“The influence of privatization on financial performance of Vietnamese privatized state-owned enterprises”

AUTHORS	Duc Cuong Pham https://orcid.org/0000-0003-0336-3256 Thi Xuan Hong Nguyen https://orcid.org/0000-0003-0697-9566

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Duc Cuong Pham (Vietnam), **Thi Xuan Hong Nguyen** (Vietnam)

THE INFLUENCE OF PRIVATIZATION ON FINANCIAL PERFORMANCE OF VIETNAMESE PRIVATIZED STATE-OWNED ENTERPRISES

Abstract

This research evaluates the differences in financial performance of enterprises before and after privatization aiming to find out the influence of privatization on the enterprises' performance. The study is based on the audited financial statements of 105 Vietnamese enterprises privatized in the period from 2005 to 2016. Applying the Wilcoxon signed-rank test, the obtained results prove that after privatization profitability and outputs of investigated firms are significantly higher than prior privatization. However, there is no significant change of leverage. Applying a regression model to evaluate the factors affecting financial performance of firms in the research model, it was found out that the proportion of state ownership, economic growth, operating period, enterprise's size, and business risk have a positive influence on the financial performance of research firms. However, the leverage of these firms has a negative impact on the financial performance. In accordance with the obtained results, this study suggests that the privatization process should be continued regardless of firm size or business type. The government should create fair competition environment, remove incentives and supports for State-Owned Enterprises (SOEs), manage changes in privatized firms, and enforce the legal system.

Keywords privatization, influence, Vietnam, state-owned enterprises

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Duc Cuong Pham, Ph.D., Associate Professor, The School of Accounting and Auditing, National Economics University, Vietnam.

Thi Xuan Hong Nguyen, corresponding author, Ph.D., Accounting Department, Hanoi University of Industry, Vietnam.

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INTRODUCTION

It is widely known that the privatization program started in the UK in late 1970s under the Thatcher's government and spread to European and other countries of the world. In the context of low public sector efficiency in many countries, reforming the public sector through privatization is chosen as the most feasible solution. Privatization of State-Owned Enterprises (SOEs) is recognized as one of the most important changes in the public sector reform (Pham, 2009). The main objective of privatization is to create the fair competition, improve the market system, and enhance the performance of private companies. Moreover, the property rights theory, agency theory, and public choice theory all ascertain that the SOEs are inefficient and privatization will improve this status (Adams & Mengistu, 2008; Pham, 2017).

In Vietnam, the privatization approach to SOEs was approved in 1986, but it was not implemented until 1992. The process was stepped up from 2000. After nearly 30 years of implementing the privatization policy, Vietnam has gained considerable achievements. For example, after privatization, many enterprises have experienced growth in revenue and profit (Sjoholm, 2006; Tran et al., 2007, retried from Pham, 2009). In addition, some indicators of financial position and efficiency of SOEs after privatization have also shown remarkable improvements (Vu, 2013; Pham, 2017).

However, previous research about privatization in Vietnam only used methods of comparison and descriptive statistics to evaluate the changes of financial performance and profitability of enterprises. None of them used statistical test for generating the results. Some other studies were limited to research methods and narrow study scopes.

To obtain more convincing and reliable results, this study uses both methods of comparison and regression to evaluate the changes in financial performance before and after privatization. It also explains the influence of privatization on the financial efficiency of enterprises through evaluating factors influencing financial performance of equitized SOEs.

In theory, the paper contributes to literature about the role of privatization as a reform approach for public sector not only in developed countries, but also in developing ones. In practical terms, the results of research aim to help Vietnamese government and other officials in applying the privatization program to improve efficiency of public sector.

1. LITERATURE REVIEW

1.1. Changes in financial performance before and after privatization

Since privatization became a global solution in the 1980s, a large number of studies have been conducted on the impact of privatization on the financial performance of firms. The literature on privatization has evidenced significant gains on divested former SOEs. The first study about this problem is that by Megginson et al. (1994). The authors compared the performance results of 61 privatized enterprises collected from 18 countries in the 6-year period, three years before and three years after privatization. This study showed that after privatization, the firms demonstrated an increase in real sales (sales adjusted for inflation rate), operating performance, profitability, capital spending and dividend payout. Authors also reported the significant decrease in leverage but there were no significant changes in employment and employee efficiency.

Following Megginson et al. (1994), there was a lot of research on this subject. Obtained results show many similarities but there are also contradictory findings. For example, Macquieira and Zurita (1996), while analyzing privatization in Chile, reported the similarity to Megginson et al. about profitability, financial efficiency, capital spending, dividend payout but there were dissimilarities in terms of output and financial leverage. Laporta and Loper (1997), in their study on Mexico, showed same results in terms of profitability, financial efficiency, output, and an opposite result as to capital spending. D'Souza and Megginson (1999), in their research of 85 companies from 21 countries, evidenced about dissimilarity of capital spending and financial leverage. Harper (2002) used data of 178 Czech companies and revealed similarities in improvement in ROE and ROS (return on sales) but opposite changes in ROA and output. Oqdeh and Nassar (2011) researched the situation on Jordan and reported similar results for nearly all indicators except for output. While Alipour (2012) conducted a research on 35 firms in Iran and also had results in improvement in profitability, efficiency, leverage and dividend except for capital spending and output. Mateus (2016), while researching Portuguese firms, revealed a significant impact of privatization on the increase in the total asset value and subsequently a significant decrease in the Asset Turnover Ratio, etc. In the context of Vietnam, Doan (2014) and Pham (2017) used different data sets and found that privatization leads to universal increase in profitability, lower debt and leverage, lower asset usage efficiency, and potential risk of paying short-term liabilities appearing in research firms.

1.2. Factors impacting financial performance of state-owned enterprises after privatization

When assessing the impact of factors on differences in financial performance, research in the world was carried out mainly by two different methods:

(i) Difference-in-Difference technique (DID); and

(ii) building the regression functions to verify the relationship between independent variables

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(which are influencing factors) and a dependent variable (financial performance).

Typical studies using the second technique are those of Harper (2002), Wei et al. (2003), Boubakri et al. (2005), Truong et al. (2006), Tran (2007), Omran (2009), Huang and Wang (2011), Alipour (2012) and Nguyen (2017). Independent variables are very versatile and results of the impact on each dependent factor vary from study to study.

According to previous studies, major factors creating the difference in financial performance of equitized state-owned enterprises are as follows:

- enterprise size;
- state ownership proportion;
- ownership centralization or ownership ratio of the director at an enterprise;
- enterprise risks;
- whether a chairman of the board of directors or a chief executive officer is the representative of state ownership or private ownership;
- growth in revenue of an enterprise;
- change in the board of directors at an enterprise;
- debt ratio of an enterprise;
- business field of an enterprise;
- management at an enterprise: or
- improvements in macro economy including economic growth, trade liberalization, the stock market development.

Each factor has a different impact on the business efficiency of an enterprise and this impact can be positive or negative.

Through the overview of local and international research, it can be seen that many authors have studied the changes in financial performance of enterprises and influencing factors of financial performance at privatized SOEs. However, for almost all international studies, the research objects are within the scope of a country; at to multi-country studies, none of them chose enterprises of Vietnam for research samples. Regarding local research, there have been many studies about financial performance of equitized state-owned enterprises but they mainly mentioned the post-privatization period without evaluating the difference before and after privatization. Only a few of them evaluate the difference in indicators of financial performance before and after privatization but the obtained results vary remarkably. The differences in obtained results come from shortcomings in research environment, methodologies, size of a sample and a lack of indicators for financial performance.

Moreover, most empirical studies only evaluated the changes in financial performance of state-owned enterprises after privatization and did not explain clearly the results for such changes. Some studies explained the reasons but their research methodologies were not really suitable, the size of a sample was small or the sample was used with enterprises privatized before 2005 leading to low reliability level.

To fill the shortcomings of previous studies, the authors use a research sample of privatized SOEs that are listed on the Stock Exchange of Vietnam in order to identify the differences in the financial performance indicators of those firms before and after privatization. The authors then clarify these differences through influencing factors of financial performance by using the linear regression model to indicate the relation between influencing factors and financial performance. In this model, state ownership is considered the benchmark for the privatization factors; other factors are considered control variables.

With the above-mentioned research objectives, the authors expect to fill the research gap drawing from previous studies about the changes in financial performance and influencing factors of financial performance of privatized SOEs.

2. DATA AND METHODOLOGY

2.1. Data and sample

Up to now, there are more than 4,000 Vietnamese SOEs that have been privatized. Recently, almost

all of them were listed on the stock market of Vietnam. But since then, the list of privatized enterprises has been quite expanded. The research collects data from 140 privatized SOEs that were privatized and listed from 2005 to 2016, and public enterprises officially listed on the Hanoi Stock Exchange and Ho Chi Minh Stock Exchange. Though the study intended to collect more companies for the research sample, there were only 140 companies provided data for two years prior to and two years post privatization. Of these, only 105 firms provided full and audited financial statements. The others gave only brief reports. Based on Tabachnick and Fidell (1996), it is believed that the sample size provides large enough observations for running statistical test.

2.2. Research objectives

The research has two key objectives, namely, (i) evaluating the differences in financial performance of SOEs before and after privatization, and (ii) studying the influencing factors on firms' financial performance in order to explain the above-mentioned differences. Thus, the research is designed according to two objectives with details in following sub-sections.

2.2.1. *Evaluation of financial performance before and after privatization*

Modern financial criteria, which relate to market value of enterprises, will be measured when enterprises become joint-stock companies and listed on the stock market. Thus, as to the period of pre-privatization, it is impossible for enterprises to evaluate their financial performance through modern criteria. For this reason, the research will only evaluate the financial performance of SOEs before and after privatization based on the classic financial criteria.

For each privatized enterprise, the data source used in this research mostly comes from the audited annual financial statements of SOEs, two years prior to privatization and two years after privatization. Since the privatization year, it is set as year t0. As a result, 5-data value is achieved, including: $t - 2$, $t - 1$, $t = 0$, $t + 1$, $t + 2$ (this technique was adopted from Pham, 2009).

As a simple example, pooled datasets were produced, if a firm was privatized in 2010, then financial data relating to that firm for 2010 would be grouped as falling within the $t = 0$ dataset. If a firm was privatized in 2013, then financial data relating to that firm for 2013 would be coded as falling within the $t = 0$ dataset. Thus, the $t = 0$ dataset comprises observations pertaining to the year of listing, irrespective of which calendar year of listing was. The same pooling procedure was used to generate the $t - 2$, $t - 1$, $t = 0$, $t + 1$ and $t + 2$ datasets.

Given the general research results, the financial performance was evaluated based on three criterion groups: (i) Profitability; (ii) Output; and (iii) Leverage. Within each group of criteria, the research focuses only on the differences in detailed criteria. The measurement method for each criterion of each group is as follows (Table 1).

Table 1. Definition of criteria for analyzing financial performance

Analysis criteria	How to measure	Expectation
Profitability		
Return on Assets (ROA)	Pre-tax profit/ Total Assets	Increase
Return on Equity (ROE)	Pre-tax profit/Equity	Increase
Return on Sales (ROS)	Pre-tax profit/Net sales	Increase
Output		
Real Sales	Nominal Sales/ Consumer Price Index	Increase
Real Assets	Total Assets/Consumer Price Index	Increase
Leverage		
Debt to Total Assets	Total Debt/Total Assets	Decrease

2.2.2. *Factors impacting financial performance of state-owned enterprises after privatization. The research model*

Based on the general research results in other countries combined with the current research in Vietnam, the study established the linear model presenting the relationship between financial performances and influencing factors as the following regression model:

$$PER_{it} = \alpha_0 + \beta_1 STATE_{it} + \beta_2 GDP_{it} + \\ + \beta_3 PRIV_{it} + \beta_4 CEO_{it} + \beta_5 LEV_{it} + \\ + \beta_7 SIZE_{it} + \beta_8 RISK_{it} + \beta_9 INDU_{it} + \varepsilon.$$

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The dependent, independent and control variables are established according to general research. According to this regression model, the dependent variable (*PER*) stands for criteria used to measure financial performances of enterprises, including ROA, ROE, and ROS.

The independent variables are defined as follows:

State is the percentage of state ownership in the privatized enterprises, which is from 0 percent to less than 100 percent. According to Wei et al. (2003), the large percentage of the state ownership leads to the less efficiency because of soft coverage, debt removal, etc. Similarly, Chu et al. (2015) showed that firms with the state ownership of less than 50 percent have greater financial performance than others. The study intends to test this again in this circumstances so the negative relationship between the variables of *State* and *PER* is expected.

Priv is a dummy variable, which takes the value of 0 for the year before privatization and 1 for the years after privatization. Megginson et al. (1994) reported that there was a significant improvement in firms' financial performance after privatization. However, Boubakri et al. (2005), Huang and Wang (2011) and Alipour (2012) suggested that there are no significant changes after privatization. Thus, the negative relation between variables *Priv* and *PER* is expected.

The research also used several control variables, including:

GDP is economic growth measured by GDP of economy for each year. Boubakri et al. (2005) believed that the GDP affects every aspect of the production and business process in the firm, namely, the material price, labor cost, sales, etc. Thus, in this research model, it is hypothesized that the economic growth has a positive impact on firms' financial performance.

CEO is a dummy variable, which takes the value of 0 if the privatized enterprise didn't change the Chief Executive Officer and 1 if the enterprises did it. It is widely accepted that the privatization lead to changes in management style, and as a result, to firms' performance improvement (Huang & Wang, 2011; Vu, 2013). Thus, a positive relationship between variables *CEO* and *PER* is expected.

Lev is a financial leverage, which is measured by total debt on total assets of the privatized enterpises. It is widely accepted that higher leverage leads to higher performance (Harper, 2002; Wei et al., 2003; Truong et al., 2007; Alipour, 2012; retrieved from Nguyen, 2017).

Size is the scale of enterprises, which is measured by logarithm of total assets. Alipour (2012) and Doan (2014) argued that big businesses with well-organized resources and advanced equipment would have higher financial performance. However, Tran (2007) believed that too large firms might not have good performance because of corruption or difficulties in controlling and operating. The positive relation between variables *Size* and *PER* is expected.

Risk measures the effect of investment risk on firms' profitability. Alipour (2012) and Nguyen (2017) used the standard deviation of the return on assets ratio in the model to evaluate the effect of this variable on firms' performance. It is valuable to have this variable in the model.

Indu is industry of the enterprise, which is a dummy variable, receiving value for different industries in economy. It is used to control the effect of the industry on firm performance (Boubakri et al., 2005; Truong et al., 2006; retrieved from Pham, 2017).

It means firm *i* at time *t*.

These independent and control variables and impact trends on financial performance are summarized in Table 2.

Table 2. Expected impact of financial criteria on financial performance

Variables	Code	Expected relationship	Variables	Code	Expected relationship
State ownership	State	Negative	Financial leverage	Lev	Positive
Economic growth	GDP	Positive	Scale of enterprises	Size	Positive
Operating period	Priv	Negative	Business risks	Risk	Positive
Change of a chief executive officer	CEO	Positive	Industry of enterprises	Indu	Control

2.3. Data processing methods

To achieve the objectives given, the research has used the following methods.

***Wilcoxon Signed Rank Test*:** To measure the impact of privatization on the SOEs, the two-year pre-privatization and post-privatization data are compared using a Wilcoxon signed rank test. The study takes the average of the measures, two years before privatization and two years after privatization. If there is a significant z-statistic and t-statistic about proportion change in average of profitability, output or leverage between two periods, their change is expected.

***Linear regression model*:** To explain the differences in financial performance before and after privatization via the influencing factors, the author established a linear regression function and tested the regression function via activities subject to descriptive statistics, correlation test, normality checked and solved (if any), multicollinearity, and beta estimation to evaluate the effect of each independent variable on the financial performance.

Sections below present the results of the Wilcoxon Signed Rank Test and Linear regression model.

3. RESEARCH RESULTS

3.1. Overview of the privatization process in Vietnam

Up to now, for more than 20 years of implementing the privatization policy, 4,000 enterprises have been privatized with an average of 185 enterprises annually, accounting for 67% of total enterprises re-arranged (Doan, 2014).

During the privatization process, the Government has implemented different types of privatization such as selling part of the state-owned equity at enterprises while offering stocks (69.4%), selling full state-owned equity at enterprises (15.5%), maintaining state-owned equity while issuing more stocks (15.1%).

Privatization has changed the state ownership within enterprises, making it a fundamental change within the ownership entity structure in business enterprises. Thus, all related activities in management, manufacturing, finance, and labor within the enterprises are also changed. As a result, the financial performance of SOEs also changed (Carlin, 2009).

3.2. The differences in financial performances of SOEs after privatization

The research has generally analyzed the basic differences in financial criteria within enterprises comparing certain criteria before and after privatization. Then, the research calculated the financial coefficients reflecting financial performances of enterprises. Comparison is conducted for each criterion between its values at the time after privatization (year $t + 2$) and before privatization (year $t - 2$). Then, the Kolmogorov-Smirnov test was applied to check the standard normal distribution. Since the data of research sample does not follow the normal distribution, thus the Wilcoxon test was used to evaluate the differences between each year after privatization and the year before privatization for each financial criterion group. The results are presented in Table 3. Each financial criterion is presented with arithmetical mean, median, changes in arithmetical mean and median, test results for statistical value and statistical significance in year $t + 2$ compared to year $t - 2$.

Profitability

The authors used two profitability proxies to measure pre- and post-privatization profitability changes that include ROA, ROE, and ROS. According to the Wilcoxon test, ROA and ROE increased and ROS decreased after privatization, as expected.

The mean (median) of ROA increased to 1.83 percentage points (1.17 points) after privatization comparing to prior privatization, and there are 61.9 percent of all enterprises that have experienced an increase. These statistical tests are all significant at the 5 percent level.

The mean (median) of ROE increased to 2.01 percentage points (3.48 points) after privatization comparing to prior privatization, and there are 57.14 percent of all enterprises that have experi-

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Table 3. Results of the Wilcoxon Signed Rank test for research firms' financial performance

Source: Authors' compilation.

Criteria	Mean (median) prior to privatization	Mean (median) after privatization	Mean change (median)	Z-statistics (p-value)	Percent of enterprises with changes as predicted	t-statistics for significance of change (P-value)
Profitability						
Return on Assets	6.60 (3.63)	8.43 (4.80)	1.83 (1.17)	–2.265** (0.024)	61.90	–2.342** (0.019)
Return on Equity	16.71 (12.21)	18.72 (15.69)	2.01 (3.48)	–1.936* (0.053)	57.14	–1.266 (0.172)
Return on Sales	14.95 (7.69)	10.47 (6.23)	–4.48 (–1.47)	–3.109*** (0.002)	35.24	–1.928*** (0.003)
Output						
Real Sales	0.33 (0.05)	0.46 (0.07)	0.13 (0.02)	–3.982*** (0.000)	70.48	–1.099*** (0.000)
Real Assets	0.48 (0.04)	0.53 (0.08)	0.05 (0.04)	–3.870*** (0.000)	69.52	–4.099*** (0.000)
Leverage						
Debt to Assets	0.63 (0.57)	0.61 (0.59)	–0.02 (0.02)	–0.759 (0.448)	59.05	–1.757* (0.079)

Note: ***, **, * mean significance at 1 percent, 5 percent and 10 percent, respectively.

enced an increase. These statistical tests are all significant at the 10 percent level.

The mean (median) of ROS decreased in the post-privatization period to of –4.48 percentage points (–1.47 points), and there are only 35.24 percent of all enterprises that have a positive change after privatization. This change is significant at the 1 percent level.

These results about profitability are similar to all the research on ROA and ROE, namely Megginson et al. (1994), D'Souza and Megginson (1999), Boubakri et al. (2005), Mathur and Banchuenvijit (2007), Truong et al. (2006), Oqdeh and Nassar (2011), Alipour (2012), and Pham (2017), but they contrast to Wei et al. (2003). The authors' results about ROS are opposite to almost all previous research. The reason may be that the privatized enterprises do not find the effective way to control their operating expenses. There are arguments that the gradual privatization scheme of Vietnam has not virtually caused significant changes in management skills and style (Pham, 2017).

Output

As mentioned elsewhere, privatization will create better incentives, more flexible financing opportunities, competition, and greater scope for entrepreneurial initiative, etc. This leads to the increase in firms' revenues after privatization. Howewer, Boycko et al. (1996) argue that effective privatization will lead to a reduction in turnover, since the government would not support firms by purchasing products or services. This competing hypothesis is tested by computing the average inflation-adjusted revenues for the period of year $t - 2$ to $t - 1$ (the pre-privatization period) and comparing it with the average real-sale value of year $t + 1$ to t + 2 (the post-privatization period). The statistical tests show that real sales increase after privatization, and the change is significant at the 1 percent level according to both measures.

The mean (median) increase in real sales from the average level during the pre-privatization to post-privatization period is VND 0.13 billion (19.02 billion), and 75.4 percent of research firms experience increases. Prior to privatization, the research sample firms had deflated sales levels that were at mean (median) of 89.9 percent (89.0 percent) of year 0 (the year of privatization) levels. After privatization, real sales increase to 114.0 percent (110.5 percent) of year 0 levels.

Leverage

Almost all studies expect leverage ratios to decline after privatization over several reasons. First, SOEs traditionally have extremely high debt levels because they could not mobilize capital by issuing shares to private investors, and thus the only capital source available to the firm are government's grants, retained earnings, and debts.

This research uses ratio of total debt to total assets as a leverage variable. The mean (median) of this ratio declines from 0.63 percentage points to 0.61 percentage points (decrease of 0.02 percentage points), the median increase is 0.02 percentage points. However, according to the Wilcoxon test, there is no significant decline in leverage after privatization. At least 59.05 percent of the SOEs of the current sample have leverage decline after privatization and the significance level is at the 10 percent.

In previous studies, the leverage of enterprises decreased after privatization, but the current result differs from them and has similarities with Bouraki and Cosset (1998), Aussenegg and Jelic (2002) and Truong et al. (2007).

3.3. The impact of privatization on financial performance of state-owned enterprises

As presented, the research used the linear regression to explain the changes in financial performances of state-owned enterprises after privatization. The independent variables in the regression model are factors contributing to the changes in financial performance of enterprises. The linear regression model is presented in the above equation, mentioned in section 2.2.2.

First, the research gives a general description of the samples and variables within the model. The research has collected data from 105 equitized state-owned enterprises with each contributing 5-year data point. Overall, there are 525 observations. With support from STATA software, descriptive statistics of the model variable are presented in Table 4. The research has described all variables within the model including arithmetic mean and median, standard deviation, min and max value of each variable.

Second, the research evaluated the correlation between variables, including independent, control and dependent variables in the model. Results show that there was a correlation between variables.

Next, the research used least square regression to test the model. The model was checked for normality as well. Theoretically, the VIF coefficient of the variables are less than 5 indicating that there was no multicollinearity within the model, but there was heteroscedasticity. The author solved heteroscedasticity by using covariance matrix estimation (Hoang & Chu, 2005).

Table 5. Test result for multicollinearity

Variable	VIF	1/VIF
Priv	3	0.333
State	3	0.333
Indu2	1.3	0.768
Indu1	1.21	0.826
Size	1.13	0.888
GDP	1.09	0.919
Risk	1.09	0.919
CEO	1.08	0.928
Lev	1.05	0.955
Mean VIF	1.55	??

Finally, when the autocorrelation, multicollinearity and variance errors were removed, the authors use regression to assess the impact of each independent variable on financial performance of research firms. The regression estimation results of the model are summarized in Table 5.

Table 4. Summary of variables of the model

Variable	Obs.	Mean	Std. deviation	Min	Max
ROA	525	8.377	13.798	–22.897	141.583
ROE	525	18.041	20.501	–45.946	162.748
ROS	525	9.559	13.691	–37.277	100.794
State	525	60.03	40.123	0	100
GDP	525	6.789	1.135	5.03	8.46
Priv	525	0.6	0.49	0	1
CEO	525	0.3905	0.488	0	1
Lev	525	0.582	0.609	0.005	9.162
Size	525	26.766	1.917	20.492	31.498
Risk	525	4.866	8.013	0.2456	57.958
indu1	525	0.152	0.3597	0	1
Indu2	525	0.383	0.487	0	1

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Table 6. Result summary for the linear regression estimation of models ROA, ROS, ROE

Variables	ROA		ROE		ROS	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Constant	–15.4637	0.027	–73.4399	0.000	–65.6047	0.000
Proportion of state ownership (*State*)	.04314	0.036	.1814	0.000	.0019	0.938
Economic growth (*GDP*)	.6513	0.141	1.6863	0.020	1.0299	0.016
Operating period (*Priv*)	5.2216	0.003	13.8073	0.000	1.2922	0.467
Change of a Chief Executive Officer (*CEO*)	–1.7367	0.036	–7.4386	0.000	–2.2414	0.031
Financial leverage (*Lev*)	.4484	0.775	–1.1015	0.236	–3.2680	0.029
Scale of enterprise (*Size*)	.3665	0.177	2.2231	0.000	2.6377	0.000
Business risks (*Risk*)	.7389	0.004	.2950	0.014	.1662	0.013
Business field (*Indu*)	Control variable		Control variable		Control variable	
R-squared	0.3468		0.2793		0.2685	

3.4. Discussion and analysis

After testing, the regression of model shows the level of influences of various factors on the financial performance of privatized enterprises measured by the profitability criteria, including ROA, ROS, and ROE.

One suppressing point relates to the effect of state ownership on firms' performance measured by ROA, ROE, and ROS. In particular, the results show that, in Vietnam, higher proportion of state ownership leads to significant higher Return on Assets and Return on Equity (significant at the 5 percent level). However, the government firms have a negative relationship between government ownership and Return on Sales (ROS).

By explaining the factors' impact on ROE and ROA, it is provided that under state coverage, government firms may have some tax advantages, low interest loans, loss coverage, etc. And the negative relationship between government and ROS may result from the existence of low cost efficiency at the state-owned enterprises. These results are similar to research by Wei et al. (2003) about privatized firms in China in the period of 1994–1999 and contrast with the research results by Truong et al (2007), Tran (2007) about privatized firm in Vietnam in the period of 1992–2004.

The economic growth has a positive impact on ROE and ROS. They have a coefficient of 1.6863 and 1.0299 and are significant at the 5 percent level. That means the GDP increases by 1 percent, ROE and ROS increase by 1.6863 and 1.0299 percent, respectively. There is no significant impact of proportion of state ownership on ROA. The research result is consistent with Boubakri et al. (2005), proving that the macroeconomic environment, particularly the economic growth (GDP), has a positive impact on firms' Return on Sales (ROS).

Regression results show that the operating period has a positive impact on ROA and ROE. They have coefficients of 5.2 and 13.80 and are significant at the 1 percent level. This means that after privatization, ROA and ROE of the enterprises have improved. But there is no impact on ROS. These results are similar to those by Chen et al. (2008), Huang and Wang (2011), Alipour (2012), and Nguyen (2017).

The results from the regression analysis show that the change of CEO has a negative impact on financial performance with the significance at the 1 percent level. That means after privatization, if the enterprises change the CEO, the financial performance will not improve. The research result is similar to that of Vu (2013) in Vietnam and contrasts to the result of Huang and Wang (2011) for China. The reasons for this result may be that at privatized enterprises in Vietnam, there is no change in key management positions, such as members of the Board of Management, the Director, the Deputy Directors, and the Chief Accountant. At the enterprises, which have change the CEO, the old CEO became a Chairman of the board, a former vice director became a CEO. Therefore, there are no actual changes in new mindset and corporate governance in the privatized enterprises.

It is surprising that the financial leverage has a slight impact on ROA and ROE and a negative impact on ROS at the 5 percent level. That means the

higher the financial leverage, the lower the ROS of privatized enterprises. It is possible that the high debt ratio leads to low financial independence and causes difficulties for enterprises in mobilizing investment capital for business operation. This research result agrees with those of Alipour (2012) (regarding impact on ROA, ROS), Chu et al. (2015), and Astami et al. (2010) but differs from the results of Alipour (2012) regarding ROE; and Huang & Wang (2011) regarding ROS.

Besides, the regression results show that post-privatization enterprises with large asset scale have improved their ROE and ROS with the significance level of 1 percent, but there is no significant relationship between the financial leverage and ROA. This could be explained by the fact that the large scale enterprises have the necessary resources for change and the innovation in fixed assets, machinery, and equipment so that productivity can be improved. And those factors lead to the financial performance improvement. These results are similar to those of Huang and Wang (2011), Alipour (2012), Doan (2014) but they are inconsistent with the findings of Harper (2002), Truong et al. (2006), Tran (2007), and Vu (2013).

Further, the risk indicator in the regression model has a positive relationship with ROA, ROE and ROS with the significance level at 1 and 5 percent. In other words, the firms' profitability increases with risk. Research results agree with the results of Alipour (2012) about ROA and ROS.

Finally, the enterprise sector controls the financial performance of privatized enterprises. Enterprises in the construction industry gain higher ROA and ROE than those in other industries. However, there is no difference in ROS among different industries. Research results agree with those of Harper (2002) but are in contrast with those of Truong et al. (2006) and Vu (2013).

CONCLUSION

In comparison with previous studies, the current research is carried out using the latest sample of 105 enterprises privatized in 2005–2016. The applied methodologies include the Wilcoxon test and OLS regression. Independent variables used in the model are based on the study overview and comparison of results of financial performance before and after privatization, in which some factors have different usage measures, such as ownership calculated by state ownership from 0% to 100% and business scale calculated by assets. Moreover, the research model also considers the impact of the country's macro-economic factors on the financial performance of enterprises. As a result, the research results are significantly different from previous studies.

Using the Wilcoxon test to compare financial performance between two periods, before and after privatization, the results show that after privatization, the research enterprises had an increase in profitability, output and had no significant change in leverage. These results are similar to very previous research.

Linear regression model by OLS method shows that the results differ in terms of ROA, ROE and ROS. The results show a negative impact of the change of a chief executive officer and a positive impact of business risks on ROA, ROE and ROS. The financial performance is measured by ROA and the research concludes about the positive impact of factors on ROA, including proportion of state ownership and operating period. And there is no impact of economic growth, scale of an enterprise and financial leverage on it. The current research also provides the positive relationship of proportion of state ownership, economic growth, operating period, scale of an enterprise and ROE, but there is no relationship between financial leverage and ROE. Finally, there is no relationship between proportion of state ownership, operating period and ROS and a positive impact of operating period, financial leverage, and scale of an enterprise.

According to the research results, the study suggests that the Vietnamese government should continue to speed up the privatization program, which has been implemented for more than 25 years. Applying this, government should focus on change of management team so that the financial operating results of

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privatized firms will be improved. The privatization program needs to apply not only for small firms but also the large-scale enterprises in all business types. The governments should give more empowerment to privatized firms. According to the abovementioned, the Vietnamese government still holds a large proportion of state ownership in privatized firms. Empowering private firms should reduce the transaction costs and the management team and skills/methods should be changed, new technology should be updated, etc. As a result, the efficiency of firms and the whole economy will be improved. Many authors, who research privatization process in Vietnam, have suggested that the government should focus on enforcement of law instead of holding a high proportion of state ownership in privatized firms.

Concerning transparency and information disclosure, the government should also focus on enforcing the regulations about the disclosure of financial performance and position of privatized firms. These shortcomings should have substantial consequences for the decision-making processes of firms' managers and investors. The privatization will help improve the quality of information, which, in turn, will lead to an increase in firms' value and development of the stock market.

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