transactions and economic relations between the countries result in the country being closer to the sustainable development. Also in line with expectations, the more the literacy index is, the higher the access and optimal use of environmental performance index will be and this index will be higher. According to the results the significance of literacy index emphasizes on this point.

III. Results and discussion

The process of economic growth and development is such an issue that most of the countries have had paid a special attention to it in recent decades. So that, environmental challenges have become one of the main concerns of the governments. According to the results obtained in this study, it was observed that the GDP, openness of trade share and even literacy index play an important role in Environmental Performance Index (EPI) which are effective in the economic growth trend of the studied countries. Also due to lack of proper and efficient management in some selected countries, despite the positive impact of per capita GDP on EPI, this variable appeared with a negative coefficient in the model. And reflects the fact that if a country wants to grow and develop economically, it should utilize the appropriate managerial style for protection of the environment and by promotion of science and technology, takes a step towards sustainable development and particularly its economic growth.

Since Iran was included among the selected countries in this study, and given to its 5 to 10 percent decline in per capita gross domestic production due to environmental degradation in recent years that can lead to weakening problems for the Iranian economy in the long run, therefore the following issues are offered to pass through Iranian environmental challenges:

1- Changing the national computational system with regard to environmental degradations and reducing the efficiency of contributing factors.
2- Conservation of energy resources.
3- Strategic planning for sustainable development of each of the sub-indices of Environmental Performance (EPI) separately.
4- Creating an integrated environmental management.
5- Allocating a specific budget line in the national budget in order to deal with environmental hazards.

References

Evaluate the relationship between service quality and customers satisfaction in the marketplace

Zahra Ghahremani, Behnam Vakili

Abstract—Tendency to service quality plays important function at service industries and companies, because service quality is necessary for achieving customers’ satisfaction and following that for survival and profitability of an organization. Customer satisfaction of service quality has important strategic function at companies’ success and profitability. Due to the importance of this subject we have considered the effect of dimensions and index of service quality on the degree of customers’ satisfaction. The result indicates that mentioned parameters have significant relationship with customers’ satisfaction of services delivered by the company.

Keywords— service, quality, service quality, customers’ satisfaction

I. INTRODUCTION

Nowadays customer-oriented and achieving customer satisfaction is one important basis of competition at organizations; because the main stimulators at business organizations which are following great improvement at the direction of their improvement are customers of those organizations. Customers, who are more satisfied from organizations, express their positive experience for others and become the means for advertisement of their organization following that the cost of attracting new customers will reduce. Ties subject is important especially for deliverers of professional services; because their fame and expressing advantage and their positive points and on the other hand is the source of key information for customers [1].

A duty that is called services to customers is more complex than taking order, getting back referent products, and responding complaints. Based on this attitude, service to customers includes all affairs companies done for attracting customers’ satisfaction and helping them for achieving the highest value of products or presented services. Generally that is supplied besides physical product and causes product separation from competitors, is counted part of services to customers [3].

Since customers play important role at the process of organizational activities and affect organizations’ fate by their thought and policies, so not only recognizing their need but also predicting determining and leading customers hidden needs and designing and implementing plans and presenting services for meeting the needs are fundamental and organizational basis.

This paper is considering the effect of service of presented service quality on the degree of customers’ satisfaction.

II. SERVICE DEFINITION

Service is one important economic section has faced increasingly improvement in recent decades. Nowadays services devote significant percent of resources and activities to itself and creates great value added [4]. For example in developed countries 79 percent of jobs are service ones and 74 percent of gross domestic product is related to services.

In lovlock point of view, service includes that group of economic activities that creates value for customers at distinct time and place and therefore gives positive and favorable interpretation to the
receiver of service [5]. In simple word service means any action that one partner supply to another one and necessarily it is intangible and lead to the possession of a thing. Service production may or may not depend on physical product. On another viewpoint service means intangible duties satisfy consumable or business needs of consumers [6].

Service to customers includes all affairs that a company does for the aim of satisfying customers and helping them for achieving the highest value of products or services they bought [7].

### III. DIFFERENCES BETWEEN SERVICE AND GOODS

Services have especial features which makes them different from other goods. Philip Katler mentions four especial features of services that make the products different than goods (before buying the services can’t be tasted, touched, heard or smelled). Inseparable services (separate services from its deliverer). Service variability (service quality to whom it is delivered and depends on time, place and method of delivering them), unsaying services (services can’t be saved and sold in future [8]. Christopher Lovelock and Loren Right in their book entitled as marketing basis and service management besides pointing five mentioned factors, pointed 3 other factors that is harder assessment, time importance and different distribution channels that

<table>
<thead>
<tr>
<th>Example</th>
<th>Definition</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brightness of a drawing</td>
<td>The first feature of a product</td>
<td>Performance feature</td>
</tr>
<tr>
<td>TV remote control</td>
<td>Secondary and additional feature</td>
<td>adaptation</td>
</tr>
<tr>
<td>Industrial standard</td>
<td>Meeting features</td>
<td>certainty</td>
</tr>
<tr>
<td>Time average for reaching the first problem</td>
<td>Performance contingency over time</td>
<td>resistance</td>
</tr>
<tr>
<td>Easiness of repair</td>
<td>Period and time of using product</td>
<td>service</td>
</tr>
<tr>
<td>Calmness of product seller</td>
<td>Analysis of problems and complaints</td>
<td>accountability</td>
</tr>
<tr>
<td>Product good smelling</td>
<td>Human interactions</td>
<td>aesthetics</td>
</tr>
<tr>
<td>Achieving the first rank in the past</td>
<td>Sense features</td>
<td>fame</td>
</tr>
</tbody>
</table>

Table 1: Quality Dimensions

Shows the whole basic difference between services and goods. Introduction of service quality [9].

In recent years, high attention has been paid to customers need in relationship to the levels of service quality. High levels of presented services to customers are used as a tool for achieving competitive excellence. Defining service quality is difficult. The first subject about service quality is that the services have quality which meet the needs and demands of customers with what they want is related to the thing that customers feel service delivers should supply to them. Therefore the quality is judged and determined by customer. If services meet customers’ expectation and or is higher, it has quality.

This reality that product quality is perceived is changing to the most important factor of competition at business caused the current element of business being named "quality era". Increasing Dissatisfaction of customers toward quality of goods and services was the characteristics of 1980s. Increasing perception of this reality that improving quality have positive effect on business and is necessary for competition, has changed attitudes generally. Old notions about quality (or observing determined standards by operation managers) has given its place to the necessity of leading quality by customers that this action points the importance of marketing service and the function of research and consideration of customers [9]. Quality means adaptation with characteristics. Needs (Karzayi, 1979), competence for use (Zhoran and Bignam), value (sphagnum, 1951), avoiding losses (Tagoji, 1979) and meeting customers expectation (Parasurman & et al, 1985) [10].

Quality of a product or service, a degree that a product or service or customer expectation and presented features adapt [7].

### IV. QUALITY DIMENSION AND SERVICE QUALITY

Quality has 9 dimensions (table 10 these dimensions are shown by their meanings and features.

This dimension is independent to some extent and a product can be excellent in one of them and moderate and weak in others, a few products can have all these nine dimensions as excellent form. For example, Japanese who claimed having high qualitative cars in 1970s expressed their claim only based on 3 dimensions of certainty, adaption and beauty [11].
Service quality is defined differently and through various viewpoints. Research denotes that 24-99 activities related to service quality can be mentioned. Another researcher identified 17 dimensions of service quality knowing that how different aspects of a field affect customers. Although the most interesting definition is related to supplying expectations, for each situation there is neither one definition nor the best one.

Definitions which emphasize compatibility with rules and regulations, suitable for using and preventing losses, have been generally criticized at service quality literature. For each problem that there is at definition of quality by using expectations is that they are not predictable or coordinated and depends on communications or insight of management [12]. Customers pay attention to others experience in relation to the service quality [13].

V. DIMENSIONS OF SERVICE QUALITY

Noticeable services should be identified by demands and expectation of customers. If services is significant in the view of supplier but can't satisfy customers, the mentioned service is not counted important. Significant services is not always the thing that a supplier imagines, sometimes a customer for solving difference of his bill is forced to content the company a lot.

Valarie & et al in a paper have described the dimension of service quality as below:

A. Tangible aspects of services that includes physical facilities of structure delivering service, facilities and personnel.
B. Certainty of services that means the ability of delivering services based on promised and precise conditions
C. Accountability that means tendency of an organization for helping a customer and delivering services based on promised condition.
D. Competence means knowledge and skill of staff and their ability leads to attracting certainty and reliance of a customer.
E. Sympathy with customer means paying attention to the customer at delivering services.

Also delivering proper services to the customer is a system that occupies the heart of a customer and predicts customers’ needs precisely. Having precise and on-time information causes to answer customer’s complaints rapidly and commit secure delivery [14]. Characteristics of service quality

For service quality various characteristics can be considered that the most applicable and famous one is:

Tangibles, reliance, accountability, certainty, personal attention to the customers [15].

VI. DEFINITION OF SATISFACTION

Satisfaction is an emotional response that emphasizes performance of product consumption or after it comparing with some standards that we seemed before buying.

Satisfaction is an emotion that acts for taking a person to the perfection and emphasizes a product or service that is evaluated after consuming once or continuous consumption [16].

Satisfaction is the degree of utility that a customer obtains due to different features and is the source of profitability and a reason for continuity of an organization’s activity [17].

Customer satisfaction is an emotion or attitude of a customer toward a good or service that acts as a connective bridge between different solutions of consumer’s shopping behavior. If customers are satisfied by services or especial goods, they will repeat their shopping probably. Satisfied customers talk to other people about their favorable experience and the result of these talking is a positive mouth to mouth advertisement for the company [18].

VII. CUSTOMER SATISFACTION

Authorities of management count customer satisfaction as the most important duty and priorities of company’s management and know the necessity for constant faith of top managers for customers' satisfaction as the precondition of success [19].

In recent years, it has been paid attention a lot to the customer needs in relation to the levels of service quality. High level of delivering service to the customer is used as a tool for achieving competitive excellence and parallel to the increase of awareness of customers about services delivered by banks and other financial institute shows that for saving long-term relationship with customer satisfaction banks should know how deliver high quality services [20].

Organizations of public sectors have found that delivering services with high quality is an strategic category of organizations survival in future [21].

VIII. RELATIONSHIP BETWEEN SERVICE QUALITY AND CUSTOMER SATISFACTION

Lil hunder&stranderik (1994) differentiate between service quality and satisfaction. Based on the view of these two researchers, service quality is an external attitudes and judgment of services and satisfaction returns to internal attitude (customer experience of service, where evaluated result is regarding perceived value). Recently satisfaction is seen in a more expanded concept and service quality is an important part of it. In this model satisfaction is evaluated based on experience of customers' satisfaction with an organization. Tendency to assessing customer satisfaction but companies reflects their capability at helping to create customer loyalty, developing proper mouth-to-mouth advertisement and improvement of market share and their profitability (chu, 2002). There are lots of discussions about difference and relationship between service quality and customers satisfaction. Most Experimental
research confirms cause and effect relationship between quality and satisfaction.

In order to prevent long discussion 2 new studies are mentioned in this case. At a study that done by Cronin & Taylor (1992), the cause and effect relationship between service quality and customer satisfaction has been tested. They pointed the subject in their study that marketing authorities have the same opinion about the cause and effect relationship between service quality and customer satisfaction and suggested that more experimental studies are needed for determining real nature of this relationship. Finally based on analysis they reported that perceived service quality lead to satisfaction [21].

At another study the relationship between service quality and satisfaction has been confirmed. In this research Spring & McQueen (1996) have tested a model suggested by Oliver (1993) Oliver’s model combine these two structures and explain that perceived service quality is an introduction for satisfaction. The result of these two researchers shows that service quality leads to satisfaction.

Many researches have tested the relationship of structures such as service value, service quality, customer satisfaction and intentions of customers. The result is presenting different models of structures relationships.

Payment is called anything customers lose in order to get services. In the view of Hekset & Hart (1990) and Zeith Emil (1988) this payment includes 2 sections. Financial section that is related to the monetary (dollar) and non-financial section that is related to spent time and tolerated trouble. In the view of Zeith Emil (1988) perceive value of services is defined as total evaluation of a customer about obtained beneficiary based on what he has perceived against what is paid. Customer satisfaction is a degree that company delivering services meet customer’s expectation.

For assessing service quality, defined scale by Parasuraman et al (1988) has been used.

Behavioral intention is: 1-positive talk to others about company introduction and advising others to use that company’s service 3-loyalty to company 4- Repetitive shopping and spending more expenses to company 5-reflecting our opinion to company [22].

Based on a research by Halowell (1996) this subject is concluded that customer satisfaction is the result of customer’s satisfaction about perceived service value and service perceived. Another research done by Farnell (1996) concluded that the first determiner of customer satisfaction is perceived quality and the second one is perception of service value.

The result of Atanassopolus (2000) points the result that customer satisfaction is resulted from value and in the following a combination of service quality and price is effective. On the one hand customer satisfaction is related to defeat at delivering services and improving services. Researchers claimed that positive perception of fair behavior of a company at management of customers’ complaint that its result is increasing certainty and reliance at customers is hidden.

IX. Conclusion

In this paper service quality delivered by companies and its relationship with the degree of customers’ satisfaction has been considered. Parameters related to quality, service quality, customer satisfaction have been considered by using different hypothesis and researches.

The result denotes that parameters related to quality, service quality has positive effect on customer satisfaction. There is high positive correlation between the level of service quality and the degree of satisfaction although correlation between quality and satisfaction is not equal at all parameters. The dimension of certainty and reliance of services for customers is prioritized. Customers for getting services undergo trouble time and financial expenses. Finally by using satisfaction/dissatisfaction of a customer (based on presented service quality) different dimensions of this model have been evaluated and the effective relationship between presented service quality and customer satisfaction has been observed.

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F. A. Zahra Ghahremani, birth place: Iran, date of birth: 1May 1980, educational background: B.A. in insurance management at ECO collage of insurance, Alame Tabatbai University, Iran, Tehran, 2005, M.A. in Information technology management at Islamic Azad University of Tehran, Iran, Tehran, 2013.

Zahra, 10 years job experience in stock exchange market, Tehran, Iran as a STOCK ACTUARY, 2003-2014.

Miss Ghahremani, have just paper publication in internal news paper in mortgage backed securities, 2008.
Abstract—Current research has been done with aiming of Plan designing of individual development as strategic tool at human resources development and optimization. According this matter, for accessing of exact and scientific plan, we have used the strategy of data-based theory. At the time of research, we have used the plan of personal development of five superior organizations as richest present resources for Plan designing of individual development. First according to strategy approach of data-based theory at the first stage it means open coding, the plan of individual development of a pioneering organizations of world (insist on five superior organizations) and their contents were coding, next stage with using of main coding process after determining of main and partial sections of plans, the draft of the plan of individual development has been written. The coded axis’s including development goals, self-development needs, functional needs and mechanisms and self-development activities. As the plan of individual development is agreed document between managers and personnel’s, information and period of apprenticeship and needed sources of these periods are also coded axes. Finally, the principles of designed plan was compared and modified with guidance of plan of personal development of organizations such as aviation organization of NASA, American Defense ministry, Stanford University, Minnesota University. At last, integrated and comprehensive plan of individual development has been designed and presented for using at optimization and development process of human resources.

Keywords—human resources development, individual development plan, Strategies of Grounded Tool

I. INTRODUCTION

Human Resources Management at organization has been made as commitment and bilateral expectation and duty between person and organization. At the framework of this commitment and bilateral expectation, personnel should show practical obligation to do their duties according the direction of organizational goals and also they should define their reciprocal rights at the framework of workbook. If we want to point to most important parts of these rights, it’s including utilization of opportunity continuous development of knowledge, work skills and growth at different aspects of personnel personality. On other words, managers of organization want that personnel act with high energy and commitment in direction of goals materialization of organization [1].

Doing the reciprocal commitment between person and organization by individual development planing process can be practiced and evaluated. According to training center of leadership development of NASA (2013) about necessity of individual development plan says that this is formal planning that it be should recorded the training and development of personnel at plan. Individual development planning that employee incorporates with his employer to recognize professional development plans and provide plan for attaining these goals [13].

Auckland University (2002) has defined Individual development plan as agreed document between personnel and managers of organization that they have ascertained yearly planning and goals with concentration on personnel individual plan. In the Individual development plan, there is effective cooperation between personnel and managers in items of the educational needs and personnel growth to determine competencies upgrading and individual skills.

Office of Human Resources Management U.S. Department of Commerce (2001) has expressed individual development plan as individual practical plan, agreed participation between employees and his employer for recognition of long term and short term goals of individual job development path. As we
sacd before, individual development plan is strategic tool for regulation of people growth and development that make it easier doing of reciprocal commitments between person and organization. According to this matter, present research has been done with aim of comprehensive individual development designing.

A. Theoretical principles and research Background

At this part, we have paid attention to description of theoretical principles and background around individual development plan to present clear picture of new and high level of this process.

Individual development plan: at Office of human resources University of Minnesota (2009) have defined individual development plan as tool to help person to recognize related strategies and goals with professional growth. This plan encourages people to accept responsibility of their professional growth and create the process for recognition and pay attention to their development (Office of human resources University of Minnesota, 2009). Leadership development center and training of NASA (2012) has expressed the individual development plan as planed tool to provide structure for participation at development and during plans such as effect process, communication, success and team working that these participations and practical actions should be as participation at individual goals and pay attention to elementary grounds such as work duties, apprenticeship and training. At this process, people believe they need competencies for doing successful functions.

U.S Department of coast guard (2006) has expressed individual development plan as individual suitable action that employee and his boss use for recognition of individual long term goals and individual development path goals. Individual development plan is designed for apprenticeship and developmental experiences for attaining of these goals with intent of persons utilization at special time framework. Individual development plan isn’t evaluation method of function, its contract of apprenticeship and for reform of depicted situation.

Veuto (2006) in his research at U.S Department of coast guard has presented different and various definitions and concepts of individual development plan in organizational and individual aspects: individual development plan is active and progressing plan. This plan is a live process that encourages persons to Empowerment and growth. Individual development plan is a tool to help persons to attaining job development path goals which are organizational items [21].

B. The process of individual development planning

At U.S energy ministry (1999), it has been described process of individual development planning at six stages including recognition of function priorities, determination skill needs, developmental goals, recognition of development options and activities selection, consult about with bosses about development goals and discussion with bosses about development goals, implementation and finally supervision on process development. UCSF(university of California San Francisco): Human Resources Community (2008) at self-evaluation process which is one of the most important processes at providing : individual development plan, says that people should think about these questions such as following items in self-evaluation direction: what skills, abilities and knowledge is necessary for present job? What is the direction of organization and what is the future need of organization toward my job? What are my biggest strengths points and how can I improve them? Finally do I have weak points that makes difficult in front of doing my job or prevent me? U.S Department of Defense also asks three key questions at his self-evaluation process: 1- where am I? What are my values? What personality do I have? 2- Where place do I want to be? 3- How can I reach to my favorite place?

Human resources office of Minnesota University (2009), has expressed the role of person at individual development plan at three following points: 1- evaluation of current strong points by self-evaluation and individual reflexes 2- search of opportunities by thinking about everyday problems and determination of methods that person can increase his learning and selection of opportunities that can create more knowledge, skills, and abilities. Developmental opportunities can be intersection of abilities, interests and organizational goals.

![Development Opportunities Diagram](image)

Figure 1: development opportunities (Human resources office of Minnesota University, 2009)

The third role of person is related to individual development plan is determination of current goals and long term goals. These goals have five features such as specialty, measurability, accessibility, suitable and on time. SMART approach is acronym of five features which with regulation of goals permits to persons to ascertain special cases related to main merits. Person according to these maters should determine his daily goals and long term goals. Person with help of his daily goals can increase his immediate developmental opportunities. Person with help of his long...
term goals can design future-based individual development plan which has capacity and potentiality for growth and development [13].

At the process of individual development planning, the role of employer is presentation of feedback and recognition of strong and weak points, act as coach, review of organizational aims and opportunities, help to self-evaluation of person, support of learning and person development and providing learning opportunities.

Olson and Wittaker (2006) have declared important aspects at leadership development planning such as leadership (coaching and development help, create motivation and rehabilitation and effect on person), interpersonal aspects (relation with others, resolving Conflict and managing diversity), Communication (listen to other words, speaking and writing and facility at relations), official aspects (dedication and supervision, time management and project management), analytical aspects (decision-making, problem-solving and creativity ), functional aspects (industrial and technical knowledge), self-management (individual adaptation, Correctness and integration, self-renewal and Personal Motivation ).

As NASA (2002) suggests it can be implemented activities at organization for person development including web-based periods, virtual learning, academic periods, seminars and conferences, apprenticeship at working time, session of knowledge and information, reading homework and other necessary activities for that organization.

II. RESEARCH METHOD

At the current research, individual development samples of world superior organizations have been studied (with insist on five superior organizations including NASA aviation organization, Stanford University, internal security department, U.S Defense ministry and Minnesota University). For extraction of important parts, strategy of data-based theory has been used that according it, coded plan content and by main coding, extraction according to final individual development plan has been designed.

A. Research methodology

At recent years, tendency toward doing of qualitative researches has increased especially published researches according to data-based theory [6]. Grandid theory is one of qualitative research methods which its main goal is social process expression and theory creation [15].

This procedure is in the direction of gained results generalization from special observation to more comprehensive theory. Theory which grows and evolves at everyday human life, as it is hidden at the Granded word [4].

The main procedures of strategy of data-based theory are including: open coding, naming of concepts which are expressive of sure events and other samples of phenomena. Axial coding: data are compared at continuous process to determine bond after open coding between categories.

Selective coding: it is selection of category-centered, systemic bond with other categories, valuation of their relations and category insertion which need more verification and development [2].

Because of goal of current research is designing a plan and providing integrated and comprehensive framework for it according to samples and guiding individual development plan of world superior organizations, researcher of this article has selected data-based theory as research method for this study.

III. RESULT

At the first step of study, we have studied individual development plan of world superior organizations. For increase of research method validity (final plan) with selective sampling procedure, we have studied individual development plan of superior organizations, content and insisting on aspects were coded. At the next stage codes were studied and compared and codes which were creator of important category at plans were determined. At last with juxtapose important category of different plans, final plan was designed. Form (1), and guidance of editing this, important axes are including:

- At the columns of 6, 7, and 8 it is written individual and professional development goals for periods of 1-5 years.
- At the columns of 9, it is including the list of knowledge, rules, skills and abilities which are needed for persons and will be developed during this plan.
- The columns of 10, it is including knowledge, rules, skills and abilities and person should developed for development goals following items such as: organizational commission needs, organizational policies, technology changes, new duties and actions, development and function improvement, future new needs of person, skills development, leadership development and have effective communications.....
- At the columns of 11, priorities are expressed at three general categories: necessities, needs and boosting actions.
- At the columns of 12, is related to developmental activities, we can point to online web-based periods, organizational training periods, academic periods, seminars and conferences, short term training periods, periodic duties, apprenticeship at working time, self-development, information interview, reading homework and etc.
- At the columns of 13, (documents of developmental actions), points to effects, productions, consequences, activities which are signs of completing of plan developmental activities (form1).
In the form of individual development plan of Stanford University, coding is focused on points such as developmental goals, needed skills and resources for developmental actions as important axes have been presented at following form. Important actions of this plan are including long term homework at the working time, project teams’ guidance, engagement at communications at professional participation, conference participation, self-teaching and self-learning, book reading and academic courses certificates (form 2).

Designated codes at form (3), has been concentrated on average and long term goals to look future with insisting on future needs and job that maybe person experience that will be putted at providing of final individual development plan.

Individual development plan at Minnesota University has insist on main development strategy according it person can regulate his activities and developmental actions. Consequences of this plan have been done according to evaluation of self-development effect because when we say we will have individual development that it be appeared by behavioral, knowledge and functional signals.

With study of individual development plan of superior organizations, we tried at current research to juxtapose elements with logical relation between them to present new and integrated structure of individual development plan. According this matter, at this part samples conclusion of axial and open coding of studied plan data has been presented (form 4).
**Individual Development Plan**

1) Areas for improvement
   (Evaluating the professional qualifications and scholarship; What should be developed?)

2) Long – term goals

3) Short- term goals
   (This year you will be able to do what?)

4) Steps and time line for achievement goals
   (What steps do you take to achieve the goals you want and in what timeframe?)

5) Available Resources
   (humanities or electronic)

6) Outcomes
   (What have you done that demonstrates the results you achieve your goals are?)

**IV. CONCLUSION**

Current research for aiming of individual development plan designing as strategy tool has been done at human resources development. With using of this plan helps to doing of reciprocal commitment between person and organization, ground making of personnel’s satisfaction and commitments and efficiency increase. Finding logical, realistic and scientific method and tool at doing reciprocal commitment can help this process be searched purposefully.

With using of data-based theory approach and axial and open coding of individual development plans data of NASA (2000), Minnesota University (2009), California University (2008), Oakland University (2002), energy ministry (2000), the plan of Georgia administration (2012), U.S coast guard department (2006), presented form (6) has been regulated as paragon for individual development plan. As superior organizations such as NASA aviation organization (2012), California University (2008), Minnesota University (2009), defense ministry (2001), energy ministry (1999), U.S commerce ministry (2001), army doctrine (2008), U.S coast guard department (2006), Olson and Wittaker (2006), Venuto (2006) have insisted on supply of individual development plan also current article has insisted on individual development plan as strategic tool human resources optimization and development and doing of development reciprocal commitments(form 5).

At this plan, also presented obligations and principles at regulation guidance of individual development plan by superior organizations have been studied and reformed and final form designed and edited. Final coding was organized at two parts related to the employee and employer. At the part related to the employee, axial and open coding of data of different samples, it leads to recognition of axes such as developmental goals, functional needs and self-development needs, person strong points, self-development strategies and mechanisms, self-development activities and time periods.

At the part of employer, organizational developmental actions, training and apprenticeship periods, of cost of holding of these periods and time was recognized and to be observed at final form. Different parts of individual development plan can change according to individual needs and organizational request.

Form 5: Suggested IDP (Mazari, 2014)

<table>
<thead>
<tr>
<th>Individual Development Plan(IDP)t</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Name (Last, First, MI):……</td>
</tr>
<tr>
<td>(3) Year 1 Developmental Goals:…..</td>
</tr>
<tr>
<td>(5) Year 1 Developmental Goals:…..</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Needs</th>
<th>Self-Development Needs</th>
<th>Short-term Goals (usually 1-2 years)</th>
<th>Long-term Goals (usually 3-5 plus years)</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengths</td>
<td>Self-Development activity</td>
<td>Self-Development Mechanism</td>
<td>Description of Planned Developmental Activity</td>
<td>Time period</td>
</tr>
</tbody>
</table>

**Supervisory Summary Section**

<table>
<thead>
<tr>
<th>Organizational Developmental Activity</th>
<th>Training and Dates</th>
<th>Training Cost</th>
<th>Resource and Actions Required</th>
</tr>
</thead>
</table>

As NASA (2002) suggests at this plan, at priorities column at the first we should pay attention to necessities then needs and finally profitable actions.

At goals column, we can present goals such as skills development, organizational policy, function improvement, leadership development, relations making and change at technology. Individual development plan is formal and agreed document between personnel and organizational managers, goals recognition tool and persons professional growth strategies which has concord with strategic organization goals. This plan is a live process; persons are encouraged for growth and rehabilitation toward individual and organizational goals and it presents three main question, where am I? Where place do I want to be? How can I reach to my favorite goal?

The role of person at individual development plan is selection of current and long term goals, self-evaluation of weak and strong points, search and selection of knowledge development opportunities, skills and capabilities. At this
process of developmental opportunities is intersection of capabilities, person interests and organizational goals. Important aspects of individual development planning process are leadership, interpersonal aspects, communications, official, analytical and functional aspects, people’s self-management and self-leadership. Activities which organizations can present for help to people development is including web-based periods, virtual training, academic periods, seminars and conferences, training at work time and knowledge and information exchange sessions.

With regulation of individual development plan, training and organizational support, we can facilitate the grounds for doing of reciprocal commitments of person and organization. Finally, because of increasing growth and development of organizations and change of semi-professional and professional work force to knowledgeable and professional forces, we need system and individual development plan because personnel need more freedom for their job development. Personnel design and do development plan which has observed development process of person and organization.

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Abstract: The most significant step in the field of environment accounting is to pave the way for it to be performed properly. Accounting has been created to face the society's needs and has grown larger in accordance to the social taste changes. Nowadays' social needs to sustain the natural environment with its limited and vulnerable resources have made the accounting studies to step forward even further. Greater attention has been paid to the natural environment as time passes by, thus it has made a suitable background for environmental accounting to develop. This article will discuss the importance of having a coherent and unified way for each and every person and groups, and the high rank people in charge of different organizations. And we will be able to maintain a well-protected natural environment through the environmental accounting as an effective tool as long as we are united to gain this aim.

Key words: Environmental accounting, natural resources, economic growth, constant development

I. INTRODUCTION

The planet earth that the Almighty God generously gave to mankind was a clean environment capable of growth and development. Human being, this small creature, looking very harmless, has committed the sin of having the most adverse effects on the earth, the adverse effects which not only harms the other creatures but also man himself. Human beings have consumed the natural resources for a long time to meet their requirements. Using the nature was the most basic way of continuing life on earth, it still is the most important way; the damages to the natural environment, however, was insignificant at least before the industrial revolution. The environment had the possibility of sustaining its natural resources. From the time the industrial revolution happened up to now, population growth, economic growth, technological development and vast consumption of various kinds of energy has reached a high peak that has made it almost impossible for the environment to sustain its resources [4].

These crises are a result of humans' greed and their will for short term profit making businesses and omitting moral beliefs. The very first victim of this greed is environment. Hence, the environmental pollution is one of the most important subjects for the international society [9]. This article is written in support of the systematic tools of green accounting as an effective and significant solution in preventing more damages occurring every day to the nature. And some solution will be considered as short cuts to gain this goal in the society's economics establishments.

II. DETECTING THE ENVIRONMENT'S ISSUES

Mankind's living and social essentials would not be accomplished without having pioneered economic processes, including goods production, services... which are all a consequence of using the natural resources and manpower (i.e. natural environment, to be exact). It is completely true if we call the environment "the development origin"; because clearly economics' vitals and cultural developments are founded on environmental resources [5].

Culture is the most important difference of mankind from other living creatures. It has been said that culture is the virtual essence of social life. In other words, culture includes a set of values, beliefs, literature creations, work of art, scientific discoveries, philosophical arguments, and political viewpoints, and every kind of scientific-technical achievements. Culture, thus, is a historical and social process. Generally, culture has been known to have both virtual and phenomenal dimensions. Based on this any sort of technical achievement, production, invention, discovery and other tangible works of culture, that are our previous generations' legacy, are called phenomenal culture. Virtual culture (or
abstract culture) on the other hand includes the set of customs, traditions, behavioral methodologies and artistic manufactures, scientific achievements, moral principles and philosophical and theoretical observations [5]. Since different parts of the society do not have the same development pace, hence, in the formative passage of each society, and the formative passage of the international society, some of these parts might be left out behind and some degree of incongruity may happen in the social context that is known as "cultural retardation" or "cultural suspension" [5].

After the industrial revolution which led to scientific and technical accomplishments with a high speed and revolutionized the social production and economic and made prolific results in phenomenal and cultural achievements. When the "abstract culture" grew in a slower pace, the society became inconsistent and people focused on mere profit making businesses without paying any attention to the importance of the moral values which caused an unequal condition of the rich dominance over the mediocre and the poor and the damages that these rapidly developing group of the society forced to the environment was ignored totally. The society's attention was drawn to these adverse traces of the achieved developments on both mankind and the environment, and now that formative biological steps and formative social steps have been taken, mankind is in their formative intellectual and scientific steps. We are now on the beginning of social intellectual and sentimental steps that promises the wise and intelligent human being's birth [5].

Solving the environments' crisis, that is defined as a fundamental problem of the contemporary era; and saving the earth from destroying completely is a matter of a united and well organized social movement to settle down the current situation. To maintain this aim accounting systems which are known as the most important information systems that can provide the best data to control and evaluate and decision making tools, have always been the economic and governmental organization managers' choice; have provided advantageous information to solve environmental problems. It is necessary for the organizations to develop a general accounting systems and they should report the results made by this system to the beneficiary groups so that the firms and the economic establishments behave in a responsible way toward the society [6].

III. THE IMPORTANCE OF ENVIRONMENTAL ACCOUNTING AND AUDIT

The arguments among the economists and the environmental experts changes from modernism and postmodernism viewpoints. According to the supporters of the natural environment we need modern patterns of intellect that considers the food production in a bigger social and biological framework and seeks ways to decrease consumption. Consumption reducing encouragement, however, will be in contrast with a majority of the economists through the limitless economic growth. Naturally a large coalition will be formed in this part. Fast growth policies on the one hand and steady social growth policies on the other hand will face controversies [2].

What makes the economists and the environmental supporters come to an agreement is to fill the cultural gaps. It means that limitless economic growth is sustainable only in the shade of social consistency in long term periods. Economic establishments' first goal is to make profits and if the managers' viewpoint is in short term periods, they will always disagree on paying any money for reducing the pollution and reducing the natural resources destroying elements. This is because a sort of contrast will shape in short term profit making process and paying for the environmental aims will look in contrast with profit making goals. This contrast will only be solved in a logical way if the managers' viewpoint expands. Because each economic establishment profit making will keep on in case new profits are created and will be returned to the environment so that they will exist in the future too.

But practically the wealthy and the managers have kept their short term views for their current profit making and do not care about the future of the earth and continue their damaging activities. It is due to these facts that make the green accounting emerge as an important tool. Green accounting will not bring many materialized profits to the firms, unless the owners and the managers of high rank positions in charge of the organizations hold a positive and encouraging viewpoint toward environmental functions [10].

Thus it is important that in accompany with green accounting, green auditing start to be activated so that the society's beneficiary would be able to receive the establishments' activities reports. This can happen in the way that during the industrialization and the separation of owning and managing the audits found a solution for the
contrast between the profits of the owners and the managers, it is still necessary to have green audits as well as green accountants.

IV. LEVELS OF GREEN ACCOUNTING

The green accounting is made up of a set of activities that enhances the accounting system's ability to identify, recording and reports the effects of environmental destroying and pollution. The environmental accounting's goal is to provide information that helps the managers to evaluate the activities, decide, control and report the results [12].

We can study the practicality of green accounting in two levels of macro accounting and micro accounting.

In macroeconomic, accounts of green accounting are to collect information, record the expenses and report them to the people. In this level the traditional accounts of macroeconomic will be reviewed and the items such as Net National Income, economic growth price, production growth price, will be added to the expenses and the environmental pollution effects. For instance, instead of net national income that is:

Net national income=gross national product-(minus) capital depreciation

in custom economic [4].

with the formula of environmental national income (or permanent net national income) we will have the following:

Environmental national income= (net national income) minus (changes in residual and distribution) minus (negative effects of increase in concentrates) minus (families' expenses to remove the environmental pollutions)

Based on microeconomic, the green accounting is responsible to answer to two groups. And thus can be put in one of these two groups:

a) Financial accounting:

In this level the green accounting can give reports to the individuals out of the organizations. But the subject to this kind of accounting, in contrast with what was important in macroeconomic that was the nation, the subjects can be firms or business establishments, and the consumers from outside of the organization can be stockholders, creditors, government or people.

b) Managing accounting:

Here the green accounting reports are prepared for the consumers inside the business establishments and the subject of this system can be the whole firm or a part of it, or just a product or a production system. These reports can be nonfinancial and be used as an intersystem management tool [12].

V. REASONS OF THE GREEN ACCOUNTING WEAKNESS

To reach a destination it is essential to make your mind first and have a real desire for going ahead and then to know exactly where the destination will be and finally choose the right path that leads to the goal and prepare the necessary equipment. This is a general rule.

The most important part in making the green accounting system to be performed in various economic establishments is to make managers, willingly or unwillingly use these systems. Practically to perform the green accounting three concepts of: 1) goals, 2) permanent and steady patterns, 3) and equipment; including rule making support and even firms' managers, and the ways of collecting and recording and reporting the data of environment, is not clear yet.

Accounting's goal have always been preparing information and financial reports to "decision making benefit" for the beneficiary. But when we go beyond the traditional accounting and step into the fields of accounting with social responsibilities including green accounting, the accounting's goal will be inevitably to change. Because it is impossible to satisfy the various social groups and their information requirements and sometimes their contrasts over their needs in accounting frameworks based on the concept of decision making and for this reason new concepts of accounting will be considered according to "replying responsibility".

This concept was discussed in Professor Yuji Aijiri's famous speech in 1982, thus it is a new concept. And in order to be fully completed, more researches should be done on the subject to bring it into practice. According to "replying responsibility" accounting, useful information for making decisions is not a goal by itself, but the accounting system should be useful. Hence, the accounting system fact is to provide a useful system for exchanging the information between those who inquire a reply and those who are in charge of replying.

As long as the main subject is natural environment, the society expects that the accounting system to report any sort of lose happened to the economic establishments and any kind of attempt to prevent these loses or to undo them on time, so that the society would be able to use such an accounting system as a strong tool for getting information from. To maintain such an end, everyone should make the necessary efforts throughout the community.
VI. HOW CAN WE MAKE THE GREEN ACCOUNTING A POWERFUL TOOL?

In this era, since we have environmental limits especially in the field of international businesses and the tense competing areas, everyone has agreed on the point that managers of business units are under an increasing pressure that are ought to reduce their activities expenses as well as their activities' side effects on the environment to a minimum degree. These pressures are forced upon them by stockholders, governments, mass media, consumers, investors, and other organizations [12].

As more resources are absorbed to the economic system, more waste will be returned into the nature [13]. This pattern is based on thermodynamics and introduces the economic as a system of material consumer and product manufacturer. Thus the lose measures forced on the environment is a dependent of the population, factual product level, and consuming per capita, as well as the type of the product and the manufacturing and consuming services, the capacity of waste absorptions [4].

Business can reduce the pollution via maintaining safe technologies or competing pressures. This subject helped "pollution Haven Hypothesis" emerges. According to this hypothesis, the environmental problems in developed economic makes these countries make the business market reduce their pollution making activities by increasing pollute making machineries prices and strict rules about the activities. But even in this case the main problem remains unsolved. Because these pollute making machineries are exported to developing countries where the environmental standards are in a low level and the price for these products are low too. In these business patterns pollution haven hypothesis realizes by delivering the polluted zone from developed countries to the developing ones. (Cole 2004)[4].

Supporting the environment, however, regarding the relationships among the elements of the earth and even their relationship with other planets, is a known fact, thus delivering the pollution making machineries to developing countries would be a temporary settlement for developed ones. Hence, it will be essential to find a solution. The first step could be for the developed countries to have an enhancing attention to the environmental issues. In the following a discussion about the suggested solutions in both macro and micro levels will be brought up.

A. In mass level

1.A. Educating

The researches show that environmental pollutions have a direct relationship with the education. (TorasViviz 1998) [16]And Click (2002) [14] has inserted some patterns involving the educational levels as a controlling elastic. According to Lipest's (1959) [15] research higher levels of education can be regarded as a necessary precondition element in having a clean environment.

Considering the religious culture that urges human beings not to care too much about the material world and wealth concerned businesses but to incline toward virtual and moral values to have contentment instead of wastefulness, will definitely help. Islamic advices in particular can be the most useful.

Islam have designed a green system in coordination with other social systems, which not only prevents the nature from being destroyed but also helps the natural resources to grow and be nourished properly. Within the Islamic rules there are potentials that allow the government to punish those who destruct the natural environment [3]. Among these Islamic advices we can mention the following: [3]

- Avoiding wastefulness: it will reduce the consumption of the natural resources and thus leads to environmental pollution reduction.
- Instructions about avoiding cutting the trees: if an alternative tree is not planted, one must not cut a tree.
- Preventing people from committing crimes: that includes all kinds of crime.
- Human beings responsibility for the riches God has given them.
- The important rule of "no damage" in Islam: according to which if a person's activities causes any kind of damage or lose for another person, the damage must be undone.

2.A. Establishing private unions and institutions support for the environment:

Establishing private unions and institutions is very important. For when the governments cannot make the firms and organizations to make decisions that are in favor of the environment or maybe the governments are simply not interested in interfering in such occasions, it will be necessary that the environment supporters establish some
NGOs to have direct supervision on the organizations' activities. It will be done when the NGOs are buying stocks from these organizations and are a member of the stockholders who can attend the annual meetings to introduce the negative side effects of the organizations' activities both in social and environmental levels and can have effective positive influences on these organizations [8]. Nowadays, "Ethical investment Funds" evaluate the capitalists ethical values as well as their financial requirements and the effects of their investments on the society. Since 1984, when the first Ethical investment Fund was established, the number of these funds has increased to 55 funds and is still increasing. (Pin and Joyner 2002) [8].

3.A. The Governments:
The assemblies and legislation role of the governments in managing development has been increased after the environmental issues were introduced to developing policies and theories. The environmental protection and natural resources management will not be accessed to gain a permanent development without the governmental and legislation interference. (Mixel 1376) Keeping a balance in the prices by imposing taxes on activities that make environmental pollution or providing subsidies for activities that help the environmental pollutions decrease can be a good way to achieve green goals. In addition, when governments give sanctions to the organizations to throw away the waste and residue, can be a helpful tool for the governments. And finally, the government will play a significant role in natural protection plans by providing subsidies for green studies and researches, giving budgets for preventing services or advertisements.
The government can use its major canals of free education, mass media, encouraging and punishing policies is the most important element in natural and environmental supporting movements.
Aside from what has been discussed about the governmental duties and tasks about the subject so far, researches have shown that the governments' size and qualities are an important point on pollution making. The results of Amadeh and the colleagues 1391, [1] research shows that "the governments' size has a positive and meaningful influence on spreading CO2 (as a major pollution element)". Other significant results of this research has been said to be: "the governments' qualities can have a negative effect on pollution making."
Hence, to have a better control on the environmental pollution, the governments not only can use economic tools such as green taxes and rules and legislation but also will be more successful on obtaining the end by improving the governmental qualities. It is also necessary to mention that what was discussed above will not be effective without a skilled and qualified government.

4.A. The constant focus of the standard making organizations:
New methods set internationally, have created a new atmosphere in international areas and competing markets. Quality standards such as ISO 14000 which are administered by quality standard administering organizations will be granted to the qualified structures; this will make them known as a green establishment and will help them have a better competing competence. Consequently it will be necessary for some organizations to prepare suitable standards for environmental qualities in production and services presented by the firms. And to be used as an evaluation tool that can measure the establishments' qualities involving green activities.

5.A. The accounting and auditing standard making organizations' attention:
a. Solving the issues of development range, and information collection methods of green accounting:
The green accounting framework discusses all kinds of green expenses. If this framework is too vast, identifying and evaluating the green expenses will be very difficult for the firms. This problem has been illustrated in chart 1:

<table>
<thead>
<tr>
<th>Custom expenses (materials, Wages, loads)</th>
<th>Hidden expenses</th>
<th>Social expenses Harder evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom expenses (materials, Wages, loads)</td>
<td>Hidden expenses</td>
<td>Social expenses Harder evaluation</td>
</tr>
</tbody>
</table>

Chart1. Different expenses of the firms [12]

It is now a duty of the accounting standard making parties to take the responsibility of accounting systems for determining how to collect that amount of expenses that indicates the fine relationship of the firms with the environment. And it enables the accountants to avoid
professional judgments about the issue. If the information collecting standards are more completed and clearer the accountant will have limited professional judgments.

b. Solving those issues that involve identifying and recording the green expenses:
Accounting systems divide the expenses sorts as follows:
1. Direct materials and wages
2. Loads of the factory (activities' expenses except for the direct materials and wages)
3. Distribution and selling
4. General and official
5. Research and development

Green expenses of the firms can be categorized in one or all of these categories.
The green expenses may be introduced as loading expenses or research and development expenses in a vague way or maybe due to wrong distributions would be represented to wrong expense centers or may be simply ignored. These expenses are so called "Hidden, Contingent, or Less tangible" expenses [12].

The standard making parties' duty while identifying and recording the green expenses is very important indeed because the identifying and measuring step is the first point in reporting the data.

c. Determining the standards of précis and reporting:
"According to the researches done by "Longstreth" and "Rosen Bloom" 57% of the decisions on investments are made by financial critics regarding the social elements. "Ahmed Belkau" also believes that the form of the social reports of the firms should be chosen in accordance with the type of the activity and particular emphasis on the social issues because it has been proven that different types of expenses and social benefits have distinguished effects on investment decisions." [7].

The green expenses reports should not be prepared that would represent the uncontrollable expenses of management in a way that might be considered as an evaluation of the managers. Because there is a contrast in environmental expenses, so that even if costs of these expenses are low, a perception might occur that the managers are ignorant to the preventable contaminants' expenses, at the same time the huge amount of the expenses of environmental parts might provoke the perception that the firms are increasing the pollutions carelessly. This might happen when it is possible that these expenses could be out of the organizations' managers.

The accounting and auditing standard making parties must have a particular attention to the environmental accounting and auditing standards so that the final product which is an indicator of the organizations' activities would show a pleasant illustration of the facts.

B. In minute level
Every organization should have a particular focus on its own environmental issues. If appropriate conditions are available to create a suitable background, in macro levels, the organizations will either willingly (because of ethical values) or unwillingly (because of legislation pressures and competing markets) be forced to use proper methods when they are dealing with the environment. As a result they will try to reduce pollution and destroying the natural resources that are caused by their manufacturing or services they present.
The environmental accounting not only has to provide a proper memento system for environmental events that might occur, but also have to enhance the ecological considerations [7].
Dr. Farzaneh Nasirzadeh 1388 [10] has named ten stages in using the environmental accounting that are summarized as follows:
1. To identify the organization's environmental activities.
2. The environmental expenses should be identified and the basic information about the varieties, dispersal, their development and reasons should be collected.
3. The nonfinancial data about material and energetic currents should be reported within the organization. Because most of the times the nonfinancial data are more relevant, accurate, and comprehensible.
4. The environmental expenses should be detected and reported. It means those expenses that have been identified in the second sage should be recorded and followed in formal accounting framework.
5. The decision making models that are used in the organization should be examined compared with their sensibility toward their effects and expenses.
6. The environmental goals and nonfinancial criterions of actions should be used in budgeting system and evaluation tests.
7. More efficient ways should be determined for giving the environmental expenses to the production field, and organizations' units. For example, using the expenses
recognition and management based on the activities, will improve the environmental operation.
8. The environmental accounting range should be expanded via analyzing the life cycle and chain of values. (The whole cycle of material and energy that are presented by the organizations and are taken by the buyer organizations until they go back to the nature should be regarded.)
9. The organizations' beliefs and duties should be revealed by publishing the environmental reports for those who are concerned.
10. The organizations' goal should be permanent development.
Therefore, performing the environmental accounting will lead to recognize the hidden expenses and a better understanding of environmental expenses. Thus the main goal of this type of accounting that is to gain certainty about identifying all of the relevant and important expenses in relation with the natural environment will come true.

VII. CONCLUSION:

The population overgrown, development of cities, invention of new technologies and changes in peoples’ habits and consuming patterns on the one hand, and limits of using the natural environments on the other hand, have created complex dilemmas in human beings' life qualities in addition to making various conflicts in the natural and social environment [11].

Tendencies toward environment protection as a philosophical idea have many supporters. Still there is an unfilled gap for the accounting to play its role in helping the environment protection plans through representing and revealing the information about the subject to inside and outside consumers.

To solve nowadays' environmental problems, the world wide accounting community can have a significant role in clarifying the subject by providing relevant and accurate information, representing them to managers, governments, organizations, and establishments on their guiding level. To maintain such an accomplishment, accounting needs to have enough facilities to perform the environmental accounting system; and this can be achieved through societies' cultural enhancement, green supporters' cooperation, governments and parties that are in charge of preparing quality standards and accounting standards. And when the different parts of the society assemble as one union, they can resist the growing problems of environment to give their future generations' happy life.

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Intellectual capital and the economic performance of the firms

Davood Hassanpour

Abstract—In the knowledge economy, knowledge is considered as the most important factor of production. Intellectual Capital is considered as the main source of value creation in the new economy. Thus, considering the role of intellectual capital in the creation of value, the research has tried to investigate the relationship between intellectual capital and firms' economic performance. Using Multiple Regression model, the research was performed on the firms accepted in the stock exchange of Iran during the years between 2005 and 2009. Using firms' data, it was specified that there is a significant and positive relationship between value added intellectual coefficient and firms' economic performance.

Keywords—Intellectual Capital, Value Added, firm value, economic performance.

I. INTRODUCTION

With the arrival of knowledge economy, knowledge is preferable in comparison with other factors of production such as land, capital and etc. Knowledge is intangible. And valuing and measuring it is very hard and difficult. In the past, most of the organizations assets have been tangible. But today much of the organization's assets are intangible [1].

Innovation and value creation is nowadays the object of particular attention by managers, investors, institutions and governments. Many companies invest in employee training, research development (R&D), customer relations, computer and administrative systems, etc. These investments often referred to as intellectual capital, are growing and they are competing physical and financial capital investments in some countries. This change in investment structure to the advent of a new knowledge-based economy is considered to be the main source of value creation in the new economy [2].

The traditional accounting models used to focus only on financial and physical assets but ignored those assets related to intellectual capital. Poverty to recognize intellectual capital accounting and the role of such accounting in the creation of

value has caused that the financial statements which are based on such models not to show many of the values for shareholders and other users of such information [3].

The aim of the research is to find a relationship between intellectual capital and firms' economic performance. Based on the research, such a relationship, if exists, can present a guideline necessary for the firms that are willing to be completely aware of their performance to use the knowledge economy and intellectual capital for the generation of value.

Accordingly, the question that can be put forward in this research is as follows: is there any relationship between intellectual capital and firm's economic performance?

Based on the value added intellectual coefficient, the concept of value added is used in this research as an indicator to measure intellectual capital and to investigate the relationship between intellectual capital and economic performance.

II. LITERATURE

A. Intellectual Capital

During the late 1990s researchers and experts in management tried to classify and define the components of intellectual capital. Edvinsson and Malone [4], in their studies, classified intellectual capital into two components including: 'human capital' and 'structural capital'. Human capital, according to them, is defined as the knowledge, expertise, and skill of the staff working in a specific firm. Structural capital also consists of production processes, information technology, customer relations, research and development, etc.

Based on resource based theory, intellectual capital is taken into account as a strategic source. In fact, the theory states that firms will manage to achieve high levels of competitive advantage and financial efficiency through effective achievement, maintenance, and use of strategic source. Thus, as a strategic source, intellectual capital allows firm to create value added [5].

B. Value Added Intellectual Coefficient

According to Pulic [6], intellectual capital cannot by itself
create value, and it is necessary that firm's physical capital be taken into account by its resources so that to examine the created value added. Thus, based on the role of intellectual capital in the creation of value, Pulic [7] has developed a new method, called value added intellectual coefficient, for the measurement of firms' intellectual capital. This method is very important since it allows us to measure the contribution of very resource (human, structural and physical) to create value added by the firm.

The calculation of the VAIC method follows a number of different steps. The first step is to calculate the company’s ability to create VA. In accordance with the stakeholder theory, the VA is calculated as follows:

$$VA = OUT - IN$$  \(1\)

Outputs (OUT) represent the revenue and comprise all products and services sold on the market; inputs (IN) include all expenses for operating a company, exclusive of employee costs which are not regarded as costs.

The second step is to assess the relation between VA and HC. The value added human capital coefficient (VAHU) indicates how much VA has been created by one financial unit invested in employees. For Pulic [6], employee costs are considered as an indicator of HC. These expenses are no longer part of the inputs. This means that expenses related to employees are not treated as a cost but as an investment. Thus, the relation between VA and HC indicates the ability of HC to create value in a company.

$$VAHU = \frac{VA}{HC}$$  \(2\)

The third step is to find the relation between VA and SC. The value added structural capital coefficient (STVA) shows the contribution of SC in value creation. According to Pulic (2004), SC is obtained when HC is deducted from VA. As this equation indicates, this form of capital is not an independent indicator. Indeed, it is dependent on the created VA and is in reverse proportion to HC. Thus, the relation between VA and SC is calculated as:

$$SC = VA - HC$$  \(3\)
$$STVA = \frac{SC}{VA}$$  \(4\)

The fourth step is to calculate the value added intellectual capital coefficient (VAIN), which shows the contribution of intellectual capital in value creation. Given that intellectual capital is composed of HC and SC, the VAIN is obtained by adding up VAHU and STVA:

$$VAIN = VAHU + STVA$$  \(5\)

Then, the fifth step is to assess the relation between VA and physical and financial capital employed (CA). For Pulic [6], intellectual capital cannot create value on its own. Therefore, it is necessary to take financial and physical capital into account in order to have a full insight into the totality of VA created by a company’s resources. The value added capital employed coefficient (VACA) reveals how much new value has been created by one monetary unit invested in capital employed. Thus, the relation between VA and CA(book value of the net assets) indicates the ability of capital employed to create value in a company:

$$VACA = \frac{VA}{CA}$$  \(6\)

Finally, the sixth step is to assess each resource that helps to create or produce VA. Therefore, VAIC measures how much new value has been created per invested monetary unit in each resource. A high coefficient indicates a higher value creation using a company’s resources, including its intellectual capital. Thus, VAIC is calculated as follows:

$$VAIC = VAIN - VACA$$  \(7\)

C. Prior research

Using the data from Austrian firms, Pulic [7] concluded that intellectual capital is positively related to value added. However, the correlation between the employed capital (i.e. financial and physical) and value added is low.

Riahi-Belkaoui [5] did some research on American multinational firms. The results are indicative of the existence of positive relationship between intellectual capital and future performance of firm. He stated that intellectual capital is a strategic source which is capable of creating value for firm.

Tan, Plowman and Hancock [8] in his research investigated the relationship between intellectual capital and financial returns of companies. The results indicated that in the first instance there is a significantly positive relationship between intellectual capital and the current and future financial returns of firms, and secondly the effect of intellectual capital on the financial returns of firms is different in various industries.

The results of the study done by Ze’ghal and Maaloul [2] are indicative of the existence a significant and positive relationship between the financial and economic performance
of firms and their intellectual capital.

Madhushi and Asghar nejad Amiri [9] in their study tried to investigate the relationship between the value of intellectual capital and the financial returns of active investing firms in the stock exchange of Tehran. The findings are suggestive of significant and positive relationships between intellectual capital and financial returns; intellectual capital and future financial returns; and the growth rate of intellectual capital and the growth rate of future financial returns of the firms that are actively investing in the stock exchange of Tehran.

III. METHODOLOGY

Using value added intellectual coefficient, the present study wants to assess the impact of intellectual capital under the economic performance of firms.

To do so a model was defined as follows:

\[ OI / S = \beta_0 + \beta_1 VAIN + \beta_2 VACA + \beta_3 Size + \beta_4 Lev + \mu \quad (8) \]

\( OI / S \) is the Ratio of the operating income divided by total sales, used as a proxy for economic performance. Two control variables were used in this study to control for their effect on company performance. Size of the company (Size) measured by the natural log of book value of total assets and Leverage (Lev) measured by the ratio of book value of total debt to book value of total assets [5].

Using Multiple Regression model, the research was performed on the firms accepted in the stock exchange of Iran during the years between 2005 and 2008. The techniques which were used in this research included multiple regression, significant difference regression test (F-ratio), distinct regression coefficient (t-test), and multiple determinative coefficient. The statistical population used for the research was the firms which were accepted in the stock exchange of Tehran. To select sample from this population some conditions were made (i.e. for firms to be accepted as the research sample, they should have some qualifications), including:

1. The firms should have been accepted in the stock exchange before 2005.
2. The firms should not be among investing firms or should not be the ones with some specific activity (such as finance firms).
3. The firms that have not changed their fiscal year during the research period.
4. The firms' data should be accessible.

As can be observed, the researcher has not done a true sampling in this study, but using elimination method, he has selected the samples from the research population. In other words, all the firms with the above qualifications were chosen to work as the sample and were analyzed. Eventually, 81 firms were chosen as the research sample.

A. Economic performance model

Economic performance is defined by the operating profitability which represents an economic surplus or an economic margin acquired by the difference between income and production costs. If companies invest in IC, the success of these investments should permit companies on average to reduce their production costs and/or increase any kind of operational margins [10].

In their model of intellectual capital valuation, Gu and Lev [11] propose a new methodology based on the economic notion of “production function”. This methodology considers that a company’s economic performance is generated by three kinds of resources: physical, financial and intellectual.

Using the VAIC method measures, we will test the following hypothesis:

\[ H1_a. \text{There is a positive association between “value added intellectual capital coefficient” and economic performance.} \]

\[ H1_b. \text{There is a positive association between “value added capital employed (physical and financial) coefficient” and economic performance.} \]

To test this hypothesis, model (8) was used:

\[ OI / S = \beta_0 + \beta_1 VAIN + \beta_2 VACA + \beta_3 Size + \beta_4 Lev + \mu \quad (8) \]

IV. RESULTS AND DISCUSSION

The correlation analysis results constitute a first approach to test our hypotheses. We now continue to test these hypotheses through our linear multiple regression models. Two control factors (Size and leverage) which can affect company performance are also included. To check for the absence of multicollinearity problems, the Pearson’s correlation coefficients between explanatory variables were analysed. The Pearson correlation matrix is shown on Table1.

<table>
<thead>
<tr>
<th>Table1: Pearson correlation coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>Size</td>
</tr>
<tr>
<td>VACA</td>
</tr>
<tr>
<td>VAIN</td>
</tr>
</tbody>
</table>

As can be seen from Table1, the correlation coefficients between explanatory variables are not high and we can presume the absence of any multicollinearity problems.

In this study, normality and linearity data models using the
Kolmogorov - Smirnov (KS) was evaluated and approved. By comparing the frequency distribution charts and graphs normally distributed errors, in order to assess the normality of errors, observed that the distribution of errors is almost normal.

Table 2: Descriptive statistics of the research variables

<table>
<thead>
<tr>
<th>Standard deviation</th>
<th>Mean</th>
<th>OI</th>
<th>VAIN</th>
<th>VACA</th>
<th>Size</th>
<th>Lev</th>
</tr>
</thead>
<tbody>
<tr>
<td>0/16</td>
<td>0/27</td>
<td>0/16</td>
<td>4/66</td>
<td>0/13</td>
<td>1/40</td>
<td>0/15</td>
</tr>
<tr>
<td>3/32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0/13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0/15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Also, due to significant regression test (Test F), model is significant at 0.01.

A. Analyzing the Economic Performance Model

Table 3 exhibits the results of the regression coefficients for all explanatory variables, using economic performance (OI/S) as the dependent variable.

Table 3: The results acquired from model

<table>
<thead>
<tr>
<th>R²</th>
<th>Lev</th>
<th>Size</th>
<th>VACA</th>
<th>VAIN</th>
<th>Fixed coefficient</th>
<th>explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0/24</td>
<td>-0/26</td>
<td>0/02</td>
<td>0/25</td>
<td>0/01</td>
<td>0/05</td>
<td>coefficient</td>
</tr>
<tr>
<td>0/00</td>
<td></td>
<td>0/00</td>
<td>0/00</td>
<td>0/00</td>
<td>0/67</td>
<td>p-value</td>
</tr>
</tbody>
</table>

Considering the table 3, the amount of p-value for the variable VAIN was smaller than 0.01. Thus, H1a is accepted. Therefore, it can be concluded that there is a significant and positive relationship between value added intellectual coefficient and firm's economic performance.

H1b is also accepted. In fact, considering the amount of p-value for the variable VACA which is smaller than 0.01, H1b is accepted. Therefore, it can be concluded that there is a significant and positive relationship between the value added capital employed coefficient and firm's economic performance.

The results of the statistical test showed that intellectual capital has a significant and positive relationship with economic performance. Based on this result, it can be concluded that intellectual capital has an important role in the reduction of production costs. This finding is consistent with that of Ze'g'hal and Maaloul [2] who maintained that intellectual capital has a positive effect on firm's economic performance.

The research findings also showed a significant and positive relationship between value added capital employed coefficient and firms' economic performance. This finding is indicative of the fact that employed capital (financial and physical) is so important for stockholders because of its significant role in the creation of value.

REFERENCES


