The ownership type effects on intellectual capital components in commercial companies

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Abstract

The purpose of this study is investigating the effects of privatization on components of under consideration intellectual capital. Intellectual capital components became operational through three subscales consist of human capital, structural capital, and relational capital as a dependent variable (comparand variable), and public ownership before the transfer and private property after transfer as an independent variable (distinguishing variable). Library data collection method and Empirical research method of pre-event-post event type were applied. The sources which were used to collect the required data, concluded the 46 company's audited financial publicments that have been granted through the Tehran Stock Exchange during the period 1383-1387 for three years before and three years after the transfer. Comparison of two means tests (parametric Student's T-test) was used in this study. Leven test was applied to comparing mean (intellectual capital components performance coefficient) and variances of two populations. Due to the fact that, T base hypotheses is smaller than the corresponding values in Table (it has been in the acceptable area), so we can say that privatization and ownership transforming from governmental to private had no effect on human, structural, relational, and consequently intellectual capital coefficient.

Key words: public and private ownership, intellectual capital, human capital, structural capital, relational capital

I. INTRODUCTION

Knowledge-based business environment requires an approach that concludes organizational new intangible assets such as human resources knowledge and competence, innovation, customer relations, organizational culture, systems, organizational structure, etc. Meanwhile, the intellectual capital theory has attracted academic researchers and organizational stakeholders increasing attention.

Under review variables in this study included: public ownership that under Article 4 of the Public Audit Act, if more than 50% stake is owned by the public sector, it is the public ownership, and if more than 50% stake is owned by the private sector, it is considered private ownership. Another this research variable is intellectual capital components; and intellectual capital is a kind of asset that measures the ability of enterprise to create wealth. This asset doesn’t have an objective or physical nature, and is an intangible asset that is obtained by applying finances associated with human resources of organizational performance and relations outside the enterprise (Ross and Baross, 2005).

Generally, researchers in intellectual capital field are reached a consensus about this matter that intellectual capital includes human capital, structural capital, and relational capital. Human capital includes skills, proficiency, problem solving ability, and leadership methods. Structural capital consists of databases, organizational charts, processes operating
procedures, strategies, and operating programs. And relational capital main subject is the extant knowledge in marketing channels and relationships with customers (Choo and Xie, 2004).

Sveiby (2001) expressed the current approaches to intellectual capital of organizations, as including the assets revenue method, direct intellectual capital, and Balanced Scorecard method. Bontis (2000) suggested some models by using Economic Value Added method, Balanced Scorecard, and human resources accounting. Other intellectual capital measurement models include the intangible balance sheet, that in this viewpoint, intellectual capital is divided into two categories: personal capital, and structural capital (Anell, 1989). Another method is non-tangible assets control which seeks for non-tangible measurement of company in a simple way (Sveiby, 1997). Another method is intellectual capital index that is trying to gather scattered indexes and provide them in a single collection, and make correlation between resultant changes in intellectual capital and changes in companies marketing value. Next card is rated balance method means the method of stabilizing strategies for the future development. The next method is the balanced scoring cards that are providing an instrument to make stability in the future strategies of company. In Scandia model, intellectual capital was classified in both areas of human capital and structural capital (Edvinson and Malone, 1997).

The resource-based view which is raised by Barney claims that the specific resources collection of company determines which company competes better and has a higher performance.

This approach emphasizes on strategic resources of company. Strategic resources of company (including physical resources, human resources, and organizational resources such as capabilities, organizational processes, informational knowledge, reputation of organization, etc.) which are valuable and rare, and their mimic and replacement is costly, are source of competitive advantage. Due to the importance of human resource and affecting factors on it, doing a research on the ownership type effects on human resource can make clear the privatization importance on promoting the intellectual capital level. In accordance with the fact that the intellectual capital has an effective role on an organization success, and on the other hand the organizations management policy are also different based on ownership type, that it means management in private ownerships is more efficient than that in public ownership, so in this study it is attempted to review and analyze the ownership type effects on the intellectual capital components. The results indicate that:

How much the changing in ownership style which in fact is changing in management policy, can improve one of the most important capitals that are owned by corporations. On the other hand the existing research gaps about effective factors on intellectual capital in organizations (most of researchers such as Riahi Balkuee, Chen et al., Liker, namazi and ebrahimi and etc. have proceeded to effect of intellectual capital components on companies performance) and the importance of privatization in Iran and its effect on performance improvement and increasing the efficiency and productivity in organization, it seems essential to do a research about privatization effects on intellectual capital components.

II. RESEARCH BACKGROUND

William and Firer (2003), in a research on 75 southern African companies that had been done by using economical value added coefficient efficiency method of intellectual capital, found that: 1. there is a significant positive correlation between efficiency of applied capital value added coefficient and companies market value. 2. There is no significant correlation between coefficient of human capital value added efficiency and companies market value and assets return, furthermore, it has been proved that there is no significant correlation between coefficient of structural capital value added efficiency, market value, and assets return.

Bontis et al (2004) have examined the relationship between intellectual capital and Jordanian pharmaceutical industry companies’ performance in a research. Statistical analysis shows that there is some kind of relationship between intellectual capital and Jordanian pharmaceutical industry companies’ performance.

Anvari, Rostami, and seraji (1384), have made a research on assessment of the intellectual capital and examination of relationship between intellectual capital and Tehran Stock Exchange market value of equity. The overall results of this research revealed the importance of intellectual capital and understanding its value importance from investors and its high correlation with the stock market value of the Tehran Stock Exchange corporations.

Ghelfich Lee and moshabaki (1385), studied the role of social capital in creation of organization intellectual capital in two Iranian automotive companies. The results of this study have shown that
there is a significant positive relation between these companies social capital and their intellectual capital; in clearer publicment, if their social capital increases, then their intellectual capital will increase in relational, structural, and human dimensions.

Ovameleh (2002), reviewed the quality of public services under privatization effects in Bahrain. 24 public services institutions which were included in privatization were examined in this research. The results showed that the privatization consequences haven’t met the expectations and privatization purposes haven’t obtained and no considerable effect of privatization is observed in these institutions. Koper and Kona (2002), examined the effect of privatization on organizational culture and employed work force efficiency in privatized organizations in their study. The results of this study that has performed in three companies showed that the privatization considerably affects on prevalent organizational culture, and causes increase in employees’ efficiency through changing the attitude in organization. This increasing is provided by enhancing satisfaction and making appropriate working environment for staff.

Rafiee (1374) did a comparative examination on Performance of privatized companies before and after the privatization in privatization trend in Iran. this study revealed that the performance of privatized companies were more pleasing after transferring, and it wasn’t true in the case of control group companies, so the privatization didn’t confirmed as a policy which caused performance of privatized companies. Akbarpoor (1387) examined the effect of privatization on customers’ satisfaction. After reviewing obtained data, he concluded that customer orientation and customer satisfaction mean in governmental companies are more than that in privatized companies. Therefore customer orientation and consequently customer satisfaction not only didn’t increase by privatization, but also it decreased as well. Furthermore the research results showed that there is a significant relationship between privatization through customer orientation, and customer satisfaction.

Gasemlu (1387), has investigated the privatization behavioral effects in the field of human resources (in particular, Tehran electricity DPI). The main hypothesis result also shows that privatization has negative effects on human resources behavior of public companies (commitment, morale, motivation).

III. THEORITICAL FRAMEWORK

A) In this study, public accounting law is used to define ownership.

Under Article 4 of the Public Audit Act, if more than 50% stake is owned by the public sector, it is the public ownership, and if more than 50% stake is owned by the private sector, it is considered private ownership. B) And to define the intellectual capital and its components, the perspective of some scientists such as Bunis and other scientists is used, who generally have a consensus in favor of the issue that intellectual capital consists of human capital, structural capital and relational capital. The value added intellectual capital coefficient model (VAIC) which is considered as pulic (1998), is employed in this study, that the added value based on this model is the difference between costs and revenues: \( VA = OUT - IN \)

The VA is the company value added; OUT represents the total revenue and IN is cost of materials, services and other items. In this study staff costs are not among total cost and it is assumed as a kind of investment. Hence the efficiency of human capital is computed as follows:

\[
HCE = \frac{VA}{HC}
\]

HCE is the efficiency coefficient of human capital, VA is value added and HC is salary costs. Structural capital is calculated as: \( SC = VA - HC \)

SC is Structural capital, VA is value added and HC is salary costs. Based on the above calculations, structural capital efficiency is calculated as follows:

\[
SCE = \frac{SC}{VA}
\]

Efficiency of relational capital can be obtained from this formula:

\[
CEE = \frac{VA}{CE}
\]

CEE represents efficiency coefficient of relational capital, and CE is the net book value of company assets.

IV. RESEARCH HYPOTHESIS

First hypothesis: ownership changing from public to private in privatized companies in Tehran Stock Exchange is effective on the human capital.
Second hypothesis: ownership changing from public to private in privatized companies in Tehran Stock Exchange is effective on the structural capital.

Third hypothesis: ownership changing from public to private in privatized companies in Tehran Stock Exchange is effective on the relational capital.

V. RESEARCH METHOD

The research method is empirical and in type of pre-event–post event. A part of research that has been for collection of theoretical foundations is collected through library method and from references such as books and papers, and another part of research that is related to variables, is derived through field work by using available CDs and software.

1. Statistical Population, sample and sampling method

46 companies which have been transferred through the Tehran Stock Exchange during the period 1383-1387, form the Statistical Population of this research. The sources which were used to collect the required data concluded the 46 company's audited financial publicments for three years before and three years after the transfer. Variables included Public ownership, private ownership and the components of intellectual capital (human capital, relational capital, structural capital).

2. Research Tools

Primary data to test hypotheses such as salary costs, operating profit, employee costs, depreciation of tangible fixed assets, amortization of intangible assets, the net book value of the assets in the Company's financial publicments, including balance sheets, profit and loss publicment and along explanatory notes from 1383 to 1387 were collected and categorized in Excel software by using the Exchange information software includes Rahavard Novin and Tadbipardaz. And analysis software SPSS was used for analyze and inference.

VI. FINDING ANALYSIS

The first hypothesis deals with the issue that the change of ownership (privatization) has an effect on human capital. To investigate this hypothesis, first the efficiency coefficients of human capital in different years of transfer were calculated. It is observed that the efficiency coefficient mean ratio of human capital in the years leading up to the transfer year and the year after transfer are higher than other years, but it has had a decreasing trend in years far from transfer. So it can be claimed that efficiency coefficients of human capital in stock companies has had an increasing trend before transfer, and it increases exactly after transfer and privatization, but this coefficient is decreasing a bit later after transfer.

In order to statistical evaluate of the above mentioned hypothesis, the following hypothesis is formulated:

Efficiency coefficient mean ratio of human capital in the years prior to the transfer is equal to or greater than the value

\[ H_0 : \mu_0 \geq \mu_1 \]

In the years after transfer.

Efficiency coefficients for human capital in the years before the transfer is less than the value

\[ H_1 : \mu_0 < \mu_1 \]

In years after transfer.

These results are summarized in Table 1:

<table>
<thead>
<tr>
<th>The variable under examination</th>
<th>Before privatization mean</th>
<th>After privatization mean</th>
<th>Before privatization standard deviation</th>
<th>After privatization standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of test</td>
<td>Test statistic</td>
<td>p-value</td>
<td>Test result</td>
<td></td>
</tr>
<tr>
<td>Leven</td>
<td>0.668</td>
<td>0.414</td>
<td>Equality of two population variances</td>
<td></td>
</tr>
<tr>
<td>T student</td>
<td>-</td>
<td>0.532</td>
<td>0.595</td>
<td>Privatization Ineffectively</td>
</tr>
</tbody>
</table>

According to the above table after transfer efficiency coefficients of human capital is increased in comparison with before privatization. So inferential statistics are applied in order to more investigation about this subject. Since the sample size is more than 30, then the t student parametric statistical tests can be used to examine this hypothesis. Given that the values of t-statistics is smaller than their corresponding values in the table with 95% alpha and 274 degrees of freedom, which is approximately 1.96 and also P-values are more than 5%, therefore it can be claimed that changes in companies ownership has no effect on the coefficient of human capital.
The second hypothesis turns to this issue that the change of ownership (privatization) affects on structural capital.

In order to examine these hypothesis first the efficiency coefficient of structural capital was calculated, and it was specified that efficiency coefficient mean ratio of structural capital in the years leading up to the transfer year and the year after transfer are higher than other years, but it has had a decreasing trend in years far from transfer. So it can be claimed that efficiency coefficients of structural capital in stock companies has had an increasing trend before transfer, and it increases exactly after transfer and privatization, but this coefficient is decreasing a bit later after transfer.

In order to statistical evaluate of the above mentioned hypothesis, the following hypothesis is formulated:

Efficiency coefficient mean of structural capital in years before transfer is equal to or greater than the value

\[ H_0 : \mu_0 \geq \mu_1 \]

In the years after transfer.

Efficiency coefficients mean for structural capital in the years before the transfer is less than the value

\[ H_1 : \mu_0 < \mu_1 \]

In years after transfer.

The results of above test are summarized in Table 2:

<table>
<thead>
<tr>
<th>The variable under examination</th>
<th>Before privatization mean</th>
<th>After privatization mean</th>
<th>Before privatization Standard deviation</th>
<th>After privatization Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency coefficients for human capital</td>
<td>0.572</td>
<td>0.586</td>
<td>0.375</td>
<td>0.346</td>
</tr>
</tbody>
</table>

According to the above table after transfer efficiency coefficients of structural capital is increased in comparison with before privatization. So inferential statistics are applied in order to more investigation about this subject. Since the sample size is more than 30, then the t student parametric statistical tests can be used to examine this hypothesis. Given that the values of t-statistics is smaller than their corresponding values in the table with 95% alpha and 274 degrees of freedom, which is approximately 1.96 and also P-values are more than 5%, therefore it can be claimed that changes in companies ownership has no effect on the coefficient of structural capital.

The first hypothesis deals with the issue that the change of ownership (privatization) affects on relational capital. To investigate this hypothesis, first the efficiency coefficients of relational capital in different years of transfer were calculated. And it is cleared that the efficiency coefficient mean ratio of relational capital in the years leading up to the transfer year and the year after transfer are higher than other years, but it has had a decreasing trend in years far from transfer. So it can be claimed that efficiency coefficients of relational capital in stock companies has had an increasing trend before transfer, and it increases exactly after transfer and privatization, but this coefficient is decreasing a bit later after transfer.

In order to statistical evaluate of the above mentioned hypothesis, the following hypothesis is formulated:

Efficiency coefficient mean of relational capital in the years prior to the transfer is equal to or greater than the value

\[ H_0 : \mu_0 \geq \mu_1 \]

In the years after transfer.

Efficiency coefficients of relational capital in the years before the transfer are less than the value

\[ H_1 : \mu_0 < \mu_1 \]

In years after transfer.

The results of this test are summarized in Table 3:

<table>
<thead>
<tr>
<th>The variable under examination</th>
<th>Before privatization mean</th>
<th>After privatization mean</th>
<th>Before privatization Standard deviation</th>
<th>After privatization Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency coefficients for human capital</td>
<td>0.3687</td>
<td>0.3686</td>
<td>0.310</td>
<td>0.346</td>
</tr>
</tbody>
</table>

According to the above table after transfer efficiency coefficients of structural capital is increased in comparison with before privatization. So inferential
According to the above table, the efficiency coefficients of relational capital are increased after transfer in comparison with before privatization. So inferential statistics are applied in order to more investigation about this subject. Since the sample size is more than 30, then the t student parametric statistical tests can be used to examine this hypothesis. Given that the values of t-statistics is smaller than their corresponding values in the table with 95% alpha and 274 degrees of freedom, which is approximately 1.96 and also P-values are more than 5%, so null hypothesis was accepted and it can be claimed that changes in companies ownership has no effect on the coefficient of relational capital.

VII. CONCLUSION & DISCUSSION

A. Conclusion

Analyzing data related to intellectual capital quantitative data reveals that the privatization haven’t had any effect on intellectual capital components, and these intellectual capital components including human capital, structural capital, and relational capital didn’t increase during years of companies transferring. Generally, the root of the above ineffectiveness can be attributed to two factors. First, these companies complete transferring doesn’t take place yet. Second, most of transferred companies ownership and management either directly or indirectly are yet in government hands, and the privatization process is not happened in these companies.

B. Comparing the results of research with the results of previous studies

GasemLu (1387) has been investigated the behavioral effects of privatization in the field of human resources (in particular, Tehran electricity DPI). Research results show that the privatization has negative effects on human resources behavior of public companies (commitment, morale, motivation). The results of present study are agreed with what has obtained by researcher.

Akbarpour (1387) investigated the effects of privatization on customer’s satisfaction, the results showed that with privatization, customer orientation and thus customer satisfaction not only haven’t been increased but also have been decreased. The obtained results by the researcher are agreed with these study consequences.

The results of Rafiee (1374) study on privatization and its relationship with iranian companies operation suggested that privatization as a policy that will improve the performance of privatized companies, was not confirmed, and The obtained results by the researcher are agreed with these study consequences.

Talebnia & Mohamadzade. (1384) conducted a research in the effects of public companies privatization listed in Tehran Stock Exchange, upon their return. The results show that the stock return has been significantly changed after privatization, but these changes haven’t been fully positive in general. Also in a three-year period, there is no significant difference between the stock returns of companies whether remains public or private. In general, according to test results, there are evidences that the main hypothesis of this study that is effectiveness of return from privatization will not confirmed. Thus, implementations of article 44 of the constitution and privatization policies haven’t been able to achieve its goals of improving return of companies stocks.

Ovameleh (2002) conducted another study on the effects of privatization on the quality of public services in Bahrain. The results showed that privatization has no significant effect on the organizations listed above. The obtained results by the researcher are agreed with these study consequences. Kotovsk and Zaguzdezynska (2010) examined the effect of privatization on resources productivity of transferred companies in Poland. These two researchers examined the efficiency of existing privatization plans and their effect on companies’ productivity after a period of transferring by reviewing these plans in Poland. These two researchers’ studies show that productivity of companies which are assigned directly is higher and faster than productivity in other companies. It should be noted that human resource productivity have had a considerable growth rate in this group of transferred companies, and the increase of human resource productivity causes the considerable increase in these companies income.

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