Paper Code : MIIT6 – 118

IMPACT OF PRIVATIZATION ON OPERATING EFFICIENCY: THE CASE OF VIETNAM

Thi Xuan Hong Nguyen
Hanoi University of Industry, Vietnam
E: hongntx2013@gmail.com. T: 0988 010 980
La Soa Nguyen
Hanoi University of Industry, Vietnam
E: soanguyen3103@gmail.com. T: 01687 615 861
Manh Dung Tran
National Economics University, Vietnam
E: tmdungkt@yahoo.com. T: 0947 120 510

Abstract

This research is conducted to evaluate the impacts of privatization of stated owned enterprises on operating performance and management efficiency in Vietnam. Operating performance is measured by sales/number of employees and management efficiency is calculated by net income/number of employees. Data were collected from audited financial statements of 126 privatized firms in the time series on Vietnam Stock Exchange. By using quantitative methods for testing hypotheses designed, the results show that variables of state ownership, economic growth, financial leverage have negative impacts on operating efficiency. In contrast, , the change of CEO, firm size are positive relationship. Surprisingly, non impacts on operating efficiency belong to variables sales growth rate and time before & after privatization in the context of Vietnam. However, there is no impact of state ownership on sales/number of employees.

Key words: Privatization, Operating efficiency, Vietnam

Introduction

Due to redundancy and low competency of workforce, irrational task distribution coupled with outdated machinery and equipment in state-owned enterprises (SOEs), their operating performance was low (Tran et al., 2006). As the Vietnamese government implemented its privatization direction by changing state ownership in SOEs and management policies as well as solving workforce redundancy, revenue and profit of SOEs also increased so operating efficiency tends to improve after privatization. Previous empirical studies of different research scopes about operating efficiency of SOEs after privatization such as Tran et al. (2006), Truong et al. (2006), Tran (2007), Doan (2014) all show that changes in post-privatization performance tend to be postitive. So what causes such changes and what are influencing factors of operating efficiency in privatized SOEs? To answer this question, the authors of this research collected and calculated efficiency of privatized SEOs during the period of 2002-2014, from prior to privatization to 1-2 years after privatization. The authors also applied linear regression testing to evaluate influencing factors of operating efficiency in privatized SOEs.

Literature Review

There can be many influencing determinants of an enterprise's operating efficiency. When calculating operating efficiency sales/number of employees and by income before tax /number of employees, studies like Sumit (1997), Harper (2002), Wei et al. (2003), and Bourakri et al. (2005) mentioned such influencing factors as: size of firm, foreign ownership ratio, revenue growth rate, GDP growth rate, trade balance, business field.... In these studies, the authors clarified changes in operating and management efficiency of Vietnamese SOEs before and after privatization. A representative study by Truong et al. (2006) reviewed factors that cause changes in operating efficiency of privatized SOEs such as: size of enterprise, state ownership ratio, change of CEO, Board Chairman as the representative of state capital, listed firms, business field, time of privatization, geographical location. Research results show that state ownership and the change of CEO have positive impact while size of enterprise has negative impact on operating efficiency of SOEs after privatization. In addition, listed firms and firms in the North have better operating efficiency while those with Board Chairman as the representative of state capital have low operating efficiency.

Even though the study of Truong et al. (2006) produced results of high reliability, the privatization time of firms in the research samples was not recent (only up to 2004) and the main method applied in that study was difference-in-differences method. OLS was employed for testing regression for sample including firms with privatization time from 2002 to 2014 to find out about the impact of privatization and influencing factors of operating efficiency in enterprises.

Research and Data Methodology

Information about revenue, profit, workforce, and income of enterprises can be disclosed to interested parties; however, according Jusoh et al. (2008), managers often reluctantly provide them or participate in surveys due to sensitivity and confidential nature of information. As a result, the research sample includes listed public companies that were originally SOEs. These companies are listed on the Hanoi Stock Exchange and Ho Chi Minh City Stock Exchange or trade securities on Upcom and OTC market. Analyzed data are financial statements and average number of employees of the accounting period from 1 year prior to privatization to 2 years after privatization. After collecting data, the research sample includes 126 financial statement and employee data of privatized enterprises; of which 114 of them are listed firms and 12 of them are not listed on the official stock exchange.

The authors applied the ratio method (to calculate the operating efficiency ratio and a number of influencing factors), statistical analysis method (including descriptive statistics and necessary verifications to test autocorrelation, multiphase and multiple regression (about the relation between independent and dependent variables).

Based on results of local and international studies, the following linear model is introduced:

$$OE = \alpha_0 + \beta_1 STATE + \beta_2 GDP + \beta_3 PRIV + \beta_4 CBD + \beta_5 LEV + \beta_6 SAGR + \beta_7 SIZE + \varepsilon$$

According to studies conducted by Meggison et al. (1994), Haper (2002), Wei et al. (2003), and Truong et al. (2006), operating efficiency is measured by sales/number of employees and income/number of employees. As a result, in this regression model, the

chosen OE dependent variable includes SE (sales/number of employees) and IE (income/number of employees)

Independent variable: Bases on results of previous studies, we chose state ownership ratio as the criteria for evaluating the impact of privatization in the independent variable model and introduced the following hypothesis:

According to Nguyen (2010), privatization in Vietnam mainly focuses on the target of reducing state ownership or state control in an enterprise. When the state controls the majority of capital, operations in an enterprise have to follow the state direction, leading to the lack of freedom in making business decisions and eventually lower responsiveness to market mechanism. Wei et al. (2003) stated that the higher the state ownership ratio, the higher the operating efficiency in firms. However, for research sample including privatized SOEs in Vietnam, Truong et al. (2006) argued that operating efficiency of firms with post-privatization state ownership ratio of less than 50% is better than the case of dominant state ownership ratio. It can be seen that different authors have contradicting research result. To verify this, the authors of this research chose state ownership ratio as the criteria for evaluating the impact of privatization in the independent variable model and introduced the following hypothesis:

Hypothesis H1: the higher the state ownership ratio, the lower the operating efficiency.

❖ **Control variable:** Besides ownership ratio, there are many other influencing factors of operating efficiency of privatized SOEs. Based on previous studies in literature review, the authors review the following factors and put them in the regression model as control variables:

- *GDP*: Growth rate of the economy during the operating time of firms.

For any country, the macroeconomic environment always has certain impact on the operation of the economy in general and of firms in particular. In addition, domestic macroeconomic conditions including fiscal and monetary policies of the government have impact on the whole national economy; economic conditions influenced by these policies affect all industries and firms in the economy. Besides, policies such as interest rate policy, exchange rate policy...also affect factor inputs of firms.

They are objective factors that cannot be influenced by firms, but they affect the operating efficiency of firms; privatized SOEs are also not exceptions. To review the impact of macroeconomic environment, Boubakri et al. (2005) included GDP growth rate in the research model and found that it had positive impact on operating efficiency of firms. For this research, the authors include GDP growth of the economy during the operating time of firms in the control variable model to review objective impacts of the economic environment on operating efficiency of firms with the following hypothesis:

Hypothesis 2: Economic growth rate has positive relation with operating efficiency of firms

- *PRIV*: is a dummy variable which takes the value of 0 for the years before privatization and 1 for the years after it. SOEs tend to achive low operating efficiency due to redundancy of workforce and irrational task distribution. After privatization, firms often improve human resource management and working methods which lead to higher operating efficiency (Sjoholm, 2008). Many studies applied the DID methods to verify that there are differences in operaring efficiency before and after privatization (Meggison et al., 1994; Bourakri & Cosset, 1998; Aussen & Jelic, 2002; Mathur &

Banchuenvijit, 2007); Oqdeh & Nassar, 2011). The authors put this dummy variable in the regression model with the following hypothesis:

Hypothesis 3: After privatization, operating efficiency increases.

- *CBD*: this indicates the change of CEO in firms after privatization. It is a dummy variable which takes value of 0 when there is no change of CEO and 1 when there is a change of CEO in an enterprise.

There are changes in the organization of privatized firms, leading to the replacement of the person who directly leads and manages the operation of an enterprise. This can be viewed as the "wind of change" for business operation. Megginson et al. (1994), and Truong et al. (2006) stated that changes in CEO or board of directors can bring about improved operating efficiency for privatized enteterprises. From results of previous studies, the authors design the following hypothesis:

Hypothesis 4: Firms with changes in CEO after privatization have higher operating efficiency.

- *LEV*: The financial leverage is calculated by total debt to total assets

Financial leverage is one of important managerial decisions because it can affect interests and risks of business owner/shareholders while amplifying profit of firms. In Vietnam, the total debt to total assets ratio increases after privatization, as argued by Doan Ngoc Phuc (2014), indicating that even though privatized SOEs mobilize their capital from shareholders, they are still dependent on borrowings so the debt ratio can increase. If firms can exploit financial leverage, they can depend on borrowed capital to "amplify" business profits, which indirectly affects operational efficiency. As a result, we put financial leverage variable into the model and design the following hypothesis:

Hypothesis 5: Financial leverage has positive relation with operating efficiency

- *SARG*: Sales growth rate is calculated by subtracting sales of the previous year from sales of the current year, then dividing the amount by sales of the previous year.

Firms with high sales growth tend to have good operation efficiency because such growth can bring about profit from investments. Previous scientific studies show that sales growth rate has positive relation with financial performance of firms. The authors put this factor into the model and expect that it can affect operating efficiency of firms with the following hypothesis:

Hypothesis 6: Sales growth rate has positive relation with operating efficiency

- SIZE: This reflects the size of an enterprise, calculated by log of average total assets

Size is important to operational efficiency as it represents resources of an firms. According to Harper (2002), Wei et al. (2003), and Truong et al. (2006), the biggest the size, the higher the operating efficiency because an enterprise have advantages in terms of operation, organization structure, technology level. But Tran (2007) argued otherwise, stating that in many cases, when the size of an enterprise is too big, it can have negative impact on operating efficiency due to issues like corruption or difficulties in control and management, Based on previous research results, the authors design the following hypothesis for the factor of enterprise size:

Hypothesis 7: Size of an enterprise has positive relation with operating efficiency

Results and Discussions

4.1. Descriptive Statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
SE	504	2257.898	6913.544	22.081	62.515
IE	504	199.845	954.673	-239.961	72.8407
STATE	504	63.719	25.974	0	100
PRIV	504	0.75	.433	0	1
GDP	504	7.195	1.186	5.25	8.46
CBD	504	.460	.499	0	1
LEV	504	.611	.257	.0002	2.146
SARG	504	25.481	42.658	-76.992	188.333
SIZE	504	26.471	1.686	21.405	31.553

Table 1: Descriptive Statistics of Variables in the Model

Table 1 presents the mean value, standard deviation, min value and max value of each variable. Variable SE has the mean value of 2,257.89 million dong (VND), the lowest value 22.08 million, the highest value of 63,271.29 million, and standard deviation of 6,91 million. IE has the value of 199.84 million, -239.96 million, 14,251.1 million, and 954.67 million, respectively.

STATE has the mean value of 71%, standard deviation of 26.97%, the highest state ownership of 100% (prior to privatization), and the lowest ratio value of 0% (for fully privatized enterprise).

PRIV is a dummy variable so it only takes two values: 0 for the years before privatization and 1 for the years after it.

GDP has the average rate of 7.19% from 2001 to 2006 with the highest rate of 8.46% and the lowest rate of 5.25%.

CBD only takes two values: 0 when there is no change of CEO and 1 when there is a change of CEO in an enterprise. Of 140 firms in the research sample, only 63 of them changed CEO after privatization.

LEV has the mean value of 0.61, standard deviation of 0.26, the highest ratio of 2.15, and the lowest ratio of 0.002.

SARG has the mean value of 25.48%, standard deviation of 42.66%, the highest value of 188.33%, and the lowest value of -76.99%.

SIZE has the mean value of natural log of total asset of 26.47, standard deviation of 1.68, the highest value of 31.55 and the lowest value of 20.4.

4.2. Correlation

Normal distribution does not apply for variables in the research sample so we use Spearman's rank correlation coefficient to verify correlation among outcome variable, as shown in Table 2.

	SE	IE	STATE	PRIV	GDP	CBD	LEV	SARG	SIZE
SE	1.0000								
IE	0.7190	1.0000							
STATE	-0.0062	-0.0229	1.0000						
PRIV	-0.0389	0.0520	-0.7990	1.0000					
GDP	-0.1170	-0.1314	0.0744	-0.2098	1.0000				
CBD	0.1152	0.1111	0.0350	-0.0000	-0.0545	1.0000			
LEV	-0.0833	-0.1523	-0.0117	-0.0315	0.0766	-0.0707	1.0000		
SARG	0.0034	0.0164	-0.0005	0.0078	0.0060	0.0323	-0.0064	1.0000	
SIZE	0.3058	0.3471	0.0936	0.1038	-0.1349	0.0118	0.0810	0.0498	1.0000

Table 2: Correlation Between Dependent and Independent Variables

Table 2 indicates correlation between dependent and independent variables, of which STATE, GDP, and LEV have negative influence on SE, IE while the remaining variables (PRIV, CBD, SARG, SIZE) have positive influence on SE and IE.

4.3. Linear Regression

We apply OLS regression analysis method to verify the model and also to test its shortcomings. Results show that multicolinearity does not occur but heteroskedasticity is present. To overcome heteroskedasticity, the authors apply robust evaluation matrix for covariance. Results of regression estimate for each model with independent variables and control variables are summarized in Table 3.

Table 3: Results of Regression Estimates for Regression Models

Variables	SE		IE	
	Coefficient	P-value	Coefficient	P-value
C	-21094.210	0.002	-6372.232	0.001
STATE	-40.093	0.271	-12.499	0.017
PRIV	-2392.004	0.179	-667.969	0.125
GDP	-898.550	0.002	-150.047	0.055
CBD	1925.193	0.002	35.987	0.017
LEV	-2537.571	0.021	-1031.421	0.001
SARG	-2.541	0.619	-1.732	0.881
SIZE	1318.213	0.000	80.644	0.002
R-Squared	0.2473		0.2791	

Results of regression estimates in Table 3 show that most variables have notable impact on financial performance with the significance level of 5% and 10% except for PRIV and SARG. The impact directions of variables on operating efficiency are relatively the same, specifically as follows:

STATE measures the privatization variable. Even though the beta coefficient is relatively small compared to those of other factors, it has negative relation with IE (p-value = 0.017 < 0.05) but shows no sign of impact on (p-value = 0.271). Consequently, the higher the state ownership ratio, the lower the IE of an enterprise: it corresponds to results of almost all previous studies such as those by Harper (2002), Wei et al. (2003), and Truong et al. (2006).

Control variables have both positive and negative impact on operating efficiency. The change in CEO (CBD) results in better operating efficiency as it has positive impact on SE and IE (p-value = 0.02 and = 0.017). Size of an enterprise (SIZE) also has positive impact on SE and IE, same as in the study of Truong et al. (2006). Financial leverage is (LEV) in also an influencing factor of SE and IE. Surprisingly, GDP and LEV have negative impacts on SE and IE. Theoretically speaking, the higher the GDP, the higher the operating efficiency of firms can be but our research results show the opposite with reliability of up to 95%. Such results contradict with those by Bourakri et al. (2005). In addition, according to theory, the higher the financial leverage ratio, the more the profit of an enterprise can be amplified; however out research results indicate that it has a negative relation with operating efficiency of firms.

Conclusion

The authors conducted this study on whether privatization is influencing factor of operating efficiency of privatized firms in Vietnam. Operating efficiency is measured by sales/number of employees and income before tax/number of employees. The research sample is collected from 126 public companies and the linear regression model is designed based on theory and literature review. After carrying out necessary verification for linear regression analysis, the authors identified the impact of privatization and factors leading to changes in operational efficiency of privatized SOEs. In line our prediction, the ratio of state ownership in SOEs has negative impact on operating efficiency of firms; however the impact is not too substantial because the β correlation of this factor is relatively small compared to those of other factors. Another influencing factor is the change of CEO which has substantially positive impact on operating efficiency of firms. It is possible that with such change of CEO, firms undergo changes in management methods and re-arrange their workforce in a more reasonable way, leading to better operating efficiency. In addition, enterprise size also has positive impact on operating efficiency. Even though GDP and financial leverage are expected to be positive factors, the authors found out that they have negative impact on operating efficiency of firms. Sales growth rate.is also expected to have positive impact but research results show no sign of impact on operating efficiency of firms

This research produces results that are relatively similar to those of previous studies about the positive impact of privatization on operating efficiency. From that, the authors support the government's direction about stepping up reform of SOEs. The number one Privatization is the number one choice for reforming SOEs and should be further promoted since it can separate the management function and ownership function as well as reduce the business function of the government. When choosing SOEs for privatization, it is necessary to prioritize those of large scale and divest as much state capital as possible (which means to minimize state ownership in privatized SOEs). In addition, pos-privatization firms should change their management apparatus to bring about a real wind of change; specifically, they should select and appoint new and more capable CEOs to lead and overcome shortcomings in firms.

References

Aussenegg.W and Jelic. R (2002), "Operating Performance of Privatized Companies in Transition Economies - The Case of Poland, Hungary and the Czech Republic", *EFMA 2003 Helsinki Meetings*.

Boubakri, N. and Cosset, J.C. (2002), "The financial and operating performance of newly privatized firms: Evidence from developing countries", *Journal of Finance*, 53, 1081-1110.

Boubakri, N., Cosset, J.C., Guedhami, O. (2005), "Liberatization, corporate governance and the performance of privatized firms in developing countries", *Journal of Corporate Finance*, 11, 767-790.

Harper, J.T., (2002), "The performance of privatized firms in the Czech Republic", *Journal of Banking and Finance*, 26(4), 621-649.

Nguyen, L. Q. H. (2012), Shift in ownership relation during the privatization of state-owned enterprises in Vietnam, *PhD Thesis*, University of Economics of Vietnam.

Mathur, I. & Banchuenvijit, W. (2007), "The effects of privatization on the performance of newly privatized firms in emerging markets", *Emerging Markets Review*, 8, 134-146.

Megginson, W.L., Nash R.C., Randenborgh M. V. (1994), "The Financial and Operating Performance of Newly Privatized Firms: An International Empirical Analysis", *Journal of Finance*, 49(2), 403-452.

Oqdeh. L. N., Nassar. M.A., (2011), "Effects of Privatization on Firms Financial and Operating Performance: Evidence from Jordan", *Dirasat, Administrative Sciences,* 38(1), 288-203.

Sjoholm, F., (2006), "State owned enterprises and privatization in Vietnam", *Working paper*, Stockholm School of Economics.

Tran, T.C., Bui, V.D., Pham, D.T., Nguyen, K.A., Nguyen, H.L., Nguyen, T.L., Trinh, D.C., (2006), "Vietnamese State-Owned Enterprises after Privatization: Performance, Emerging Issues, and Policy Recommendations", *Vietnam Economic Management Review*, 1, 20-30.

Tran, T.C., Bui, V.D., Pham, D.T., Nguyen, K.A., Nguyen, H.L., Nguyen, T.L., Trinh, D.C., (2007), "Vietnamese State-Owned Enterprises after Privatization: Performance, Emerging Issues, and Policy Recommendations", *Vietnam Economic Management Review*, 2, 40-56.

Tran, G. (2007), "The impact of corporate governance on the performance of privatized firms in Vietnam", *Vietnam Economic Management Review, 5, 37-48.*

Truong, L. D., Lanjouw, G. and Lensink, R., (2006). "The impact of privatization on firm performance in a transition economy. The case of Vietnam", *Economics of Transition*, 14, 349-389.

Wei. Z., Oscar. V., D'Souza. J., Hassan. K., (2003) 'The financial and operating