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Research Article

The impact of equitization on financial and operating performance of state-owned enterprises (SOEs) in Vietnam: An approach using propensity score matching

Nguyen Van Tan*

ABSTRACT

This paper examines the impact of equitization on financial and operating performance of state-owned enterprises (SOEs) in Vietnam. Previous related privatization theories have not explained whether there is an improvement in financial and operating performance of equitized SOEs compared to non-equitized SOEs or not. This study proposes to use with-without comparison method through the average treatment effect measuring the impact of equitization on financial and operating performance of SOEs. By using data of 114 SOEs equitized in the period from 2012 to 2014, the author finds that equitized SOEs can not improve profitability, operating efficiency, and output when considering non-equitized SOEs. There is also no evidence for a reduction in the number of employees of equitized SOEs after equitization. These findings are in contrast to previous studies in Vietnam, but there are similarities with the results of studies in China. This is because equitized SOEs in the early post-equitization period in Vietnam are still monitored by the Vietnamese government, as well as the equitized enterprises in the period 2012-2014 are mainly large-scale ones with slow change of operating objectives, monitoring mechanism and weak competitiveness after equitization. However, equitization can help equitized SOEs operate more efficiently than non–equitized SOEs when considering non-listing status or industry group. This research provides implications for the Vietnamese government to encourage non-equitized enterprises to participate in the equitization program actively. The research results also help investors to have appropriate long-term investment strategies in equitized SOEs. This paper also has some limitations for further research.

Key words: Equitization, Privatization, Financial performance, Operating performance, Pre-post comparison method, State-owned enterprises

Becamex Business School Eastern International University

Correspondence

Nguyen Van Tan, Becamex Business School Eastern International University

Email: tan.nguyen@eiu.edu.vn

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OVERVIEW

Megginson et al. explain that privatization is known as selling public assets to the private sector[1]. Privatization reallocates resources of SOEs through private sector participation. In Vietnam, the state often uses the term 'equitization' instead of 'privatization' because equitization is the process of transferring assets of SOEs to the private sector, but the state still controls equitized SOEss after equitization in some SOEs.

From 2016 up to present, the number of equitized enterprises was limited. There were only 55 equitized enterprises in 2016, while the equitization plan for the period of 2016 to 2020 would reach 240 enterprises. In this stage, the equitization progress has been slow due to several main reasons as follows: First, there are many ideas that state-owned enterprises should play the leading role, so reducing the number of state-owned enterprises will reduce this role. Second, after more than 15 years of equitization, the remaining SOEs in the equitization list are medium and large scale ones. The equitization of large scale ones is increasingly complex, especially in the valuation of state-owned assets. Third, some leaders or agents of state-owned enterprises fear that they will lose or reduce their control over SOEs when transforming SOEs from state ownership to private ownership, so they have actively slowed equitization progress and interfered equitization process.The equitization process in Vietnam in recent years has shown slow progress due to various reasons. According to Odle, the third privatization stage marks the completion of the privatization program, but there are large-scale SOEs in this stage, and participation of these SOEs has a significant impact on the success of the privatization program[2].

However, empirical studies have inconsistent results of the equitization impact in Vietnam. Pham also suggests that equitization may not have a positive impact on equitization, especially when compared with non-equitized SOEs[3]. These results are similar to empirical studies in China, where equitization is less likely to

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improve financial and operating performance of equitized SOEs [4]. However, other studies in the developed and developing countries by Megginson et al., Pohl et al., Frydman et al., Claessens and Djankov confirm that privatization helps equitized SOEs improve their financial and operating performance [1,5–7].

Studies in developed and developing countries mostly use the pre-post comparison method and do not use with-without comparison method. Studies in China and Vietnam, in particular studies by Nhan and Son, Hung et al., Loc and Tran also use with-without comparison method, but these studies use inappropriate characteristics to define the similarity between equitized and non-equitized SOEs [8–10]. These studies do not use industry characteristics to compare these two groups. According to Porter, each industry has a different operating and regulatory environment, so we can only compare firm performance within one specific industry [11].

However, previous studies have certain limitations: (1) When comparing with the non-equitized SOEs, these studies only used establishment year and firm size to determine propensity score, so the comparison is inaccurate since we can not compare between two firms in different industries. (2) Previous studies in Vietnam focused on SOEs equitized in the first and the second stage, so these studies have not considered large-sized SOEs; (3) Previous studies have not performed robustness testing in propensity score matching technique, and they only used one radius matching to set up common support area. Common support area contains propensity scores where equitized SOEs (treatment group) and non-equitized SOEs (control group) have similarities in some characteristics.

This study solves the above problems when using PSM technique with four control variables, including establishment year, equitization year, firm size and industry to identify common support areas between equitized SOEs (treatment group) and non-equitized SOEs (control group). Research data include large-scale SOEs in the third equitization stage, especially from 2012 to 2014. Furthermore, the authors also perform robustness testing of the PSM technique to evaluate the equitization impact for more accurate results.

This study is organized into six parts: (1) introduction, (2) review of prior studies, (3) research methodology and data, (4) empirical results, (5) conclusions and discussion, and (6) summary and implications.

REVIEW OF PRIOR STUDIES

Related theories

The public choice theory was first proposed by Tullock and Buchanan to identify the impact of privatization on firm performance. This theoretical focus emphasized on financial and operating performance of SOEs when it explained that SOEs are less efficient because politicians only aim to orientate state-owned enterprises to increase their power without considering financial and operating performance of SOEs [12]. Therefore, privatizing these enterprises is necessary in order to set up the business objectives of the enterprises through transferring ownership rights to private entities. The theory also assumes that state-owned enterprises aim to maximize budgets, disperse risks, maximize labor and investment rather than maximize profits. William L. Megginson et al. argue that if state-owned enterprises were privatized, there would be an improvement in firm performance [1]. Property rights theory is built on the fundamental advantage of ownership. Private-sector firms are more experienced than state-owned enterprises in decision-making and operate more effectively than SOEs, although they operate in the same industry environment. For state-owned enterprises, the ownership of corporate stakeholders is simply state ownership, so it is difficult for them to operate effectively. State-owned enterprise managers generally do not benefit from SOEs' operating profits, so they have no motivation to manage them well. According to this theory, public agents of SOEs do not work hard in management and do not need many innovations in managing SOEs.

The theory of competitive advantage is actually derived from explaining competitive advantages at the industry level and then developing into competitive advantages at the national level. Porter presents this theory and refers to the issue of competition at an industry level or national level [11]. According to Porter, the competitive nature and resources of competitive advantage vary widely among industries or even in small segments within the same industry [11]. A study by Megginson and Netter also suggests that real sales of SOEs in different industries could be improved differently after privatization [13]. Therefore, the industry characteristics and competitiveness of each industry will determine financial and operating performance of enterprises after privatization.

Empirical studies

Primarily, related privatization theories only explain that private ownership has more advantages than state ownership, and these theories approve that privatization will help state-owned enterprises improve their financial and operating performance after privatization.

An important study by Cuervo and Villalonga, demonstrating that privatization and ownership are

not the main determinants of firm performance af ter privatization[14]. These authors develop one model to explain the variability in financial and operating performance of enterprises after privatization. Empirical results show that privatization and contextual factors (privatization methods, prior-restructuring, deregulation) help to change in governance, ownership structure. After that, the post-privatized enterprises will change their operating goals, incentives, and control. Next, enterprises will change their operational strategies, organizational structure, and organizational culture. As a result, the variations have to be explained through a process like this. Studies in China also show that some measures of financial and operating performance of privatized enterprises after privatization declined or did not significantly change, such as profitability. This finding is inconsistent with research results by some authors in other developed countries, such as Megginson et al., Boubakri and Cosset, Megginson and Netter, Pohl et al., Claessens and Djankov[1,5,7,13,15]. Privatization in China also has several cases where the state still holds many shares in enterprises after privatization in some industries and critical corporations. This is a similar characteristic in the privatization process between China and Vietnam. Jiang et al., Wei et al. also prove that the profitability of privatized enterprises declined after privatization, and this finding is in contrast to research work by Megginson et al.[1,4,16].

In order to compare the performance of enterprises after privatization and non-privatized ones, previous studies have used a with-without comparison method. Frydman et al., Claessens and Djankov, and Pohl et al. are propositional authors who use with-without comparison method to assess the impact of privatization in European countries[5–7]. In particular, Claessens and Djankov argue that privatized firms are more efficient than non-equitized firms[7]. Nhan and Son, Hung et al., Loc and Tran also use with-without comparison method between two groups of equitized and non-equitized SOEs for considering differences in their financial and operating performance[8–10]. In general, international studies and empirical studies in Vietnam have demonstrated that privatized SOEs have better financial and operating performance than non-privatized SOEs, so the author proposes the new hypothesis as follows:

Hypothesis 1: *Equitized SOEs will have better financial and operating performance after equitization than non-equitized SOEs (considering only post-equitization period)*

According to Loc and Tran, the equitization process helps SOEs increase their profitability, reduce leverage, total assets turnover, and employment[10]. However, These studies have shown that there is no evidence of increased labor productivity after equitization (if considered with non-equitized firms). This research has some differences compared to the study conducted by Loc and Tran when profit after tax is applied instead of profit before tax[10]. Besides, this study uses the net income efficiency ratio. Thus, the next research hypothesis can be stated as follows:

H2: *Equitized SOEs will have better financial and operating performance after equitization than non-equitized SOEs (considering the difference in measures between pre-post equitization windows).*

RESEARCH METHODOLOGY AND DATA

Research methodology

Previous studies used pre-post comparison, with-without comparison, and regression methods. This study mainly uses with-without comparison method. According to Khandker et al., a with-without comparison method is another option when evaluating the effectiveness of a program. This method is used through a technique known as propensity score matching and was first proposed by Rosenbaum and Rubin[17,18]. The advantage of this method is that it eliminates the possibility of selection bias because the selection of two participants in the program has some similarities in characteristics. Claessens and Djankov and Pohl et al. suggest using this method to assess the effects of privatization in European countries[5,7]. Claessens and Djankov argue that privatized SOEs are also more efficient than non-privatized SOEs[7]. Loc and Tran, Nhan and Son continue to use this method to measure how equitization impacts on firm performance[8,10]. Hung et al. used this method but compared between equitized SOEs and private firms[9].

This study uses the with-without comparison method but chooses four variables of establishment year, firm size, industry, and equitization year to determine the propensity score in order to identify similarities between the treatment and control group. Besides, this study also uses a robustness test for consistent result testing[17]. This study adopts direct nearest-neighbor matching (nnmatch) and five nearest-neighbor matching (psmatch) to test the robustness of the average treatment effect. The studies by Loc and Tran, Nhan and Son, Hung et al. only apply radius matching (0.001), and this is also one limitation of these studies[8–10].

Data

The initial data includes information about firm performance from the Vietnamese General Statistics Office. The initial data includes 114 equitized SOEs in the period of 2012-2014 and 312 non-equitized SOEs. This paper uses firm performance data from 2010 to 2016. Firm performance measures are calculated in average values for two years before and after equitization. Previous studies use from 2 to 10 years to be privatization windows. This study uses two-year equitization windows because of data characteristics in Vietnam and data of two-year equitization windows was also applied by most of the empirical studies in Vietnam, such as studies by Nhan and Son (2017), Loc and Tran (2016), Hung et al. (2017) [8–10].

Variables and testable predictions

William L. Megginson et al. develop seven measures based on empirical findings, including (1) profitability; (2) operational efficiency; (3) capital investment; (4) output; (5) employment; (6) financial leverage and (7) payment [1]. Boubakri and Cosset , D'Souza and Megginso also apply the above measures of privatized SOEs after privatization in developing countries [15,19]. Nhan and Son apply five measures proposed by William L. Megginson et al. , including profitability, operating efficiency, output, employment and leverage [1,8]. Loc and Tran use the following measures, such as profitability, total asset turnover, labor productivity, debt ratio and total employment [10]. The authors argue that post-equitization enterprises will receive tax incentives in the first year after equitization, so using ROA, ROE and ROS will not accurately reflect financial and operating performance after equitization. However, this research will use after-tax earning for calculating ROA, ROE and ROS because many international empirical studies have used earning after tax instead of earning before tax. This research uses the same measure with most of the previous studies to compare findings better. It is also challenging to measure tax incentives of post-equitization enterprises because Vietnamese government have different support for them.

Based on the above empirical results and hypothesis development, the author proposes some variable measurement and testable prediction presented in Table 1. Loc and Tran, Nhan and Son also applied a combination of PSM and DID for measuring the equitization impact (these authors used earning before tax instead of earnings after tax to calculate profitability) [8,10].

The authors calculate the two-year average values of measures in pre-post equitization windows presented in Table 2. Most empirical studies in Vietnam used two-year equitization windows to increase sample size and two-year average values can also be used for different statistical tests.

The symbols A and B (Table 3) denote for measures of equitized SOEs after equitization and non-equitized SOEs in the same period, respectively.

The research work also adopts with-without comparison method through the combination of PSM and DID techniques. There are three steps for this method, and the first step is to define the common support area. The second step is to calculate pre- and post-equitization differences between the equitized group and non-equitized group (DID technique), and the third step is used to assess the average treatment effects of equalization on the performance of the two groups.

EMPIRICAL RESULTS

Descriptive statistics

The initial data includes 114 equitized SOEs in the period of 2012-2014 and 312 non-equitized SOEs. According to Khandker et al., the number of non-participants in the control group should be larger than the number of participants in the treatment group and this will help to identify common support areas easily [17].

Using criteria of firm size, establishment year, equitization year and industry to identify common support area, the authors eliminated 16 observations (16 non-participating enterprises) to satisfy balancing conditions. The number of non-equitized SOEs i20s 296 (72.20%), and the number of equitized SOEs is 114 (27.8%) (Table 4).

According to the number of SOEs by year presented in Table 5, Most SOEs are chosen in 2013 (47.07%), followed by the number of SOEs in 2014 with 176 enterprises (accounting for 42.93%). This result comes from the fact that the number of equitized SOEs in 2012 is only 9, so the number of non-equitized enterprises selected in this period is less than in other periods.

Table 6 shows that SOEs generally have a significant difference in performance, sale efficiency, and employment have the highest standard deviation. This shows that SOEs have a different firm size in terms of employment and real sales. SOEs have high average real sales of nearly 288 billion VND and an average number of employees of 635, indicating that SOEs in this sample are large-scale ones. This is also the practical contribution of this study because previous studies in Vietnam mainly focus on small and medium-sized SOEs (SOEs equitized in the first and second

Table 1: Testable predictions [1]

Variables	Proxies	Predicted relationship
Profitability	ROS = Net Income/ Sales	ROSA > ROSB
	ROA = Net Income / Total Assets	ROAA > ROAB
	ROE = Net Income/ Equity	ROEA > ROEB
Operating efficiency	SALEF =Sales/ Number of employees	SALEFFA> SALEFFB
	NIEFF = Net Income/ Number of employees	NIEFFA > NIEFFB
	TAS = total sales/ total assets	TASA > TASB
Output	SAL = Nominal Sales/ Consumer Price Index	SALA > SALB
Employment	EMPL = Total Number of employees	EMPLA < EMPLB
Leverage	LV = Total Debt/ Total Assets	LEVA < LEVB

Table 2: DID analysis [10]

	Two-year pre-equitization average of the measure	Two-year post-equitization average of the measure	Pre- and post-equitization difference	Pre- and post-equitization difference between treatment group and control group
Treatment group (equitized SOEs)	MA(0)	MA(1)	dA = MA(1) –MA(0)	DID = dA - dB
Control group (non-equitized SOEs)	MB(0)	MB(1)	dB = MB(1) – MB(0)	

Table 3: Testable HYPOTHESES [10]

Variables	Proxies	Predicted relationship
Profitability	ROS = Net Income/ Sales	ROSdA > ROSdB
	ROA = Net Income / Total Assets	ROAdA > ROAdB
	ROE = Net Income/ Equity	ROEdA > ROEdB
Operating efficiency	SALEF =Sales/ Number of employees	SALEFFdA> SALEFFdB
	NIEFF = Net Income/ Number of employees	NIEFFdA > NIEFFdB
	TAS = total sales/ total assets	TASdA > TASdB
Output	SAL = Nominal Sales/ Consumer Price Index	SALdA > SALdB
Employment	EMPL = Total Number of employees	EMPLdA < EMPLdB
Leverage	LV = Total Debt/ Total Assets	LEVdA < LEVdB

Table 4: Number of non-equitized SOEs and equitized SOEs

No. of enterprises	Frequency	Percentage (%)	Cumulative percentage (%)
Before applying PSM			
Non-equitized SOEs	312	73.24	73.24
Equitized SOEs	114	26.76	100.00
Total	426	100.00	
After applying PSM			
Non-equitized SOEs	296	72.20	72.20
Equitized SOEs	114	27.80	100.00
Total	410	100	

Source: Author's data analysis

Table 5: Equitization year

Equitization year	No. of enterprises	Percentage (%)	Cumulative percentage (%)
2012	41	10.00	10.00
2013	193	47.07	57.07
2014	176	42.93	100.00
Total	410	100.00	

Source: Author's data analysis

Table 6: Descriptive statistics

Variables	Observations	Mean	Std	Min	Max
ROS	410	0.046	0.202	-0.898	0.730
ROE	410	0.063	0.210	-1.582	1.235
ROA	410	0.023	0.099	-0.992	0.704
SALEF	410	1,602.705	5,263.764	7.316	76,937.54
NIEFF	410	135.240	1,697.372	-3,296.3	33,170.57
TAS	410	1.219	1.841	0.002	22.041
SAL	410	287,937.9	1,335,102	41.260	$1.72x10^7$
EMPL	410	634.788	1,635.713	5	22,991
LV	410	0.534	0.464	0.005	3.331

Notes: The unit of employment (EMPL) is in the number of employees, the unit of real sales (SAL) is in millions VND, and other measures are calculated in proportion.
Source:Data analysis

stages). Besides, the statistical results show that the financial performance of SOEs is not high. This can be explained through the net profit of SOEs with negative values in some cases, leading to negative ROS, ROE, and ROA. SOEs also have a difference in financial and operating performance through high standard deviation and the maximum value of these measures.

The equitization impact (considering post-equitization period only)

In this case, the authors use the PSM method for identifying the equitization impact (considering post-equitization period only) by different classification criteria, including general assessment, establishment year, non-listing status, industry group and equitization year. This is also the contribution of this study compared with previous studies in Vietnam, such as

the studies by Loc and Tran, Nhan and Son [8,10]. Furthermore, not many international empirical studies used comparative with-without comparison method with the PSM technique, such as studies by Megginson et al., Boubakri and Cosset, D'Souza and Megginson, Harper [1,15,19,20].

The authors also assess the equitization impact by firm size. To identify firm size, this paper based on the current decree no. 56/2009/ND-CP issued on June 30^{rst}, 2006 in Vietnam.

Table 8 shows that the number of valid small and medium-sized SOEs is 142 (37 belongs to the treatment group and 105 belongs to the control group). Also, there are 238 valid large enterprises (76 equitized SOEs and 162 non-equitized SOEs).

For unlisted enterprises within one year of equitization, their financial and operating performance is much lower than non-equitized firms in the same period (Table 9).

The authors classify SOEs into three industry groups. The first group includes SOEs from the first industry to the third industry (agriculture, mining, and manufacturing industries), the second group includes SOEs from the fourth industry to the sixth industry (power, water supply, and construction industries), and the third group includes SOEs from the seventh industry to the twelfth industry (transportation, retailing, hospitality, telecommunication, banking, insurance, and real estate industries).

In the case of applying the PSM technique for equitization years, the authors use only three characteristics to determine propensity score, including establishment year, firm size, and industry (as each year is studied separately). The impact of equitization on the post-equitization financial and operating performance of equitized SOEs are as follows:

Profitability

The results show that there is no evidence that the overall post-equitization profitability of equitized SOEs is improved (concerning non-equitized SOEs). This finding is consistent with research by Megginson et al. [1]. However, in terms of equitization year, the equitization process helps SOEs equitized in 2012 to improve their ROA compared to non-participating SOEs (the average improvement is 52.5%). However, SOEs equitized in 2014 have a lower ROE than non-participating firms (3.8%).

Operating efficiency

There is no improvement in firm performance of equitized SOEs, and the total asset turnover of equitized SOEs is lower than non-equitized firms (35.6%). This ratio shows that the ability of equitized SOEs to generate revenue on assets in the post-equitization period is lower than that of non-participating firms. Research results show that equitized SOEs do not perform as well as non-equitized firms after equitization as they face new challenges in the competitive business environment, changes in ownership structure and regulation. [3,4]. Considering the small and medium-sized enterprises, the sale efficiency of equitized SOEs is much lower than that of the non-participating SOEs (453,598 million VND/employee on average).

Considering the non-listing status, non-listed equitized SOEs will have lower operating efficiency than that of non-equitized SOEs. This is a fascinating finding that equitized SOEs in Vietnam are not able to operate more efficiently than non-participating firms if they are not listed (sale efficiency is lower than 709,635 million VND/employee on average and total asset turnover is lower than 36.8% on average).

On an industry group basis, Table 10 shows that SOEs equitized in the third industry group are significantly less efficient than non-participating firms in terms of sale efficiency (1290,292 million VND/employee on average). Also, the total asset turnover of equitized SOEs in the third industry is lower than that of non-participating firms (79.5% on average).

Output

The post-equitization real sales of equitized firms are also not better than non-participating firms. This result also explains why equitized SOEs have lower total asset turnover than non-participating firms. Vietnamese equitization is similar to privatization in China, where the state still holds shares in some equitized firms after equitization and controls these firms. In some cases, while these enterprises operate in a competitive environment, the ability to improve sales is challenging (lower than that of the control group of 277,304.75 million VND on average). Another reason is that the actual real sales of the two groups (in terms of large-scale firm size) are significantly different (treatment group has lower real sales than the control group of 228,427.05 million VND on average).

Firms in the first and third industry groups have lower real sales than non-participating SOEs (312,456.1 million VND and 820,619.35 million VND respectively). Considering the equitization years presented in Table 11, SOEs equitized in 2013 and 2014 have lower real sales than non-participating firms. The results are inconsistent with research works in other countries by Pohl et al., Claessens and Djankov [5,13].

Table 7: General estimated results with PSM

Variable	ATE (nnmatch)	z-statistic for ATE (nnmatch)	ATE (psmatch)	z-statistic for ATE (psmatch)
ROS	-0.553	-0.34 (0.731)	-1.396	-0.55 (0.582)
ROE	0.008	0.40 (0.686)	-0.002	-0.11 (0.909)
ROA	0.014	1.46 (0.144)	0.008	1.04 (0.297)
SALEF	-343.0075	-0.79 (0.427)	-456.519	-1.12 (0.263)
NIEFF	-41.000	-0.45 (0.651)	-85.932	-0.62 (0.536)
TAS	-0.361	-2.01** (0.044)	-0.351	-2.05** (0.040)
SAL	-282505	-3.16*** (0.002)	-272104.5	-3.18*** (0.001)
EMPL	-178.724	-1.98** (0.047)	-243.945	-2.76*** (0.006)
LV	-0.075	-1.63 (0.103)	-0.0680	-1.68* (0.093)
Sample size	410 (296 non-equitized SOEs and 114 equitized SOEs)			

***, **, and * stand for significance levels at 1%, 5%, and 10%.
Source:Data analysis

Employment

A significant change in the post-equitization period is that equitized SOEs are engaged in reducing the number of employees compared to non-participating SOEs (212 employees on average). After equitization, equitized firms have a change in ownership structure, with the participation of private ownership so that they will cut unnecessary employment expenses.

Leverage

In general, there is no significant change in the leverage of the two groups. As presented, the state still controls equitized SOEs after equitization in some cases, so they operate similarly to the non-participating SOEs in general. However, there is a difference in the leverage by industry group. Specifically, SOEs equitized in the second industry group have lower leverage than non-participating firms. This also coincides with previous studies that privatization helps firms reduce leverage because of the opportunity to issue more shares rather than use debt.

General Conclusions

Considering only post-equitization financial and operating performance, equitization does not help equitized SOEs to improve their profitability, operating efficiency, real sales, labor, and leverage compared with non-equitized SOEs. This conclusion is inconsistent with research works by Frydman et al., Claessens and Djankov and Pohl[5–7]. Considering firm size, non-listing status, industry group and equitization year, the results are similar to the general analysis, which means that equitization does not help equitized SOEs to improving financial and operating performance of equitized SOEs. To explain this phenomenon, the authors found that the equitized enterprises in this period were mostly large-scale ones operating in a multi-industry environment and complicated ownership structure, so they could not operate efficiently in the post-equitization period compared with non-equitized SOEs. Besides, the state still holds shares and control these equitized SOEs in some cases, and this is similar to the case of China. Cuervo and Villalonga explain that privatization only changes firm ownership structure, which is not a determinant affecting the firm performance of equitized SOEs[14].

Table 8: Estimated results with PSM based on firm size

	Small and medium-sized SOEs				Large SOEs			
Variable	ATE (nnmatch)	z-statistic for ATE (nnmatch)	ATE (psmatch)	z-statistic for ATE (psmatch)	ATE (nnmatch)	z-statistic for ATE (nnmatch)	ATE (psmatch)	z-statistic for ATE (psmatch)
ROS	-3.703	-0.95 (0.344)	-3.755	-0.97 (0.331)	0.035	0.62 (0.536)	0.046	0.56 (0.573)
ROE	0.022	0.63 (0.526)	0.004	0.15 (0.880)	-0.009	-0.43 (0.666)	-0.011	-0.42 (0.678)
ROA	0.005	0.37 (0.712)	0.000	0.02 (0.984)	0.003	0.23 (0.815)	0.001	0.08 (0.933)
SALEF	-185.880	-1.83* (0.067)	-267.718	-2.47** (0.013)	-345.009	-0.43 (0.668)	-377.259	-0.61 (0.542)
NIEFF	-34.919	-1.18 (0.239)	-43.791	-1.33 (0.185)	-128.932	-0.41 (0.681)	-200.511	-0.92 (0.357)
TAS	-0.316	-1.50 (0.133)	-0.462	-2.05** (0.040)	-0.391	-1.67* (0.095)	-0.0754	-0.16 (0.875)
SAL	-1844.598	-1.17 (0.241)	-2396.664	-1.48 (0.140)	-242037.5	-1.82* (0.069)	-214816.6	-2.02** (0.044)
EMPL	-2.243	-0.21 (0.832)	-2.149	-0.29 (0.772)	-86.975	-1.13 (0.259)	-39.969	-0.49 (0.623)
LV	-0.005	-0.07 (0.945)	0.056	0.75 (0.451)	-0.072	-1.60 (0.109)	-0.0565	-1.24 (0.215)
Sample size	142 (105 non-equitized SOEs and 37 equitized SOEs)				238 (162 non-equitized SOEs and 76 equitized SOEs)			

***, **, and * stand for significance levels at 1%, 5%, and 10%.

Source: Author's data analysis

Table 9: Estimated results with PSM based on non-listing

Variable	ATE (nnmatch)	z-statistic for ATE (nnmatch)	ATE (psmatch)	z-statistic for ATE (psmatch)
ROS	-0.621	-0.35 (0.730)	-1.269	-0.47 (0.638)
ROE	-0.008	-0.41 (0.680)	-0.007	-0.32 (0.752)
ROA	0.009	0.94 (0.347)	0.011	1.24 (0.215)
SALEF	-654.774	-1.93* (0.053)	-764.495	-2.48 (0.013
NIEFF	-108.931	-1.18 (0.239)	-111.434	-1.19 (0.234)
TAS	-0.359	-2.62 (0.009)	-0.377	-3.05 (0.002)
SAL	-223698.8	-3.24 (0.001)	-213881.3	-3.11 (0.002)
EMPL	-141.621	-1.63 (0.103)	-173.844	-1.78* (0.075)
LV	-0.076	-1.41 (0.158)	-0.066	-1.40 (0.162)
Sample size	368 (294 non-equitized SOEs and 74 equitized SOEs)			

***, **, and * stand for significance levels at 1%, 5%, and 10%.
Source: Data analysis

The impact of equitization on pre-post equitization financial and operating performance

In this case, the authors use the PSM technique combined with the DID technique to assess the equitization effect. Similarly, this paper examines the effect of equitization on the pre-post equitization difference in financial and operating performance of treatment group compared with control group based on different classification criteria, such as general evaluation, firm size, non-listing status, industry group and equitization year.

Using the PSM technique, the authors select 410 enterprises, including 296 non-equitized ones and 114 equitized ones in the same period (Table 12).

When classifying the sample by firm size, the authors classify the sample into two groups of large-scale and medium and small-sized enterprises presented in Table 13.

Table 14 shows that the number of non-equitized enterprises is 368, and there are 74 equitized SOEs.

Similarly, Table 15 and Table 16 show that enterprises are also classified by industry groups and by three years of 2012, 2013, and 2014.

The results of equitization impact assessment on the pre-post equitization difference in financial and operating performance of the treatment group compared to the control group are as follows:

Profitability

In general, equitized SOEs do not improve their profitability after equitization compared to non-participating firms. However, a notable result is that unlisted equitized SOEs have better profitability compared to non-participating firms (ROA is 13% higher than that of the control group on average, ROE is 4.3% higher than that of the control group on average).

Considering enterprises belonging to the third industry group in Table 15, equitized SOEs have a higher profitability compared to non-participating firms (profitability is 12.9% higher than that of the control group on average, ROE is 37.2% higher than that of the control group on average). Considering the equitization year inTable 16, SOEs equitized in 2013 have higher profitability than that of non-equitized SOEs (5.8% on average).

Table 10: Estimated results with PSM based on industry group

	Industry group 1				Industry group 2				Industry group 3			
Variable	ATE (nn-match)	z-statistic for ATE (nn-match)	ATE (psmatch)	z-statistic for ATE (psmatch)	ATE (nn-match)	z-statistic for ATE (nn-match)	ATE (psmatch)	z-statistic for ATE (psmatch)	ATE (nnmatch)	z-statistic for ATE (nn-match)	ATE (psmatch)	z-statistic for ATE (psmatch)
ROS	0.016	0.83 (0.404)	0.017	0.82 (0.410)	-0.011	-0.16 (0.869)	0.025	0.35 (0.725)	-2.456	-0.35 (0.729)	-1.978	-0.26 (0.793)
ROE	-0.005	-0.18 (0.860)	-0.009	-0.34 (0.731)	0.0126	0.44 (0.660)	0.0212	0.80 (0.421)	0.009	0.25 (0.805)	-0.006	-0.21 (0.837)
ROA	0.007	0.52 (0.601)	0.007	0.55 (0.585)	0.003	0.20 (0.843)	0.011	0.81 (0.421)	0.033	1.35 (0.177)	0.024	1.02 (0.308)
SALEF	-635.139	-0.71 (0.478)	-264.556	-0.41 (0.685)	324.116	0.47 (0.641)	-439.321	-0.82 (0.415)	-1208.097	-1.89* (0.059)	-1372.487	-2.01** (0.044)
NIEFF	59.667	0.67 (0.504)	77.522	0.82 (0.411)	-2.386	-0.05 (0.959)	3.003	0.10 (0.916)	-378.331	-1.04 (0.297)	-490.411	-1.05 (0.295)
TAS	-0.389	-1.86* (0.063)	-0.243	-1.61 (0.107)	0.167	0.38 (0.702)	-0.052	-0.21 (0.831)	-0.712	-1.94* (0.053)	-0.877	-2.60*** (0.009)
SAL	-348608.2	-1.69* (0.091)	-276304	-1.79* (0.073)	-38211.33	-0.86 (0.389)	-58907.24	-1.89* (0.059)	-110953.7	-1.92* (0.055)	-153028.5	-2.26** (0.024)
EMPL	-130.139	-1.33 (0.184)	-143.041	-2.50** (0.012)	-84.37308	-1.14 (0.254)	-55.908	-0.49 (0.624)	-2.554	-0.02 (0.982)	-144.654	-1.86* (0.063)
LV	-0.067	-1.19 (0.235)	-0.115	-1.73* (0.084)	-0.131	-1.82* (0.069)	-0.196	-2.26** (0.024)	-0.051	-0.53 (0.596)	-0.076	-1.24 (0.216)
Sample size	176 (127 non-equitized SOEs and 49 equitized SOEs)				130 (81 non-equitized SOEs and 49 equitized SOEs)				93 (77 non-equitized SOEs and 16 equitized SOEs)			

***, **, and * stand for significance levels at 1%, 5%, and 10%.

Source: Data analysis

Table 11: Estimated results with PSM based on equitization years

	2012				2013				2014			
Variable	ATE (nn-match)	z-statistic for ATE (nn-match)	ATE (psmatch)	z-statistic for ATE (psmatch)	ATE (nn-match)	z-statistic for ATE (nn-match)	ATE (psmatch)	z-statistic for ATE (psmatch)	ATE (nn-match)	z-statistic for ATE (nn-match)	ATE (psmatch)	z-statistic for ATE (psmatch)
ROS	6.149	0.89 (0.375)	6.088	1.14 (0.256)	0.035	1.22 (0.221)	0.010	0.42 (0.672)	-3.103	-0.99 (0.322)	-6.271	-0.99 (0.320)
ROE	.070	2.15** (0.031)	0.056	1.61 (0.107)	0.019	0.58 (0.565)	0.017	0.60 (0.547)	-0.039	-2.21** (0.027)	-0.0367	-2.14** (0.032)
ROA	.052	3.18*** (0.001)	0.053	2.86*** (0.004)	0.018	1.28 (0.202)	0.005	0.44 (0.659)	-0.007	-0.52 (0.601)	-0.003	-0.25 (0.803)
SALEF	537.339	0.64 (0.519)	62.776	0.09 (0.928)	-659.694	-0.89 (0.372)	-276.766	-0.47 (0.639)	-137.828	-0.21 (0.830)	-511.612	-0.98 (0.32)
NIEFF	205.815	1.87* (0.062)	201.516	1.58 (0.114)	6.402	0.08 (0.937)	5.507	0.08 (0.934)	-191.607	-1.01 (0.314)	-246.265	-1.10 (0.272
TAS	.242	0.59 (0.553)	0.017	0.06 (0.956)	-0.549	-1.64 (0.102)	-0.124	-0.20 (0.845)	-0.273	-1.56 (0.118)	-0.172	-1.03 (0.304)
SAL	11456.83	0.34 (0.737)	-15666.87	-0.54 (0.592)	-301	-1.94* (0.052)	-233814.9	-2.04** (0.041)	-345912	-2.84*** (0.005)	-292231.2	-2.45** (0.014)
EMPL	-133.039	-1.55 (0.120)	-221.582	-1.98** (0.047)	-189.246	-1.25 (0.211)	-301.331	-1.93* (0.054)	-204.568	-1.81* (0.071)	-183.024	-1.63 (0.102)
LV	-0.165	-1.50 (0.135)	-0.244	-2.18** (0.029)	-0.078	-1.14 (0.253)	0.026	0.47 (0.637)	-0.051	-0.71 (0.478)	-0.104	-1.29 (0.197)
Sample size	51 (42 non-equitized SOEs and 9 equitized SOEs)				193 (146 non-equitized SOEs and 47 equitized SOEs)				177 (119 non-equitized SOEs and 58 equitized SOEs)			

***, **, and * stand for significance levels at 1%, 5%, and 10%.

Source: Data analysis

Table 12: General estimated results with PSM-DID

Variable	ATE (nnmatch)	z-statistic for ATE (nnmatch)	ATE (psmatch)	z-statistic for ATE (psmatch)
ROSd	-0.516	-0.32 (0.749)	-1.377	-0.54 (0.587)
ROEd	0.075	1.43 (0.151)	0.090	1.54 (0.123)
ROAd	0.035	1.93* (0.054)	0.019	1.51 (0.130)
SALEFd	-1926.267	-1.87* (0.061)	-678.477	-1.37 (0.170)
NIEFFd	-228.797	-2.18** (0.029)	-163.451	-1.90* (0.057)
TASd	-0.046	-0.25 (0.800)	0.090	0.49 (0.624)
SALd	-125328.1	-2.11** (0.035)	-136089	-2.09** (0.037)
EMPLd	72.236	0.82 (0.413)	16.528	0.19 (0.847)
LVd	-0.106	-2.65*** (0.008)	-0.094	-2.90*** (0.004)
Sample size	410 (296 non-equitized SOEs and 114 equitized SOEs)			

***, **, and * stand for significance levels at 1%, 5%, and 10%.
Source: Data analysis

Operating efficiency

When considering the profitability, non-equitized SOEs have better-operating efficiency than equitized SOEs (196.24 million VND/employee on average). The reason is that SOEs equitized in 2013 do not improve much in terms of net income efficiency compared to non-participating firms (206,282 million VND/employee on average). This result is contrary to previous studies by Loc and Tran, Nhan and Son[8,10]. Considering large-scale enterprises, the net income efficiency of the participating firms can not be improved compared with the non-participating firms (299,398 million VND/employee on average). The total asset turnover of the participating firms in the first industry group also can not be improved compared with the non-participating firms (the difference is 30.4% on average). This is because SOEs equitized in 2014 do not improve total asset turnover compared with non-participating firms (the difference is 25.2% on average).

Output

The improvement in the real sales of the participating firms is even lower than that of the non-participating firms (130,708.55 million VND on average). Improvement in real sales of unlisted SOEs is also lower than non-participating firms (47,624.595 million VND on average). This is due to the fact that SOEs equitized in 2014 have a lower improvement in real sales compared to the non-participating firms (about 128,978.05 million VND on average).

Employment

The results show that participating firms in the third industry group have an increase in the labor force after equitization compared to non-participating SOEs (170 employees on average). This is in contrast with previous studies. This is because firms in the service industry (third industry group) increase employees to provide more services to customers.

Leverage

In general, the leverage of the treatment group is lower than that of the control group, which is quite similar to the previous empirical studies (10% on average). The results also show that equitized firms use lower leverage than non-participating firms in the same period. This is because large-scale SOEs in the treatment

Table 13: Estimated results with PSM-DID based on firm size

	Small and medium-sized SOEs				Large SOEs			
Variable	ATE (nnmatch)	z-statistic for ATE (nnmatch)	ATE (psmatch)	z-statistic for ATE (psmatch)	ATE (nnmatch)	z-statistic for ATE (nnmatch)	ATE (psmatch)	z-statistic for ATE (psmatch)
ROS	-3.645	-0.93 (0.351)	-3.662	-0.94 (0.349)	0.071	1.08 (0.280)	0.073	1.34 (0.181)
ROE	0.055	1.48 (0.140)	0.005	0.12 (0.905)	0.029	0.62 (0.538)	0.072	0.88 (0.377)
ROA	0.029	2.22** (0.026)	0.020	1.14 (0.254)	0.013	0.97 (0.333)	0.007	0.55 (0.583)
SALEF	-113.125	-1.47 (0.142)	-122.798	-1.55 (0.120)	-2064.978	-1.60 (0.109)	-1195.924	-1.00 (0.316)
NIEFF	-17.989	-0.65 (0.517)	-30.829	-0.93 (0.350)	-278.471	-2.35** (0.019)	-320.326	-2.09** (0.037)
TAS	-0.204	-1.01 (0.312)	-0.197	-0.88 (0.378)	0.049	0.24 (0.814)	0.291	0.73 (0.464)
SAL	-1499.341	-1.28 (0.200)	-1811.49	-1.04 (0.300)	-72568.16	-1.28 (0.199)	-154694.2	-1.01 (0.312)
EMPL	32.137	0.80 (0.421)	33.156	0.67 (0.500)	0.295	0.00 (0.996)	-86.613	-1.32 (0.186)
LV	-0.116	-2.33** (0.020)	-0.072	-1.23 (0.220)	-0.088	-1.85* (0.064)	-0.084	-1.95* (0.051)
Sample size	142 (105 non-equitized SOEs and 37 equitized SOEs)				238 (162 non-equitized SOEs and 76 equitized SOEs)			

***, **, and * stand for significance levels at 1%, 5%, and 10%.

Source: Data analysis

Table 14: Estimated results with PSM-DID based on non-listing status

Variable	ATE (nnmatch)	z-statistic for ATE (nnmatch)	ATE (psmatch)	z-statistic for ATE (psmatch)
ROS	-0.557	-0.31 (0.756)	-1.304	-0.46 (0.648)
ROE	0.130	2.15** (0.032)	0.131	1.86* (0.063)
ROA	0.044	2.26** (0.024)	0.041	2.65*** (0.008)
SALEF	-267.605	-0.90 (0.366)	-229.211	-0.91 (0.365)
NIEFF	-63.435	-1.49 (0.137)	-67.453	-1.35 (0.177)
TAS	-0.116	-0.90 (0.369)	-0.048	-0.41 (0.680)
SAL	-46167.12	-2.21** (0.027)	-49082.07	-2.35** (0.019)
EMPL	67.691	0.86 (0.387)	28.315	0.36 (0.720)
LV	-0.124	-2.89*** (0.004)	-0.086	-2.14** (0.033)
Sample size	368 (294 non-equitized SOEs and 74 equitized SOEs)			

***, **, and * stand for significance levels at 1%, 5%, and 10%.
Source: Data analysis

group have lower leverage than SOEs in the control group (8.6% on average). Also, unlisted SOEs have lower leverage than non-participating firms (10.5% on average).

Robustness test

In previous studies, Nhan and Son, Loc and Tran, Hung et al. have only used the caliper or radius matching (0.01), and these previous studies have not checked the robustness of the average treatment effect [8–10]. However, according to Khandker et al., there are several ways to check the robustness of the findings [17]. The author has applied two matching techniques to check the robustness of the average treatment effect and give more accurate results. The author has performed the robustness test from Table 7 to Table 16. Each table has two columns showing two different methods, including direct nnmatch (nearest-neighbor matching) and psmatch (neighboring matching).

CONCLUSIONS AND DISCUSSION

The equitized SOEs do not improve firm performance compared to the non-participating firms. There is also no evidence for a reduction in the number of employees of equitized SOEs after equitization. This conclusion is in contrast to previous studies by Loc and Tran (2016), Nhan and Son, but there is a similarity with the results of studies by Jiang et al., Wei et al. [4,8,10,16]. This is because the equitized enterprises in the period 2012-2014 are mainly large-scale ones with slow change of operating objectives, monitoring mechanism and weak competitiveness after equitization. Also, equitized SOEs could not solve problems in the pre-equitization period, so they still suffer these problems even in the pos-equitization period. According to Jiang et al. (2009), some pre-equitization difficulties of equitized SOEs should include financial debt, irrecoverable debt, redundant workers. After equitization, it is more difficult for joint-stock enterprises to access capital than state-owned enterprises because there are no more incentives compared to pre-equitization period, the State no longer has preferential policies for joint-stock enterprises. Especially, managers from joint-stock companies were mostly transferred from state-owned enterprises with the same management style while equitized SOEs have to face many changes in competition, market and technology.

Table 15: Estimated results with PSM-DID based on industry group

	Industry group 1				Industry group 2				Industry group 3			
Variable	ATE (nn-match)	z-statistic for ATE (nnmatch)	ATE (ps-match)	z-statistic for ATE (ps-match)	ATE (nn-match)	z-statistic for ATE (nnmatch)	ATE (psmatch)	z-statistic for ATE (psmatch)	ATE (nnmatch)	z-statistic for ATE (nnmatch)	ATE (ps-match)	z-statistic for ATE (psmatch)
ROS	0.111	1.08 (0.282)	0.041	0.50 (0.614)	0.013	0.09 (0.932)	0.033	0.32 (0.746)	-2.465	-0.35 (0.728)	-3.227	-0.43 (0.664)
ROE	0.06709330.	0.88 (0.380)	0.018	0.34 (0.737)	.050	1.47 (0.142)	0.049	1.57 (0.117)	0.447	2.00** (0.046)	0.298	2.53** (0.011)
ROA	-0.005	-0.32 (0.749)	-0.014	-1.09 (0.277)	0.020	1.29 (0.198)	0.022	1.34 (0.179)	0.159	2.10** (0.035)	0.099	10.03*** (0.000)
SALEF	-2240.259	-1.84* (0.066)	-1751.37	-1.50 (0.134)	808.025	1.45 (0.146)	660.989	1.71* (0.088)	-822.094	-1.81* (0.070)	-660.162	-1.53 (0.126)
NIEFF	-248.484	-1.57 (0.117)	-270.928	-1.94* (0.052)	15.030	0.36 (0.721)	10.760	0.30 (0.765)	-141.059	-0.88 (0.379)	-44.731	-0.33 (0.740)
TAS	-0.374	-2.11** (0.035)	-0.235	-1.77* (0.076)	0.588	1.06 (0.289)	0.453	1.53 (0.126)	-0.395	-0.93 (0.355)	-0.375	-1.15 (0.249)
SAL	-186443.5	-1.34 (0.180)	-190955.5	-1.87* (0.061)	16593	0.47 (0.635)	37821.65	1.25 (0.212)	-53533.77	-1.39 (0.165)	-79392.14	-1.67 (0.094)
EMPL	5.999	0.10 (0.924)	26.266	0.44 (0.662)	-82.954	-1.14 (0.256)	-153.725	-1.99** (0.047)	202.704	1.65* (0.098)	136.782	2.12** (0.034)
LV	-0.064	-1.88* (0.060)	-0.085	-1.81* (0.070)	-0.200	-2.20** (0.027)	-0.173	-1.87* (0.061)	-0.059	-0.86 (0.387)	-0.063	-1.08 (0.282)
Sample size	176 (127 non-equitized SOEs and 49 equitized SOEs)				130 (81 non-equitized SOEs and 49 equitized SOEs)				93 (77 non-equitized SOEs and 16 equitized SOEs)			

***, **, and * stand for significance levels at 1%, 5%, and 10%.

Source: Data analysis

Table 16: Estimated results with PSM-DID based on equitization year

	2012				2013				2014			
Variable	ATE (nnmatch)	z-statistic for ATE (nnmatch)	ATE (psmatch)	z-statistic for ATE (psmatch)	ATE (nn-match)	z-statistic for ATE (nnmatch)	ATE (ps-match)	z-statistic for ATE (psmatch)	ATE (nn-match)	z-statistic for ATE (nnmatch)	ATE (psmatch)	z-statistic for ATE (psmatch)
ROS	6.527	0.94 (0.346)	6.271	1.17 (0.243)	0.113	0.95 (0.344)	0.107	1.25 (0.211)	-3.178	-1.01 (0.310)	-6.348	-1.01 (0.313)
ROE	0.007	0.07 (0.947)	0.001	0.01 (0.994)	0.104	1.11 (0.268)	0.059	0.98 (0.328)	0.0787	1.17 (0.242)	0.086	1.10 (0.270)
ROA	-0.003	-0.06 (0.949)	0.021	0.44 (0.658)	0.073	2.11** (0.035)	0.044	1.92* (0.055)	-0.002	-0.10 (0.921)	0.001	0.07 (0.941)
SALEF	-2163.662	-1.37 (0.171)	-890.821	-1.22 (0.221)	-1989.943	-1.21 (0.228)	-577.029	-0.52 (0.604)	-739.485	-2.16** (0.031)	-752.411	-2.07** (0.038)
NIEFF	52.149	0.32 (0.745)	138.740	1.08 (0.281)	-261.806	-2.10** (0.036)	-150.758	-1.91* (0.056)	-183.027	-1.29 (0.195)	-200.174	-1.58 (0.114)
TAS	-0.011	-0.04 (0.969)	-0.130	-0.57 (0.570)	0.197	0.58 (0.562)	0.818	1.36 (0.174)	-0.284	-1.79* (0.073)	-0.221	-1.73* (0.083)
SAL	20448.05	1.23 (0.218)	6256.26	0.47 (0.640)	-108209.6	-0.84 (0.401)	-114112.9	-1.08 (0.282)	-135333.8	-3.36*** (0.001)	-122622.3	-3.00*** (0.003)
EMPL	230.863	1.55 (0.122)	130.309	1.08 (0.282)	58.817	0.49 (0.621)	-54.263	-0.46 (0.642)	38.627	0.29 (0.774)	34.910	0.23 (0.818)
LV	-0.122	-1.07 (0.285)	-0.171	-1.20 (0.230)	-0.137	-2.01** (0.044)	-0.054	-1.06 (0.291)	-0.082	-2.04** (0.041)	-0.112	-2.43** (0.015)
Sample size	51 (42 non-equitized SOEs and 9 equitized SOEs)				193 (146 non-equitized SOEs and 47 equitized SOEs)				177 (119 non-equitized SOEs and 58 equitized SOEs)			

***, **, and * stand for significance levels at 1%, 5%, and 10%.

Source: Data analysis

Besides, equitized firms have reduced leverage compared to non-participating firms. According to Loc and Tran, equitized SOEs are less likely to use debt after equitization, instead of increasing equity through issuing stocks after equitization [10]. Although equitized have not improved significantly in terms of profitability, operating efficiency and output compared to non-participating firms in the short run, it is clear that there is a fundamental change in the ownership structure of participating firms to positively participate in a more competitive environment, and appropriate control over their performance so that they can operate more efficiently than non-equitized firms in the long term. The results also show that unlisted firms have higher ROA than non-equitized firms, or SOEs equitized in 2013 have higher ROA and ROE than non-equitized firms. Therefore, the results of this study contribute to the practical aspects compared with previous empirical studies in Vietnam because this study considers the equitization impact and the equitization impact is considered based on non-listing status, firm size, equitization year and industry group. As a result, investors can make appropriate investment decisions. Enterprises can look at their business characteristics to forecast their ability to improve financial and operating performance after equitization or policy-makers can consider appropriate regulations.

SUMMARY AND IMPLICATIONS

In general, the results of the two methods are quite similar to the general conclusion is that the equitized SOEs do not improve performance after equitization. The author proposes some policy implications as follows:

1. The Vietnamese government should have appropriate policies to support equitized enterprises, especially in the first years of the post-equitization period. Research results show that equitized enterprises have not improved their financial and operating performance in the first two years due to difficulties such as new entry into the competitive environment, ownership structure change, lacking competitive ability compared with private enterprises in the same industry. In the short run, equitized firms are less efficient than non-participating firms, but the number of employees and leverage of equitized SOEs is lower than that of non-equitized SOEs after equitization. Equitized SOEs tend to reduce the level of debt and issue more stocks, which help to reduce financial risk after equitization. Equitization does not always help businesses operate more efficiently, and the impact of equitization on firm performance depends on equitization year, non-listing status, firm size, or industry groups.
2. Non-equitized enterprises should actively participate in equitization when they have enough conditions, and they should have clear operational and strategic plans after equitization because equitization does not always help equitized SOEs to operate more efficiently compared with non-equitized SOEs after equitization. According to Cuervo and Villalonga, equitization is only a remarkable event when equitized SOEs change their ownership structure, while other factors such as operating objectives, control mechanisms, new strategies affect firm performance after privatization [14].
3. Although equitized SOEs do not improve firm performance compared to non-participating SOEs in general, they can improve their performance if we consider subsamples based on equitization year, non-listing status, firm size and industry groups. For example, unlisted equitized SOEs have higher ROA than non-equitized SOEs, or SOEs equitized in 2013 have higher ROA and ROE than non-equitized SOEs. These new findings help investors to have appropriate long-term investment strategies because equitized firms are not always effective after equitization, especially in the short term.

The results of the study show that equitization does not always help equitized SOEs to operate more efficiently after equitization compared with non-equitized ones and this impact depends on equitization year, non-listing status, firm size and industry group, which reveal that related theories have certain limitations since they do not consider these characteristics to explain the impact of privatization or equitization on firm performance in general.

This study does not explain how equitization affects financial and operating performance of participating firms compared to non-participating firms in the long run and how different equitization periods affect financial and operating performance of equitized SOEs. Based on the limitations of this study, the author suggests further research to overcome these limitations.

ABBREVIATIONS

DID: difference-in-difference
EMPL: Total Number of employees
LV: Leverage
NIEFF: Net income efficiency

PSM: propensity score matching
ROA: Return on assets
ROE: Return on equity
ROS: Return on sales
SAL: Real sales
SALEF: Sales efficiency
SOEs: State-owned enterprises
TAS: Total asset turnover
VND: Vietnam Dong

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COMPETING INTERESTS

The author declares that there is no conflict of interest in publishing this paper.

AUTHORS' CONTRIBUTIONS

This study is finished by one author

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Bài Nghiên cứu

Tác động của cổ phần hóa đến hiệu quả tài chính và hiệu quả hoạt động của các doanh nghiệp nhà nước tại Việt Nam: hướng tiếp cận sử dụng kỹ thuật điểm xu hướng

Nguyễn Văn Tân*

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TÓM TẮT

Nghiên cứu này xác định tác động của cổ phần hóa đến hiệu quả tài chính và hiệu quả hoạt động của các doanh nghiệp Nhà nước tại Việt Nam. Các lý thuyết liên quan tư nhân hóa trước đây chưa giải thích liệu các doanh nghiệp tham gia cổ phần hóa có cải thiện được hiệu quả tài chính và hiệu quả hoạt động so với các doanh nghiệp không tham gia cổ phần hóa hay không. Nghiên cứu này đề xuất sử dụng phương pháp so sánh có – không có thông qua đánh giá tác động trung bình của chính sách cổ phần hóa nhằm đo lường tác động của cổ phần hóa đến hiệu quả tài chính và hiệu quả hoạt động của các doanh nghiệp nhà nước. Thông qua việc sử dụng dữ liệu gồm 114 doanh nghiệp cổ phần hóa trong giai đoạn 2012-2014 tại Việt Nam, tác giả nhận thấy rằng cổ phần hóa không giúp các doanh nghiệp tham gia cổ phần hóa cải thiện lợi nhuận, hiệu quả hoạt động và sản lượng hơn các doanh nghiệp không tham gia. Kết quả cho thấy không có bằng chứng cho rằng số lượng nhân công trong các doanh nghiệp giảm sau cổ phần hóa. Những kết luận này không tương đồng với kết quả nghiên cứu trước đây tại Việt Nam, nhưng kết luận này lại tương đồng với kết quả nghiên cứu tại Trung Quốc. Nguyên nhân dẫn đến hiệu quả tài chính và hiệu quả hoạt động các doanh nghiệp không được cải thiện so với các doanh nghiệp không tham gia cổ phần hóa là do các doanh nghiệp sau cổ phần hóa tại Việt Nam thường vẫn còn chịu chi phối của Nhà nước, cũng như đa phần các doanh nghiệp cổ phần hóa trong giai đoạn 2012 – 2014 là các doanh nghiệp có quy mô lớn với xu hướng ít thay đổi về mục tiêu hoạt động, cơ chế giám sát và khả năng cạnh tranh thấp sau khi cổ phần hóa. Tuy nhiên, cổ phần hóa giúp các doanh nghiệp cổ phần hóa hoạt động hiệu quả hơn các doanh nghiệp không tham gia cổ phần hóa khi xem xét tình trạng không niêm yết hoặc theo nhóm ngành nghề. Nghiên cứu này góp phần đề xuất các hàm ý chính sách cho Chính phủ Việt Nam trong việc khuyến khích các doanh nghiệp chủ động hơn khi tham gia vào chương trình cổ phần hóa. Kết quả nghiên cứu cũng giúp các nhà đầu tư đưa ra những chiến lược đầu tư dài hạn đối với các doanh nghiệp cổ phần hóa. Nghiên cứu này cũng có một số hạn chế nhất định để đề xuất các nghiên cứu tiếp theo.

Từ khoá: Cổ phần hóa, Tư nhân hóa, Hiệu quả tài chính, Hiệu quả hoạt động, Phương pháp so sánh trước – sau, Doanh nghiệp nhà nước

Trường Đại học Quốc tế Miền Đông

Liên hệ

Nguyễn Văn Tân, Trường Đại học Quốc tế Miền Đông

Email: tan.nguyen@eiu.edu.vn

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