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## THE EFFECT OF PRIVATIZATION ON EVA AND ROA IN IRAN

\*MAHMOUD MOUSAVI SHIRI, \*\*MAHDI SALEHI

### ABSTRACT

*The objective of the present study is to present and discuss the pros and cons of privatization in with regard to accounting profit in Iran. As privatization has taken more quickly in recent years, this research seeks to measure and compare function of the governmental and private companies listed in the Tehran Stock Exchange by applying Economical Value Added (EVA) and Return on Assets (ROA) during 2007-2011. The sample size includes 160 observations for 4 years which 40 companies have been sampled by relative random selection among companies possessing the condition. The result suggests that the connection between the share percent in the acceptable personal companies toward ROA and EVA is obvious and direct; and nearly 0.14 of value added variations and nearly 0.07 of ROA are determinable by using the private sharing percent. Moreover, the connection between ROA and EVA is meaningful obvious and direct.*

*Keywords: privatization, Accounting profit, Return on assets, Economical value added, Iran JEL: M21, M41, M4.*

### 1. INTRODUCTION

The developing countries that used as success cases underwent substantial macroeconomic changes and this changed macroeconomic framework was conducive to microeconomic efficiency gains. Similarly, capital market development has resulted largely from financial liberalization and broader economic deregulation. More generally, the fact that many countries were undergoing structural adjustment programmes meant that the broader economic framework in which privatization took place was changing and this was an important contributing factor to successful privatization.

In recent years, the Iranian government is tended to privatization and handing over governmental companies shares to private sector. The idea that private ownership has advantages over public ownership in terms of being inherently more efficient, as well as that it induces a better public sector financial health, is not new. The privatization in Iran has been firstly argued in The First Economical, Social, and Cultural Development Plan (1989-1994) in order to improve efficiency and eliminate management volume of government in economical activities and use optimally national facilities; and according to the Act No. 44 of the national constitution, this issue has a more pace. By using the information of governmental and private companies and comparison between them, we try to determine the performance variations of companies that how much the government has managed to reach to the targets of privatization policies. The EVA and ROA measures are applied for evaluation of performance and the effect of sharing percent of private sector on EVA and ROA have been measured.

### 2. Privatization

Privatization or so called divestiture of public sector economic activities to the private sector in a way that set of actions is called that in its format in Levels and various fields, ownership control or Management of public sector entrusted to the private sector.

The two most important sets of conditions for the success of privatization are country conditions and market conditions (Kikeri, 1999). Country conditions that help successful privatization include an open trade regime, a stable and predictable environment for investment and a well developed institutional and regulatory capacity. Market conditions are also an important determinant of successful privatization. Privatizing enterprises that produce tradable or operate in competitive or potentially competitive markets should lead to improved efficiency, if divestiture can be conducted transparently.

According to general policies of economic, the role of government should be changed from ownership and direct management of firm's to policy maker, guidance and supervision. Privatization is executive, financial and legal process that governments in many countries performed.

It for reforms in the country's economic and administrative system and In its broad concept, it is Much broader than divestiture of assets and public companies and general to the private sector and imply to transfer of activities and policies that previously was exclusively available to government and public sector. The most important positive effects of optimizing of government size and trend to privatization are increase

\*Department of Management, Economics and Accounting, Payame Noor University, I.R. of Iran

\*\*Assistant Professor of Accounting, Ferdowsi University of Mashhad, Mashhad, Iran,

of economic growth. Another benefit of privatization can be noted to removing of state monopolies, Increased competition, and thus improve the quality of goods and services, reducing of government budget deficit and increasing cash income through sale of Governmental companies, creating new tax revenues for government. As a result, economic efficiency, absorbing new technology and foreign capital, minimization of government bureaucracy, reduction of external debt and improved balance of payments, Increasing of government power and strength to perform Their real duties.

### 2.1. Iran's Experience in Privatization

Like many other countries of the Third World, the Islamic Republic of Iran began its extensive economic development in the 1960's and 1970's. The large oil income that was not based on a self-reliant production process caused heavy demand and threatened domestic products and services. At the same time, assembly factories were established and imports vastly increased.

After the Islamic Revolution was won, the problems caused by the imposed war, together with the international pressure on Iran, hindered development. In the early stage of the Revolution, the new government had no choice but to nationalize certain industrial centers and found an almost centralized economy. At this stage the price of oil in the international market decreased and inflation grew while the size and number of government agencies continued to go up. Now it was felt that new strategies had to be formulated. Through the law of 1991 and the measures translated in the Second Economic, Social and Cultural Development Plan, privatization of state industries and services was introduced (Saebi, 1999). The Second Development Plan (1995-1999) contains the details of the objectives and rules of privatization, of which the more strategic ones are:

#### Enhancement of people's participation;

Transferring part of state economic development and administrative activities;

- Expanding and strengthening the stock market;
- Creating a secure environment for private investment;
- Attracting foreign investment into the private sector and the cooperatives;
- Reducing the size of government; and;
- Privatizing state enterprises (Saebi, 1999).

Along with this, the High Council of Administration made regulations regarding the privatization of service activities of state agencies. However, privatization has been practiced mostly in the case of government corporations.

### 3. Weak points of accounting profit

The first defect in the income statement is that consider first Interest cost of Lenders, and Then the share of state pays through taxes but Are not considered expected return to shareholders that Major role in financing companies are responsible. The second defect in the accounting profit is that Accountants can easily manipulate it that it can be pointed to the following methods:

- Rating methods of inventory: such as LIFO or FIFO.
- Fixed assets depreciation methods: such as Downward or straight line.
- Ways of dealing with capital costs: As the cost of research and development costs, which account for the same period or under the long-term assets will depreciate.
- Methods of calculating reserve: Limit and amount of these costs Is determined directly with the professional judgment of managers and look to the past process and profits are affected.
- Methods of combination goodwill amortization: Companies can combine by using one of two methods of interests' unity or shopping. In the interests' unity there is not something called combination goodwill while method of combination Goodwill purchase causes the annual depreciation expense and can lead to reduced profit.

#### 3.1. The concept of economic value added

Equity is an economic resource and has opportunity cost. This opportunity cost is out of the cost of other production factors, financial statements do not consider equity of opportunity cost. EVA is calculated with subtract opportunity cost of equity from net profit, so it is a criterion that will consider Opportunity cost of all resources used in the company.

If a company's net profit is equal to opportunity cost of capital employed, the company has not created any value even if the net amount is too large because shareholders by investing in other projects with similar risk will obtain yield Equivalent of opportunity cost. Moreover, if the opportunity cost of capital used by is less than company's net profit, Firm value will decrease and shareholders will be proper, because if shareholders invest in other projects with similar risk in capital markets, would get more yield. Only when the company's net profit was more than opportunity cost of capital is used in company, corporate value Increased and consequently shareholder wealth has increased.

Economic value is a criteria of Performance measurement that Ways to increase or loss of company value are calculated correctly, this criteria shows the profit remaining after deduction of capital cost (Stewart,

1997). According to research done closest concept to the economic value added, is remaining profit. Mathematically, the result of economic value added is exactly equal to the amount of discounted cash flows (DCF) or net present value.

Positive economic value added indicates the optimal allocation of resources to create value in the company and increase shareholder wealth on the other hand a negative value added represents a waste of resources and non-optimal and inefficient allocation of resources and consequently will reduce shareholder wealth.

### 3.2. Applications of Economic Value Added

Economic value-added applications can be summarized as follows:

A) Internal applications: Performance measurement management tools, comprehensive productivity measure, tool for explaining the relationship between ownership and management, tool for matching costs with income.

B) external applications: Instrument for investment, criteria for stock price prediction, Measurement tool for creating value, a framework for financial management, rating technique and firm valuation, criteria for capital budgeting.

### 3.3. Rate of return on assets (ROA)

One of the criteria of efficiency measurement is calculation of return on assets, return on assets measure ability to generate profits in the company in relation to the total amount invested in the company. The simplest form of profitability analysis is to communicate the reported net profit and total assets reflected in the balance sheet that is calculated as following:

Return on assets=Net profit / Total assets

If a company adds to its investment but rate of return is reduced if it cannot proportionally increase the amount of benefit Thus, increasing the volume of investment shareholders of the company will not by itself improve the shareholders situation.

in calculating rate of return on assets there are different opinions about the figure mentioned in the numerator that some researchers have been imposed net profit after tax in the numerator and adding Interest costs and believe that the theoretical because the total assets Financed by shareholders and lenders so should be indicated the efficiency of asset returns for both groups. Some analysts also plus only net profit before tax with the cost of obtaining loans and put in the numerator and

their justification is so that because the result of loans are ordered in the sum of assets, its cost which is in a way the result of loan usage, should be accounted in determination of output because of congruence. This ratio is used to measure management operations and show management efficiency in the use of company assets in order to create a special benefit.

## 4. LITERATURE REVIEW

Bashar (2001) studies the effects on success of stock companies that compared the success indexes of governmental and private companies listed in the Tehran Stock Exchange (TSE) and she considered the companies possessing 20% and more of governmental share as governmental ownership and companies possessing less than 20% of governmental share as private ownership. The results showed that about interest rate, selling rate, stock price rate, specific interest output, investment output, and ratio of price on income; there is no relationship between governmental ownership structure and private ownership.

Smith et al., (1996) show evidence for Slovenia. They use a countrywide database with privatized firms from 1989 to1992. The objective of the paper is to analyze the effect of different types of ownership on performance. The exercise is different to the one discussed above because the authors do not have data for the pre-privatization stage. The results, however, show a clearly positive effect of private ownership on performance. When distinguishing the effects of different types of ownership, foreign ownership has a significant positive effect on performance. Employee owned firms perform well when they are small, but the effect of this type of ownership diminishes with size. Employee owned firms do better when foreign ownership is also present in the same firm.

A research in Poland by Grosfeld and Nivet (1997) showed that privatized firms invested more and had greater capacity to ensure higher output growth. Frydman, et al, (1997, 1998) found that private ownership dramatically improved corporate revenue performance in the Czech Republic, Hungary and Poland, but there is no comparable effect of ownership change on cost reduction. A comprehensive analysis by Anderson, Djankov, Pohl, and Claessens (1997) of more than 6,000 industrial firms privatization in Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovak Republic, and Slovenia showed that privatized firms achieved more labour productivity growth and growth in total factor productivity than state-owned firms. At the same time, Konings (1997) claims that there is little or no difference in performance for the privatized and state owned enterprises in Slovenia, Hungary and Romania. Earle and Estrin (1996) present empirical evidence that privatization in Russia had an impact on enterprise

efficiency, but domestic market structure and hardening of the budget constraints mostly had little effect. Later they found systematic effects of private ownership on several types of restructuring behaviour and on labour productivity (Earle and Estrin, 1997).

Meggison et al. (1994) analyze data for 61 companies from 18 countries and 32 industries that were privatized between 1961 and 1990 – privatized through public offerings. D'Souza and Meggison (1998) compare pre and post privatization performance of 78 companies from 25 countries – including 10 LDCs – that faced privatization between 1990 and 1994 through public offering. Their sample included 14 firms from the banking industry, 21 utilities and 10 from telecommunications. Boubakri and Cosset (1998) use data of 79 companies from 21 developing countries. These firms were privatized between 1980 and 1992 through public offerings. The largest data set is that used in Claessens and Djankov (1998) which consists of 6,300 manufacturing firms in seven Central and Eastern European countries (Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovak Republic, and Slovenia).

Larran and Lopez-Calva (2001) review evidence from four privatized companies in Costa Rica and compares their performance before and after privatization. The first benefit reported is the elimination of the cost that these money-losing companies had for the economy. An estimate of the net present value (1998 prices) of the accumulated losses of the four companies – the “cost for the country of the CODESA experience,” reaches an amount of USD 971.1 million, about 9 percent of Costa Rica's GDP in 1998.

Galal et al., (1994) shows comprehensive evidence. The authors show results for twelve privatized firms in four different countries. The methodology is counterfactual and makes projections of the performance of the firms under the privatized scenario and a hypothetical “public ownership scenario”. The results showed that privatized firms enjoy many benefits.

Rafi'ei (1995) has performed a study -namely comparative survey of operation of transferred companies to private sector before and after transferring and used the financial and economical value added ratios. The results indicate that the operation of companies, which transferred to private sector, after the transferring, is more desirable than before the transferring.

## 5. RESEARCH METHODOLOGY

The current research is descriptive and correlation, caring practical target and according to implementation method. In this research the connection between independent and dependant variables are

surveyed, using Pearson correlation coefficient and regression tests; and the connection between variables of research with each other and the effect of independent and dependant variables analyzed by using before information. In other word, the inputs of the research are post-event. The data are gathered from different sources, especially fiscal list sheets of companies, software including “Rah Avar-d-e Novin” and “Tadbir Pardaz”, and websites related to the stock; and then the calculation of variables of the research (dependant variables) have been performed by Excel software. Descriptive and inferential methods are used for analyze of research inputs.

### 5.1. Research's Hypotheses

According to the main objective of the study, the following hypotheses are postulated in the study:

- H1: The private ownership percent has a direct effect on EVA of stock companies.
- H2: Private ownership percent has an effect on ROA of stock companies.
- H3: There is a positive relation between ROA and EVA in stock companies.

### 5.2. The Method of Sampling and Statistical Society

The duration scope of the research is a 4 years period –from 2007-2011 and statistical society includes listed companies in TSE that possess the following conditions:

1. The companies that listed in TSE before 2007.
2. Their shares have been deal at least once in duration scope of the research, because of calculation of the Beta variable.
3. They have not changed their fiscal year during the 4 years, because of ability to compare their fiscal year ending in late March.
4. Some listed companies in the stock like banks and financial institutions (investment companies, financial mediator companies, holding companies, banks, and leasing companies) have been dropped from statistical society because of the nature of their activities.

Regarding to the numbers of active companies of under the study duration scope, which are according to the presented conditions of statistical society, are 181 companies. About 724 observations have been counted by result of statistical society (number of observations). Therefore, the observing of about 40 companies per year and 160 companies in totally for 4 years have made the statistical society that this number of companies are chosen by simple random method and a ratio of industries.

$$n \geq \frac{\frac{Z_{\alpha}^2 \times pq}{e^2}}{1 + \frac{1}{N} \left( \frac{Z_{\alpha}^2 \times pq}{e^2} \right)} \geq \frac{\frac{1.96^2 \times 0.25}{0.07^2}}{1 + \frac{1}{724} \left( \frac{1.96^2 \times 0.25}{0.07^2} \right)} \geq 154$$

Table 1. Kinds of the sample society

Industry	Statistical society in each year	Number of sample in each year	Number of sample in the 4 years
Extraction of metal ore and non-metal and other mines	21	5	20
Manufacturing vehicle	24	5	20
Medicinal products and medical supplies	22	5	20
Food and candy products	15	3	12
Machinery, electronic and copier and computer devices	20	4	16
Cement, lime, plaster, and tile	23	5	20
Chemical and oil products	21	5	20
Manufacturing metal products and basic metals	19	4	16
Rubber and plastics and other cloths	16	4	16
sum	181	40	160

**5.3. VARIABLES OF THE STUDY**

**5.3.1. Independent variable of the research:**

In this research, the private ownership percent of companies is independent variable. This variable is determined on percent ownership belonged to private sector wrote in the notes of fiscal list sheets.

**5.3.2. Dependant Variable of the Research:**

EVA and ROA are dependant variables. The following methods are applied to measure values of these variables:

Method of ROA calculating:

$$ROA = (\text{profit before tax} + \text{profit cost}) / \text{sum of all assets}$$

Method of EVA calculating:

$$EVA = (r - c) * CAPITAL$$

$$\text{Calculating profit rate of capital (r): } r = \frac{NOPAT}{CAPITAL}$$

NOPAT= Adjustments in Equivalents of Capital + Tax Saving of Profit Cost - Profit Cost + Net Profit of Accountancy after Tax

(Adjustments in equivalents of capital is obtained from the

balance variation of end of year reserves, including reserve of decrease in supply cost, reserve of decrease in investments cost, reserve of suspicious-receiving demands, reserve of discharge, reserve of postponed costs, and reserve of tax).

CAPITAL= Balance of end of year capital + sum of salaries of shares' owners + debits of exploiter

(Capital equivalents include balance of reserve of decrease in supply cost, balance of reserve of decrease in investments cost, balance of reserve of suspicious-receiving demands, balance of reserve of discharge, balance of reserve of postponed costs, and balance of reserve of tax)

**Method of Calculating capital cost rate (c):**

$$WACC = (W_d * K_d) + (W_j * K_j)$$

$$C = WACC = \left( \frac{D}{V} * K_d \right) + \left( \frac{E}{V} * K_j \right)$$

Financing via loan and debit = exploiter debits + payable participation bonds

Daily value of company shares = daily cost of shares \* total shares number of company (adjusted according to issue date of capital increasing)

(V) Total cost of company = financing via loan and debit (D) + daily value of company shares (E)

$$K_j = R_f + (K_m - R_f) * \beta$$

$\beta$  = portfolio covariance of market and output of each share / output variance of portfolio of market

$$\beta = \frac{Cov(K_i, K_m)}{S_m^2}$$

“ $K_m$ ” is annual output rate of market that is obtained through calculating the percent of index variance of cost and cash output (TEPIX) in ratio to last year.

TEPIX = current value of stock companies shares / base value of stock companies shares \* 100

$$TEPIX = \frac{\sum_{i=1}^n P_{it} * Q_{it}}{\sum_{i=1}^n P_{io} * Q_{io}} * BASEVALUE$$

“ $R_f$ ” is the rate of interest without risk that goes equal to the interest rate of governmental debit bonds without risk; then this is 17% in 2007 and 15.5% in 2008 to 2007. For calculating  $K_d$  –the rate of debit cost- The rate of bank interest is drawn out from the circulars of The Central Bank about granted facilities to the productive or industrial units which is 15% in 2007, 16% in 2008, 14% in 2009, and 12% in 2010.

$K_d$  –rate of bank interest (1-t)

The tax effective rate is also 22.5%, according to the act of direct tax and considering 10% tax off for the stock companies.

## 6. THE RESULTS OF THE STUDY

The result of Table 2 shows that the variable of percent of private ownership has a positive skew and negative curve. The skew and curve coefficient is between 1.96 absolute value; that means the distribution bears a symmetry and proportion. The variable of asset output has positive skew and curve. The skew coefficient of the variable indicates the symmetry of distribution and curve

coefficient indicates abnormal length of distribution. The EVA variable has positive skew and curve. The skew and curve coefficient have placed at larger than 1.96 absolute value. That means the distribution has no necessary symmetry and proportion.

### 6.1. Testing of the first hypothesis

H1: The private ownership percent has a direct effect on EVA of stock companies.

$$\begin{cases} H0: \beta_{XY} \leq 0 \\ H1: \beta_{XY} > 0 \end{cases}$$

$$Y - \alpha + \beta X + E \mapsto Y - 65708.6 + (345937.4 * X)$$

$$\Rightarrow \beta - 0.373 - r \quad P - 0.000 \quad P < 0.05$$

$$\rightarrow r_s \ 0.344 \quad p \ 0.000 \quad p < 0.05$$

Pearson correlation coefficient is 0.373 between two variables, percent of private sector ownership and EVA, of listed companies in TSE; and its Spearman correlation coefficient is 0.344, then these are meaningful in both tests with a confidence of 99%. Regression analyze test is applied to consider the effect of private sector percent on EVA. The total coefficient of the test is meaningful with the statistic,  $f=25.497$ , base on level of 99% of confidence; showing linear connection between two variables. The slop coefficient of private ownership percent on EVA is positively meaningful with the statistic,  $t=5.049$ , base on level of 99% confidence. Therefore, the zero hypothesis is rejected, evidencing of lake in effect of independent variable on dependant one, base on 99% confidence; then opposite hypothesis is accepted. The coefficient of determination, with amount of 0.139, shows that as one percent the ownership of private sector is increased, 0.14 of incensement takes place in EVA. Table 3 shows the results of the first hypothesis.

Table 2. Descriptive statistics of the society

Variables of Research	No.	Average	S.D	Variance	Skew	Curve	Skew Coefficient	Curve Coefficient
Ownership percent	160	0.406	0.193	0.037	0.293	-0.281	1.527	-0.737
Output of Assets	160	17.443	12.773	163.137	0.292	1.374	1.524	3.601
EVA	160	74776	179536	32233181897	2.514	7.792	13.102	20.426

Table 3. The results of the first hypothesis

Research variables	Not standardized coefficients		Standardized coefficient	t statistic	Error level
	Coefficient	Error of standard deviation			
Fixed amount	-65708.616	30799.567		-2.133	0.034
Ownership percent	345937.423	68509.649	0.373	5.049	0.000
SE= 167122.719 $\bar{R}^2 = 0.134$ $R^2 = 0.139$ $f = 25.497 \longrightarrow p = 0.000$					

6.2. Testing of the second hypothesis

H2: Private ownership percent has an effect on ROA of stock companies.

$$\begin{cases} H0: \beta_{XY} \leq 0 \\ H1: \beta_{XY} > 0 \end{cases}$$

$$\begin{cases} H0: rs \leq 0 \\ H1: rs > 0 \end{cases} \rightarrow rs = 0.217 \quad p = 0.001 \quad p < 0.05$$

Pearson correlation coefficient goes 0.259 and Spearman correlation coefficient 0.217 between two variables, the private ownership percent and the ROA of listed companies in TSE; and then the both test are meaningful, base on 99% confidence.

Regression analyze test is applied to consider the effect of private sector percent on the ROA of listed companies in TSE. Total coefficient of the test is positively meaningful, base on statistic of  $t = 3.368$  at 99% confidence (see Table 4). Therefore, the null hypothesis is rejected, evidencing of lake in effect of independent variable on dependant one, base on 99% confidence; then the opposite hypothesis is accepted. The coefficient of determination, with amount of 0.067, shows that as one percent the ownership of private sector is increased, an increase with amount of 0.07 takes place in the ROA of companies. The remaining distribution of regression model is normal and the evidences support the variance equality of ROA variable of companies of NSST, because remaining variance is distributed throughout of the length of axis without any specific form.

Table 4. The results of the second hypothesis

Research variables	Not standardized coefficients		Standardized coefficient	t statistic	Error level
	Coefficient	Error of standard deviation			
Fixed amount	10.504	2.281		4.605	0.000
Ownership percent	17.087	5.073	0.259	3.368	0.001
SE= 12.37630 $\bar{R}^2 = 0.061$ $R^2 = 0.067$ $f = 11.343 \longrightarrow p = 0.000$					



### 6.3. Testing of the third hypothesis

Pearson and Spearman correlation test are applied to survey the relation between ROA and EVA of listed companies in TSE.

H3: There is a positive relation between ROA and EVA in stock companies

$$\begin{cases} H_0 : rs \leq 0 \\ H_1 : rs > 0 \end{cases} \quad \begin{cases} H_0 : r \leq 0 \\ H_1 : r > 0 \end{cases}$$

$$\begin{aligned} r &= 0.492 & p &= 0.000 & p < 0.05 \\ rs &= 0.734 & p &= 0.000 & p < 0.05 \end{aligned}$$

Coefficient correlation is seen between ROA and EVA of the stock companies with Pearson coefficient of 0.492 and Spearman coefficient of 0.734. Because the calculated error level for both test is smaller than 0.05, the null hypothesis is rejected with 95% confidence. Table 5 shows the results of the study:

Table 5. The results of the third hypothesis

Variable	ROA			
	Pearson correlation coefficient		Spearman correlation coefficient	
EVA	Correlation coefficient	Error level	Correlation coefficient	Error level
	0.492	0.000	0.734	0.000

### 6.4. Comparison of rank average of studied variables according to ownership type of sample companies

According to description of calculation regulation, companies possessing 50% and more of governmental shares are realized as governmental asset and companies possessing 50% and more of private shares are accounted as private asset. Therefore, by virtue of above regulation, we have come to compare rank average of assets output and EVA for private and governmental companies, spotting 50% of ownership type; and then Mann-Whitney test is applied for this issue. The comparison in test results of two-group rank average of Mann-Whitney show that there is no meaningful variation in ROA between both private and governmental, and rank average of the companies in private sector in higher. The results of test are shown hereunder (Table 6):

Research variables	Number of observation		Rank average		Test result	
	governmental	private	governmental	private	Z statistic	Meaningfulness level
Output of assets	116	44	78.20	86.56	-1.018	0.308
Value added	116	44	73.95	97.77	-2.904	0.004

### 7. CONCLUSION AND REMARKS

There is a meaningful and positive relation between EVA and ROA; so, it is suggested that according to the issue, that calculating EVA is difficult and nearly unfamiliar for ordinary people, here we can obtain an

estimation of EVA by calculating ROA. The result of this test can be useful for shareholders and other users of fiscal sheets.

The rank average of ROA has no meaningful between governmental and private sectors, but the rank average of EVA in private sector companies were meaningfully more than governmental companies. The description of calculation regulation is cared for realizing companies as private or governmental.

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