The Impact of Privatisation on Firm Performance in a Transition Economy: the Case of Vietnam

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Abstract

The Vietnamese privatisation programme, launched in 1992, differs from usual Western privatisation programmes in terms of the residual percentage of shares owned by the state and the portion of shares transferred to insiders. This begs the question whether these differences influence the effects of the programme on firm performance. This study measures the impact of privatisation on firm performance in Vietnam by comparing the pre- and post-privatisation financial and operating performance of 121 former state-owned enterprises (SOEs).We find significant increases in profitability, sales revenue, efficiency and employee income. In addition, an increase in employment and a decline in leverage of newly-privatised firms is found, although the changes are statistically insignificant. Regression analyses reveal that firm size, residual state ownership, corporate governance and stock-market listing are key determinants of performance improvements.

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1. INTRODUCTION

The recent history of privatisation begins in the early 1980s when the Thatcher government in the United Kingdom started to privatise state-owned enterprises (SOEs) on a wide scale. After the collapse of the Communist political system in the late 1980s, many transition economies also launched comprehensive privatisation programmes. Nowadays, privatisation is a worldwide phenomenon that forms an important element of the increasing use of markets to allocate resources.

Although privatisation seems to be accepted as a useful method to restructure the economy, it is still not clear under which conditions privatisation is successful, and how it exactly affects firm behaviour and macro-economic performance of a country. Some studies point at success stories (especially in non-transition economies), while others argue that there are major failures, such as the privatisation programme in Russia (for a recent survey see Megginson and Netter, 2001). It is therefore no surprise that a lively debate is taking place on the effectiveness of privatisation. This debate focuses on a long list of issues, such as the optimal preconditions of privatisation, underpricing of initial public offerings (IPOs), the most appropriate form of privatisation, the effects of privatisation on firm performance and employment, the impact of the economic environment - and especially measures other than privatisation (such as price deregulation) - on the effectiveness of privatisation, the interrelationship between corporate governance and privatisation, and the impact of privatisation on the development of the domestic financial system, especially with regard to the stock market.

Many authors argue that much more research is needed to get a better view of the effectiveness of privatisation (see, *e.g.*, Megginson and Netter, 2001). Among other things these authors point at the utmost importance of closely examining the process of privatisation by means of country case studies, the importance of precisely calculating the employment effects of privatisation and the need for additional empirical studies on the effects of privatisation on firm performance.

This paper is the first study that examines the effects of privatisation, called "equitisation", in Vietnam, using data of 121 equitised firms. The case of Vietnam is interesting because the Vietnamese equitisation is different from privatisation programmes in many non-transition economies in that residual state ownership after privatisation and the percentage of shares transferred to insiders are quite substantial. A more or less standard result from the empirical literature so far, however, is that particularly outside ownership promotes performance improvement of the firms in question (see, *e.g.*, Earle and Estrin, 1996). On the basis of that, expectations regarding performance improvement of equitised firms in Vietnam would have to be

modest. Following the methodology of Megginson, Nash and Randenborgh (1994), we first compare the pre- and post-equitisation financial and operating performance of the full sample of firms. Then we partition the sample into several sub-groups based on factors that the literature documents as potentially important for firm performance following privatisation, and test for significant differences in performance between subsamples. Finally, to examine which firms gain most from equitisation, we apply cross-sectional regression analyses, wherin the impact of factors such as firm size, the percentage of residual state ownership after equitisation, corporate-governance aspects and stock-market listing are examined.

The remainder of the paper is organized as follows. Section 2 briefly describes the equitisation programme in Vietnam. Section 3 summarizes the data and sample collection. Section 4 presents the methodology and some testable predictions. The empirical results are summarized and discussed in Sections 5, 6 and 7. Section 5 and 6 present the results for the full sample and for subsamples, respectively; Section 7 reports the outcomes of the regression analyses. Finally, Section 8 concludes the paper and outlines some areas for further research.

2. OVERVIEW OF THE EQUITISATION PROCESS IN VIETNAM

The privatisation programme in Vietnam, officially called "Equitisation Programme" (*co phan hoa*) started in 1992 as part of the State-Owned Enterprise Reform Programme, in the context of general economic reform. Equitisation is defined as the transformation of SOEs into joint-stock companies and selling part of the shares in the company to private investors in order to improve the performance of the firms in question. Equitisation differs from privatisation in the usual Western sense in that it does not necessarily mean that the government looses its ultimate control over the firm. To the contrary, in the case of Vietnam the government still holds decisive voting rights in may cases. Another remarkable difference with usual Western privatisation practices, to be discussed later on in this section, is that employees and managers of the firms acquire a substantial portion of the shares in the equitised firms.

The equitisation process in Vietnam can be divided into two stages. The first one is called the pilot stage, ranging from 1992 to 1996, and the second is the expansion stage, from 1996 onwards.

The pilot stage of the equitisation programme (1992 -1996)

Based on a resolution of the tenth session of the Eighth National Assembly, the Prime Minister issued Decision 202-CT to launch the equitisation programme on June 8, 1992. According to this Decision, SOEs involved in the pilot equitisation programme should be small or medium-sized and profitable or at least potentially profitable

enterprises, but should not be "strategic enterprises". Moreover, the Decision stipulated that employees of equitised enterprises have a first right to buy the shares at preferential terms. Being afraid of a social collapse such as in Eastern and Central European countries, the Vietnamese government launched the equitisation process very carefully. In the pilot period from 1992 to 1996 only five SOEs were equitised. It involved small SOEs from the transportation, shoes, machine and food-processing industries. In most of those enterprises, the employees hold the dominant portion of shares, and the government still owns nearly 30 percent of the shares. The capital and ownership structure of the first five firms in the pilot stage is summarized in Table 1 below.

Table 1: Capital and ownership structure of the first five equitised firms in the pilot period

Firm Name	Capital (Billion VND*)	Ownership structure (%)		
		State	Employees	Outsiders
Transportation Service Co.	6,200	18.0	77.0	5.0
Refrigeration & Electrical Engineering Co.	16,000	30.0	50.0	20.0
Hiep An Shoes Co.	4,793	30.0	35.2	34.8
Animal Food Processing Co.	7,912	30.0	50.0	20.0
Longan Export Product Processing Co.	3,540	30.2	48.6	21.2

Source: Chu (2002).

* The USD/VND exchange rate on Nov. 12, 2004 is 15,712 VND per USD.

The expansion stage of the equitisation programme (1996 – present)

Recognizing the need for a more aggressive approach, the Government issued Decree 28-CP in May 1996 to end the pilot stage and open a new stage of the equitisation process. This decree maintains the general principles of the pilot equitisation programme, extends the scope of equitisation to all non-strategic small and medium-sized SOEs, and requires SOEs' controlling agencies (ministries, People's Committees and State Corporations) to select enterprises for equitisation. However, the process did not take off fast. Practically, there were only 25 firms to be added to the list of equitised firms during the 1996-1998 period.

Since the promulgation of Government Decree No. 44/1998/ND-CP in mid-1998, the equitisation process has fastened considerably. In fact, between 101 (1998) and 611 (2003) SOEs have been equitised annually in this period. Up to the end of 2003, a total of 1,545 SOEs have completed equitisation. The government intends that by 2005 around 50 percent of all SOEs (about 2,053 SOEs) will be converted into equitised firms. However, large and important firms will still be held by the state.

Overall, the equitisation process in Vietnam has progressed slowly. In addition, most of the equitised SOEs are small and medium-sized. Especially, the "strategic" SOEs are not included in the equitisation programme. Importantly, insiders (employees and management board) control dominant shares in the equitised firms, and the state still owns over one-third of the total issued shares of the firms. Indeed, according to Mr. Hung, deputy chairman of the National SOE Reform Board, in over

Table 2: Number of equitised firms and their capital

Year	Number of equitised firms	Total capital (Million VND)	Mean of capital per firm (Million VND)
1993	2	22,200	11,100
1994	1	4,793	4,793
1995	2	11,452	5,726
1996	6	19,032	3,172
1997	4	55,800	13,950
1998	101	480,223	5,163
1999	254	1,311,636	12,171
2000	212	na	na
2001	204	na	na
2002	164	na	na
2003	611	na	na
Total	**1,561**		

Source: Ministry of Finance (1999); Nguyen Hoang Xanh (2003), and http://www.vnn.vn.

Note: na: not available.

1,500 firms equitised by the end of the year 2003, insiders on average hold 54 percent, and the state still controls 38 percent, on average, of the total shares of the firms. The rest, only 8 percent on average, belongs to outside investors[1].

3. DATA COLLECTION AND SAMPLE SELECTION

To collect the data for our empirical study, we conducted a questionnaire among equitised firms in Vietnam. In order to develop the questionnaire, we organized a pilot survey among 15 equitised companies in the Can Tho and Camau provinces in the Mekong River Delta (MRD), by interviewing the chairperson of the board of directors or the manager of the firms. The pilot survey helped us to uncover the situation of equitised firms and recognize possibly irrelevant questions. Based on the pilot survey, the irrelevant questions were eliminated or modified and some new questions were added. We had to revise the questionnaire several times before reaching the final version of the questionnaire that served to obtain the data set used in this paper.

To measure the impact of equitisation on firm performance, this study compares post-equitisation performance indicators of equitised firms to pre-equitisation ones. Therefore, the firms that were chosen for being included in the survey had to satisfy two conditions. First, they must be former SOEs. Second, their financial information should be available and sufficient (at least one year before and after equitisation). Furthermore, the survey focused on the southern region of Vietnam for reasons of convenience and budget limitation. Since the number of equitised firms in the Mekong River Delta (MRD) that satisfied the conditions above was small, we decided to interview all of them. In addition, equitised firms in Ho Chi Minh City (HCMC) were also included in the sample. We chose HCMC because this city had the biggest number of equitised firms at the time the survey was done. Moreover HCMC is not too far from Can Tho city, from where the project takes place.

Beside direct interviews, mail interviews among equitised firms in the central and northern parts of Vietnam were also used to obtain data for our study. In this way, about one hundred equitised firms were selected for the survey from the population of equitised firms.

The survey was conducted from March 15 to April 30 2004. At that time we were able to get information from the 2003 financial statements of the surveyed firms.

[1] These figures were included in Mr. Hung's speech at the conference "Equitisation: status and solution" in August 19th 2004, according to the "450 days for completing a equitisation process", Vietnam Economic Times, August 19th 2004.

Direct interview

Using this method, interviewers went to equitised firms to directly interview one of the key persons (chairperson of the board, general manager, vice general manager or chief accountant) of the firms for information. We decided to ask some public officers who have worked for the Local SOE Reform Boards[2], and researchers of the Ho Chi Minh City (HCMC) Institute for Economic Research to do the survey as interviewers since they have better access to the firms. The selected interviewers had the necessary capacities to carry-out the interviews and thus ensure the quality of the data to be obtained. First, they have had a good relationship with equitised firms and knowledge of equitisation. Second, since all equitised companies have been obligated to submit their financial statements to a Local SOE Reform Board, the interviewers can skip the financial information section that is the backbone of the questionnaire, in this way saving time for respondents and for themselves. The financial information was filled in after they left the companies. Finally, the researchers were experienced in conducting direct questionnaire surveys.

Although the questionnaire is simple for the interviewers, we spent some time to train them before they did the survey. We explained the objectives of the survey, the meaning of some important questions, and informed them about the importance of the data to be collected. Then, we signed contracts with interviewers that contained some conditions to control the quality of data. The most important condition was that the contracts would be cancelled if any irregularities in the questionnaires were found.

We made a letter in which we explained clearly who the researchers are, the objectives of the survey and guarantees for the information to be kept secret. This letter was approved by the Dean of the School of Economics and Business Administration (SEBA) of Can Tho University and attached to the questionnaire. The letter was the legal basis for the interviewers to contact the equitised firms, and made the respondents confident to provide reliable information about their firm.

Mail survey

We also mailed our questionnaire to some firms. We hoped to save time and money by doing so. However, the rate of response was very low: we sent about 100 questionnaires to equitised firms, but only received four of them back.

We also obtained information on equitised companies in other ways, first by collecting financial data and other information on listed companies by downloading information from their websites on the internet. By regulation these companies have to reveal all their financial information to investors. Second, we contacted some organizations that stored the information and data of equitised companies, for

[2] Each province has its own SOE Reform Board.

providing a data set. As a result, we received a data set of 21 equitised firms in Hanoi and Northern provinces. These data contain some useful information, but not as much as expected. Specifically, they include several pre- and post-equitisation performance measures, such as sales, income, number of employees, average salary of employee, and ROE. However, information regarding the equitisation process, ownership structure and corporate governance of these firms is not available.

4. HYPOTHESES AND METHODOLOGY

Privatisation usually is seen as a means to improve the performance of SOEs. To examine the impact of privatisation on the financial and operating performance of firms, many studies compare pre- and post-privatisation performance measures (Megginson *et al*., 1994; Boubakri and Cosset, 1998; D'Souza and Megginson, 1999; Harper, 2002). Because the first study published using this methodology was Megginson, Nash and Randenborgh (1994), the methodology is referred to as the MNR methodology (Megginson and Netter, 2001). In our study we apply this methodology to measure the effects of privatisation (equitisation in the Vietnamese context) on firm performance in Vietnam. Some of the measures used in the MNR methodology, such as capital investment and dividends, cannot be employed in our study due to a lack of appropriate data. Moreover, some of the measures have to be adjusted for the Vietnamese situation. Specifically, we use income before tax to calculate the profitability ratios of firms instead of net income as in the MNR methodology. Similarly, we replace the net income efficiency by income-before-tax efficiency. An explanation for this adjustment is that in Vietnam the equitised firms have some income-tax advantages for the first years after equitisation, so to avoid a bias in measuring the impact of equitisation *per se* on profitability, we have to use income before tax instead of net income.

To measure the effects of equitisation on firm performance, we first calculate performance measures for every firm for the years before and after equitisation. Then, the mean of each measure is computed for each firm over the pre-equitisation (years –3 to –1) and post-equitisation (years +1 to +3) periods. However, it is important to note that we also included firms for which we only have data for only one year before and after the equitisation in our sample. We included these firms to enlarge our sample[3]. Because the year of equitisation includes both public and private ownership phases for many firms, it is eliminated from our analyses.

[3] We also conducted some analyses with a two-year and one-year minimum data screen. The results were very similar to those presented in this paper.

It is expected that as firms move from public to private ownership, their profitability increases. First, privatisation leads managers to focus on profit goals because under private ownership, management is directly responsible to shareholders (Yarrow, 1986). Second, to the extent that privatisation transfers both control rights and cash flow rights from politicians to managers, profitability would increase through efficiency gains in the form of redress of the excess labour spending that politicians needed for electoral reasons (Boycko *et al.*, 1996). Similarly, after privatisation, firms should employ their human, financial and technological resources more efficiently because of a greater stress on profit goals and a reduction of government subsidies (Kikeri *et al*., 1992 and Boycko *et al*., 1996). Moreover, it is expected that output (sale revenues) should increase following privatisation, because of greater competition, better incentives, more flexible financing opportunities and greater scope for entrepreneurial initiative (Megginson *et al*., 1994). Regarding leverage, the shift from public to private ownership can be expected to lead to a decrease in the share of debt in the capital structure since with the end of government debt guarantees the firm's cost of borrowing will increase and the firm gets access to public equity markets (Megginson *et al*. 1994). In addition, if bankruptcy costs are significant, once government guarantees are removed the newly privatised firm should reduce its debt (Boubakri and Cosset, 2002). Furthermore, we expect that the level of employment should decline once the SOE, which is usually overstaffed, turns private and no longer receives government subsidies due to firms' profit goals. Finally, once the productivity of newly-privatised firms increases as a result of privatisation, employee income should improve following privatisation. Table 3 presents definitions and expected changes of the performance measures tested in this paper.

Given a general improvement in performance as a result of privatisation, the literature documents that differences would arise due to differences in size, sector, ownership structure, corporate governance and capital market discipline (Comstock *et al.*, 2003; Harper, 2002; D'Souza *et al.*, 2001; Pistor and Turkewitz, 1996). Therefore, in the next step we divide our data into five subsamples.

We first partition the firms into two groups, larger firms and smaller firms, based on their pre-equitisation real sales average. Firms with pre-equitisation real sales average above the median of the sample are referred to as larger firms; otherwise they belong to the second group of smaller firms. The literature is not unambiguous about the role of firm size in performance improvement after privatisation. On the one hand, Comstock *et al.* (2003) suppose that larger firms will have greater improvements in their performance due to being better prepared for the

post-privatisation environment, especially in terms of facing competition[4]. On the other hand, Harper (2002) holds that smaller firms will show greater improvement in performance after equitisation than larger firms because it would be easier for them to restructure and adjust their business In addition to that, it could be relevant in the case of Vietnam that the state share in small equitised firms is usually lower than for large firms. As will be discussed later in this section, the literature suggests that the percentage of state ownership in newly-privatised firms has a negative effect on firm performance after privatisation.

Next, a split is made on the basis of the sectors in which the firms operate, either trade and services or manufacturing. The underlying idea is that firms in the trade and services industry sector have an easier job in improving their performance since in this sector there is less need for investment in fixed assets that may be a necessary component of the adjustment process (Harper, 2002).

The literature further documents that ownership structure plays an important role in improving firm performance following privatisation. To measure such effects, we divide the sample firms into two subgroups, firms with residual state ownership less than 30 percent (the median of the full sample), and firms with residual state ownership greater than or equal to 30 percent. It is expected that the former subgroup will show greater performance improvements than the latter one. The reason underlying this expectation is that the state as a shareholder has multiple interests - economic, social and political - that can be antagonistic to the interests of private shareholders in the direction of performance improvement (see, *e.g.*, Pistor and Turkewitz, 1996).

Additionally, to examine the impact of corporate governance on firm performance we partition our sample into firms that have a chairperson of the board of directors representing the state (FCBDRS), and firms that have a chairperson of the board of directors representing private investors (FCBDRP). In Vietnam, the board of directors has the highest authority to make decisions relevant to the company, except some issues that have to be approved by shareholders at the shareholders meeting. For instance, the board of directors exerts full power in the appointment or dismissal of the general manager and senior managers. We expect that the improvements in performance measures are greater for firms in the latter group in that chairpersons representing the private sector will give priority to improving firm performance and do not have to compromise with the other interests that state representatives have to take into account.

[4] This, however, assumes that privatisation is equivalent to the introduction of competition, which conceptually is incorrect. See, *e.g.*, Shirley and Walsh (2000) for a discussion in which competition and firm ownerschip are clearly distinguished conceptually.

Table 3: Performance measures: definitions and expected changes

Performance measures	Definition	Expected change
1. Profitability		
Income before tax on assets (IBTA)	Income before tax/total assets	Increase
Income before tax on sales (IBTS)	Income before tax/sales	Increase
Income before tax on equity (IBTE)	Income before tax/equity	Increase
2. Operating Efficiency		
Sales efficiency	Real sales/number of employees	Increase
Income efficiency	Income before tax/number of employees	Increase
3. Output (real sales)	Nominal sales/price index	Increase
4. Leverage	Total debt/total assets	Decrease
5. Employment	Number of employees	Decrease
6. Employee income	Annual income per employee	Increase

Finally, our data are split into two subgroups, listed and non-listed firms. Listed firms are the equitised firms that have shares that are traded in the Ho Chi Minh City Stock Exchange. The corporate-governance literature suggests that stock-market listing provides important possibilities to monitor the management of firms. The fear of replacement and the linkage of compensation to performance stimulate a firm's management to maximize the firm's profit. Moreover, the listed firm could get other benefits from the listing of its shares on the stock market. First, through the stock market the firm can mobilize more capital at low cost. Second, since the firm's share price is publicly announced in many media, they are free channels for advertising the firm's image. Taking into account these factors, we expect that listed firms have greater performance improvements than non-listed ones following equitisation.

5. RESULTS FOR THE FULL SAMPLE

In this section we present our empirical results for the full sample. The results are summarized in Table 4 below. It is important to note that before testing for significant changes in performance, we employ the Jarque-Bera test to examine whether the performance measures of the surveyed firms are normally distributed. As a result (not reported in this paper, but to be obtained on request), the null hypothesis that the main variables in the sample are normally distributed is rejected for most measures. Consequently, the nonparametric two-tailed Wilcoxon signed-rank test is used to test for significant changes in the median of performance measures following equitisation[5]. The Wilcoxon signed-rank method tests the null hypothesis that the median difference in measure values between the pre and post-equitisation samples is zero. This test takes into account information about the magnitude of differences within pairs and gives more weight to pairs that show large differences than to pairs that show small differences. The test statistic is based on the ranks of the absolute values of the differences between the two measures[6]. Moreover, we also use a proportion (binominal) test to determine whether the proportion (P) of firms with the anticipated changes is greater than what would be expected by chance, typically testing whether P = 0.5.

Profitability

Profitability is the most important indicator to measure performance of firms. As expected, the results of our study show that all profitability ratios, to wit income before tax on assets (IBTA), income before tax on sales (IBTS), and income before tax on equity (IBTE), increase significantly after equitisation. Specifically, the mean (median) IBTA increases significantly (at the 1 percent level) from 9.35 (7.59) percent in the pre-equitisation period to 12.43 (10.82) percent in the post-equitisation period. Furthermore, Table 4 shows that a statistically significant 69.0 percent of the full sample has positive changes in IBTA. Similarly, the mean (median) of IBTS and IBTE increase from 6.10 (3.84) percent to 8.43 (6.04) percent, and from 22.92 (17.37) to 27.51 (22.94) percent respectively. These increases are significant at the 1 percent level. These results strongly confirm that equitisation in Vietnam has a positive effect on the profitability of the firms in question.

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[5] Statistically, the nonparametric Wilcoxon test is more powerful in detecting the existence of significant differences than parametric t-test when the sample is not normally distributed.

[6] For a detailed description of the Wilcoxon signed-rank test, see Berenson *et al.* (1988, 432-439).

Efficiency

To measure efficiency we use the inflation-adjusted sales per employee and income before tax per employee. In addition, they are normalized to equal 1.00 in year 0 (the year of equitisation), so the figures for other years are expressed as a fraction of the efficiency measures in the year of equitisation. The results of our study reveal that both efficiency measures show a significant increase (at the 1 percent level) after equitisation. For instance, sales efficiency rises from an average (median) 1.02 (1.00) in the pre-equitisation period to 1.26 (1.14) in the post-equitisation period. Similarly, income efficiency increases from an average (median) 1.10 (1.00) during the pre-equitisation period to 3.21 (1.70) after equitisation. Further, our proportion tests show that sales efficiency and income efficiency increase in 74.0 and 91.5 percent of the total sample of firms respectively, both significant at the 1 percent level. These results suggest that the equitised firms use their resources with much greater efficiency after equitisation.

Output

In our study output is measured by inflation-adjusted sales (real sales). Similar to the efficiency measures, real sales are also normalized to 1.00 in year 0. Using the Wilcoxon test we find that real sales increase significantly (at the 1 percent level) following equitisation. Specifically, the mean (median) real sales increases from 1.00 (1.00) during the pre-equitisation period to 1.41 (1.19) after equitisation. The proportion test also shows a significant increase (at the 1 percent level) in real sales level after equitisation. In fact, 81.0 percent of the firms in our sample have higher real sales in the years following equitisation. This result confirms that equitisation in Vietnam has a positive effect on the output of firms.

Leverage

To measure the effect of equitisation on the leverage of firms, we compare the pre-equitisation ratio of total debt to total assets to the post-equitisation ratio. Many scholars believe that leverage is reduced following privatisation due to a combination of greater retained earnings and new share offerings. In the case of Vietnam we also find a decline in leverage, but it is insignificant. In fact, the mean (median) leverage decreases from 52.99 percent (56.22 percent) over the pre-equitisation period to 50.06 percent (54.43 percent) in the years following equitisation. Our data further show that 52 percent of the sample firms reduce their debt ratio after equitisation. However, the proportion test shows that the decline in leverage following equitisation is insignificant. Clearly, the effect of equitisation on leverage of firms in Vietnam is not

significant. The debt ratio of equitised firms is still high following equitisation, 50 percent on average.

Employment

The literature documents that the effect of privatisation on employment is ambiguous. Some researchers (Megginson *et al*., 1994; Boubakri and Cosset, 1998) reported an increase in employment after privatisation while other authors (La Porta and López-De-Silanes, 1999; Harper, 2002) found a significant decline in the number of employees after privatisation, which is in line with the theoretical model of Boycko *et al.* (1996) referred to earlier in this paper. Our results are consistent with the findings of Megginson *et al.* (1994) and Boubakri and Cosset (1998) in that employment does not decrease significantly over the post-privatisation period. Specifically, mean employment increases by 30 employees after equitisation, from 352 to 382 employeed, although the Wilcoxon test shows that this increase is insignificant. Contrary to this test, the proportion test reveals that the increase in employment is significant at the 1 percent level, with 63.9 percent of the sample firms increasing employment level following equitisation.

Employee income

We measure the change in employee income by calculating the change in inflation-adjusted annual income per employee. The results of the study reveal that the mean (median) inflation-adjusted annual income per employee rises from 12.2 million VND (11.3 million) in the pre-equitisation period to 17.3 million VND (14.9 million) in the post-equitisation period, and 88.4 percent of the sample firms report to pay higher salaries to their employees. Both Wilcoxon and proportion tests show that the increase in inflation-adjusted annual income per employee is significant at the 1 percent level.

In short, our results strongly suggest that equitisation has positive effects on firm performance in Vietnam. In fact, we find that profitability, efficiency, and output of equitised firms increase significantly after equitisation. In addition, we document a decline in leverage (measured by total debt to total assets) of firms in the post-equitisation period, although it is statistically insignificant. Remarkably, we find no evidence of a significant decline in employment in the years following equitisation. Finally, our findings confirm that equitisation results in a significant increase in employees income after equitisation. Our results go against the hypothesis that performance improvement of privatised firms results from redress of the excess

Table 4: Summary of results from tests of predictions for the full sample of all equitised firms

Measures	N	Mean (median) before	Mean (median) after	Mean (median) change	Z-Statistic for difference in medians (after – before)	Proportion of firms that performed as expected	Z-Statistic for significant of proportion change
Profitability							
IBTA	100	0.0935	0.1243	0.0308		0.690	3.80[a]
		(0.0759)	(0.1082)	(0.0323)	2.69[a]		
IBTS	121	0.0610	0.0843	0.0233		0.793	6.44[a]
		(0.0384)	(0.0604)	(0.0220)	3.21[a]		
IBTE	121	0.2292	0.2751	0.0459		0.678	3.91[a]
		(0.1737)	(0.2294)	(0.0557)	3.36[a]		
Operating efficiency							
Sales efficiency (mil VND)	119	1.0204	1.2631	0.2427		0.740	5.23[a]
		(1.0000)	(1.1410)	(0.1410)	4.82[a]		
Income efficiency (mil VND)	118	1.1011	3.2056	2.1045		0.915	9.03[a]
		(1.0000)	(1.6993)	(0.6993)	9.23[a]		
Real sales (million VND)	121	1.0048	1.4102	0.4054		0.810	6.81[a]
		(0.9996)	(1.1907)	(0.1911)	7.67[a]		
Leverage							
Total debts/total assets	100	0.5299	0.5006	-0.0293		0.520	0.40
		(0.5622)	(0.5443)	(-0.0179)	0.90		
Employment	119	352	382	30		0.639	3.03[a]
(Number of employees)		(159)	(155)	(-4)	0.52		
Annual income per employee (million VND)	95	12.2	17.3	5.1		0.884	7.02[a]
		(11.3)	(14.9)	(3.6)	3.41[a]		

[a] Significant at the 1% level

labour spending that is characteristic of SOEs according the the model of Boycko *et al*. (1996). A possible explanation for this result may be that employees, holding substantial portions of the shares of equitised firms in the case of Vietnam, are able to prevent reductions in employment of the firms in question and even are able to achieve rises in their income. The remarkable result that this does not prevent improvements in profitability and efficieny may be explained by the incentive effect of the income rises in that they stimulate the employees to work more efficiently.

6. SUBSAMPLE RESULTS

To determine the significant changes in performance measures between subsamples, the Mann-Whitney U test is employed. The Mann-Whitney U test is used to examine whether or not two independently drawn samples came from the same population. This test is designed to test the null hypothesis that two populations are identical against the alternative hypothesis that they differ[7].

Larger firms versus smaller firms

In Table 5 we compare the performance changes of larger firms with the performance changes of smaller firms. As discussed above, the literature comes up with conflicting hypotheses regarding the role of firm size in post-privatisation performance improvement. The outcome of our comparison is that for most criteria smaller firms show greater performance improvements after equitisation than larger ones. Specifically, smaller firms report greater rises in IBTA, IBTS, IBTE, income efficiency and employee income. For instance, the mean (median) increase in IBTS for the smaller firms is 2.30 percentage points (3.14 percentage points) higher than the larger firms, 3.47 percent (4.11 percent) compared to 1.17 percent (0.97 percent). Similarly, the mean (median) change in IBTE for smaller firms is 10.46 percent (6.86 percent) as compared to -1.37 percent (2.34 percent) for the larger firms. The Mann-Whitney test shows that the difference in performance changes between two subsamples is significant at the 1 percent level for IBTS, IBTE, and at the 5 percent level for income efficiency. No significant difference is found for IBTA and employee income. On the other hand, improvements in real sales and sales efficiency of the larger firms are greater than for the smaller firms. The mean (median) increase in real sales for the larger firms is 43.45 percent (21.37 percent) compared to 37.68 percent (16.78 percent) for the smaller firms, and the mean (median) improvement in

[7] For a detailed description of the Mann-Whitney test, see Zuwaylif (1984, 499-501).

Table 5: Comparison of post-equitisation performance changes for larger and smaller firms

Measures	N	Mean (median) before	Mean (median) after	Mean (median) change	Z-Statistic for difference in medians (after – before)	Z-Statistic for difference in medians between sub-samples
IBTA						
Larger firms	55	0.0982	0.1237	0.0255		
		(0.0726)	(0.1013)	(0.0287)	1.73[c]	1.33
Smaller firms	45	0.0879	0.1251	0.0372		
		(0.0767)	(0.1159)	(0.0392)	2.16[b.]	
IBTS						
Larger firms	60	0.0490	0.0607	0.0117		
		(0.0379)	(0.0476)	(0.0097)	1.79[c]	3.42[a]
Smaller firms	61	0.0728	0.1075	0.0347		
		(0.0432)	(0.0843)	(0.0411)	2.97[a]	
IBTE						
Larger firms	60	0.2818	0.2681	-0.0137		
		(0.2091)	(0.2326)	(0.0234)	0.92	2.86[a]
Smaller firms	61	0.1774	0.2820	0.1046		
		(0.1528)	(0.2214)	(0.0686)	3.56[a]	
Sales efficiency						
Larger firms	58	1.0341	1.4523	0.4182		
		(1.0000)	(1.1584)	(0.1584)	3.12[a]	2.04[b]
Smaller firms	61	1.0074	1.3628	0.3554		
		(1.0000)	(1.1547)	(0.1547)	3.71[a]	
Income efficiency						
Larger firms	58	1.0330	2.7360	1.7030		
		(0.9909)	(1.3415)	(0.3506)	6.15[a]	2.24[b]
Smaller firms	61	1.1479	3.5995	2.4516		
		(1.0000)	(1.1911)	(0.1911)	6.83[a]	
Real sales						
Larger firms	60	1.0178	1.4523	0.4345		
		(0.9924)	(1.2061)	(0.2137)	6.22[a]	0.16
Smaller firms	61	0.9920	1.3688	0.3768		
		(1.0000)	(1.1678)	(0.1678)	4.59[a]	
Total debts/total assets						
Larger firms	55	0.5858	0.5353	-0.0505		
		(0.6154)	(0.5916)	(-0.0238)	1.20	1.70[c]
Smaller firms	45	0.4616	0.4583	-0.0033		
		(0.4487)	(0.4742)	(0.0255)	0.05	
Number of employees						
Larger firms	58	596	654	58		
		(307)	(355)	(48)	0.79	3.92[a]
Smaller firms	61	120	123	3		
		(93)	(101)	(8)	0.18	
Annual income per employee (mil. VND)						
Larger firms	40	14.2	17.8	3.6		
		(13.0)	(15.7)	(2.7)	2.25[b]	0.28
Smaller firms	55	10.8	16.9	6.1		
		(9.6)	(12.7)	(3.1)	2.63[a]	

[a], [b], [c] Significant at the 1%, 5%, and 10% levels, respectively.

sales efficiency for the larger firms is 6.82 percentage points (0.37 percentage points) higher than for the smaller firms. The differences in improvements between the two subgroups are significant at the 5 percent level for sales efficiency, but insignificant for real sales. Finally, we find that there is a significant difference (at the 1 percent level) in employment change between the two subgroups. The mean (median) increase for the larger firms is 58 (48) employees while this increase is only 3 (8) employees for the smaller firms.

To sum up, for almost all criteria smaller firms show a greater performance improvement following equitisation than larger ones, thereby supporting the Harper (2002) hypothesis that smaller firms are more flexible in adjusting to the new environment.

Trade and services firms versus manufacturing firms

Performance comparisons of trade and services firms to manufacturing firms are presented in Table 6. Our findings show that after equitisation both subgroups report significant changes in the predicted direction for all measures, except for leverage and employment. However, for different measures the pattern is different between the two subgroups. We find greater changes in IBTA, IBTE, real sales, income efficiency, and employee income for the first subgroup. On the other hand, somewhat higher improvements in IBTS, sales efficiency, leverage, and employment are reported for the manufacturing firms. However, the Mann-Whitney test shows that for all performance measures the differences between the two subgroups are not statistically significant.

Firms with residual state ownership less than 30 percent versus firms with the residual state ownership greater than or equal to 30 percent

The results presented in Table 7 show that firms with residual state ownership less than 30 percent have greater improvements in profitability, income efficieny, employment and employee income than firms where residual state ownership is greater than or equal to 30 percent. For instance, the mean (median) gain in IBTS for the former sub-group is 4.02 percent (3.78 percent), while this increase for the latter is only 1.72 percent (1.92 percent). Moreover, we find that the average employment increase for the firms with residual state ownership less than 30 percent is 52 employees compared to 14 employees for the other group. However, the latter subgroup has greater improvements in real sales, sales efficiency and leverage. The differences found are, however, not statistically significant for any of the variables.

Table 6: Comparison of performance changes following equitisation for trade and services firms and manufacturing firms

Measures	N	Mean (median) before	Mean (median) after	Mean (median) change	Z-Statistic for difference in medians (after – before)	Z-Statistic for difference in medians between sub-samples
IBTA						
Trade and services firms	47	0.0764	0.1102	0.0338		
		(0.0673)	(0.0807)	(0.0134)	1.64[c]	0.46
Manufacturing firms	53	0.1087	0.1368	0.0281		
		(0.0764)	(0.1241)	(0.0477)	2.13[b]	
IBTS						
Trade and services firms	52	0.0681	0.0894	0.0213		
		(0.0365)	(0.0607)	(0.0242)	1.73[c]	0.75
Manufacturing firms	69	0.0557	0.0804	0.0247		
		(0.0384)	(0.0604)	(0.0220)	2.97[a]	
IBTE						
Trade and services firms	52	0.1875	0.2456	0.0581		
		(0.1757)	(0.2237)	(0.0480)	2.17[b]	0.27
Manufacturing firms	69	0.2606	0.2974	0.0368		
		(0.1632)	(0.2498)	(0.0866)	2.59[a]	
Sales efficiency						
Trade and services firms	51	1.0005	1.2200	0.2195		
		(0.9952)	(1.1410)	(0.1458)	2.80[a]	0.64
Manufacturing firms	68	1.0353	1.2955	0.2602		
		(1.0000)	(1.1599)	(0.1599)	3.93[a]	
Income efficiency						
Trade and services firms	50	1.1695	3.5137	2.3442		
		(0.9643)	(1.5016)	(0.5373)	5.59[a]	0.78
Manufacturing firms	68	1.0509	2.9790	1.9281		
		(1.0000)	(1.7970)	(0.7970)	7.28[a]	
Real sales						
Trade and services firms	52	0.9700	1.3837	0.4137		
		(0.9679)	(1.1454)	(0.1775)	5.16[a]	0.32
Manufacturing firms	69	1.0310	1.4303	0.3993		
		(1.0000)	(1.2524)	(0.2524)	5.69[a]	
Total debts/total assets						
Trade and services firms	47	0.5496	0.5240	-0.0256		
		(0.5768)	(0.5666)	(-0.0102)	0.42	0.93
Manufacturing firms	53	0.5125	0.4799	-0.0326		
		(0.5451)	(0.5288)	(-0.0163)	0.87	
Number of employees						
Trade and services firms	51	217	231	14		
		(87)	(103)	(16)	0.41	0.78
Manufacturing firms	68	453	495	42		
		(192)	(217)	(25)	0.50	
Annual income per employee (mil. VND)						
Trade and services firms	44	13.3	20.0	6.7		
		(11.1)	(15.3)	(4.2)	2.11[b]	0.29
Manufacturing firms	51	11.3	14.9	3.6		
		(11.3)	(14.7)	(3.4)	2.64[a]	

[a], [b], [c] Significant at the 1%, 5%, and 10% levels, respectively.

Table 7: Comparison of performance changes following equitisation for firms with residual state ownership less than 30 percent and firms with residual state ownership greater than or equal to 30 percent

Measures	N	Mean (median) before	Mean (median) after	Mean (median) change	Z-Statistic for difference in medians (after – before)	Z-Statistic for difference in medians between sub-samples
IBTA						
State ownership < 30%	59	0.0829	0.1231	0.0402		
		(0.0703)	(0.1081)	(0.0378)	2.55[a]	0.79
State ownership ≥ 30%	41	0.1089	0.1261	0.0172		
		(0.0891)	(0.1083)	(0.0192)	1.06	
IBTS						
State ownership < 30%	59	0.0529	0.0828	0.0299		
		(0.0384)	(0.0531)	(0.0147)	2.71[a]	1.52
State ownership ≥ 30%	41	0.0769	0.0899	0.0130		
		(0.0594)	(0.0715)	(0.0121)	1.02	
IBTE						
State ownership < 30%	59	0.2287	0.2600	0.0313		
		(0.1538)	(0.2282)	(0.0744)	2.54[a]	1.06
State ownership ≥ 30%	41	0.2381	0.2459	0.0078		
		(0.2101)	(0.2070)	(-0.0031)	0.79	
Sales efficiency						
State ownership < 30%	59	1.0484	1.1751	0.1267		
		(1.0000)	(1.1043)	(0.1043)	1.79[c]	1.42
State ownership ≥ 30%	39	0.9890	1.2732	0.2842		
		(1.0000)	(1.1410)	(0.1410)	3.12[a]	
Income efficiency						
State ownership < 30%	59	1.1648	4.2864	3.1216		
		(0.9818)	(1.9111)	(0.9293)	5.96[a]	1.76[c]
State ownership ≥ 30%	38	1.0581	1.7954	0.7373		
		(0.9643)	(1.4722)	(0.5079)	5.47[a]	
Real sales						
State ownership < 30%	59	1.0369	1.3125	0.2756		
		(0.9881)	(1.1420)	(0.1539)	4.34[a]	1.17
State ownership ≥ 30%	41	0.9610	1.4913	0.5303		
		(0.9831)	(1.1835)	(0.2004)	5.17[a]	
Total debts/total assets						
State ownership < 30%	59	0.5488	0.5287	-0.0201		
		(0.5897)	(0.5794)	(-0.0103)	0.43	0.88
State ownership ≥ 30%	41	0.5028	0.4603	-0.0425		
		(0.5450)	(0.5059)	(-0.0391)	0.88	
Number of employees						
State ownership < 30%	59	455	507	52		
		(163)	(173)	(10)	0.52	0.78
State ownership ≥ 30%	39	206	220	14		
		(152)	(134)	(-18)	0.60	
Annual income per employee (mil. VND)						
State ownership < 30%	44	13.1	20.3	7.2		
		(12.9)	(16.4)	(3.5)	2.32[b]	0.38
State ownership ≥ 30%	30	12.7	16.9	4.2		
		(11.2)	(15.5)	(4.3)	2.68[a]	

[a], [b], [c] Significant at the 1%, 5%, and 10% levels, respectively.

Firms that have a chairperson of the board of directors representing the state (FCBDRS) versus firms that have a chairperson of the board of directors representing private investors (FCBDRP)

Our results, shown in Table 8, indicate that improvements in almost all performance measures are in line with expectations in that they are greater for the FCBDRP as compared to the FCBDRS. First, FCBDRP yield greater changes in profitability and real sales following equitisation. Indeed, the average increase in IBTA for the FCBDRP is 6.58 percent as opposed to 1.91 percent for the FCBDRS. Additionally, the mean (median) real sales increase for the latter subgroup is 44.91 percent (33.77 percent) against to 35.56 percent (14.73 percent) for the former one. Secondly, our findings also confirm that FCBDRP trigger higher improvement in efficiency measures. In fact, mean (median) sales efficiency increase for the FCBDRP is 23.62 percent (13.90 percent) while this increase is only 16.94 percent (10.43 percent) for the FCBDRS. Surprisingly, the mean (median) leverage of the FCBDRP increases following equitisation (1.28 percentage points in mean and 2.72 percentage points in median) while the mean (median) leverage of the FCBDRS falls by 4.58 percentage points (4.06 percentage points) percent after equitisation. The Mann-Whitney test, however, reports that, except the difference in real sales between the two subgroups (significant at the 5 percent level), no significant differences are found for any of the other variables.

Listed versus non-listed firms

Table 9 presents comparisons of performance changes between listed and non-listed firms. As expected, we find a higher increases in real sales, sales efficiency, and employment for listed firms as compared to non-listed firms. In fact, the mean (median) real sales of listed firms increases by 60.73 percentage points (39.77 percentage points) following equitisation compared to an improvement of 37.02 percentage points (15.15 percentage points) for the non-listed firms. Moreover, Table 9 shows an average (median) increase of 58 employees (137 employees) for the listed firms opposed to 25 employees (3 employees) for the non-listed ones. The differences are significant at the 10 percent level for real sales and 5 percent level for employment. Furthermore, we find a greater decrease in leverage for the listed firms than for non-listed firms, but the difference is statistically insignificant. Contrary to the predictions our findings indicate that non-listed firms have higher profitability improvements than listed firms. For instance, the mean (median) improvement in IBTS for non-listed firms is 2.66 percentage points (2.53 percentage points) compared to 0.40 percentage points (0.67 percentage points) for listed firms.

Table 8: Comparison of performance changes following equitisation for FCBDRS and FCBDRP

Measures	N	Mean (median) before	Mean (median) after	Mean (median) change	Z-Statistic for difference in medians (after – before)	Z-Statistic for difference in medians between sub-samples
IBTA						
FCBDRS	72	0.0958	0.1149	0.0191		
		(0.0724)	(0.1073)	(0.0349)	2.19[b]	1.41
FCBDRP	26	0.0895	0.1553	0.0658		
		(0.0762)	(0.1311)	(0.0392)	1.61	
IBTS						
FCBDRS	72	0.0679	0.0878	0.0199		
		(0.0433)	(0.0646)	(0.0213)	2.24[b]	0.45
FCBDRP	26	0.0484	0.0816	0.0332		
		(0.0390)	(0.0517)	(0.0127)	1.58	
IBTE						
FCBDRS	72	0.2260	0.2476	0.0216		
		(0.1821)	(0.2136)	(0.0315)	1.76[c]	1.46
FCBDRP	26	0.2430	0.2720	0.0290		
		(0.1538)	(0.2409)	(0.0871)	2.17[b]	
Sales efficiency						
FCBDRS	71	1.0334	1.2028	0.1694		
		(1.0000)	(1.1043)	(0.1043)	2.63[a]	0.35
FCBDRP	25	0.9963	1.2325	0.2362		
		(1.0000)	(1.1390)	(0.1390)	1.80[c]	
Income efficiency						
FCBDRS	71	1.0494	2.5701	1.5207		
		(0.9543)	(1.4890)	(0.5347)	7.17[a]	0.93
FCBDRP	24	1.3507	5.6642	4.3135		
		(0.9897)	(2.2701)	(1.2804)	3.19[a]	
Real sales						
FCBDRS	72	1.0225	1.3781	0.3556		
		(0.9861)	(1.1334)	(0.1473)	4.86[a]	2.28[b]
FCBDRP	26	0.9545	1.4036	0.4491		
		(0.9710)	(1.3087)	(0.3377)	4.75[a]	
Total debts/total assets						
FCBDRS	72	0.5469	0.5011	-0.0458		
		(0.5901)	(0.5495)	(-0.0406)	1.30	1.49
FCBDRP	26	0.4663	0.4791	0.0128		
		(0.4739)	(0.5011)	(0.0272)	0.19	
Number of employees						
FCBDRS	71	336	367	31		
		(165)	(161)	(-4)	0.34	0.81
FCBDRP	25	287	343	56		
		(100)	(115)	(15)	0.60	
Annual income per employee (mil. VND)						
FCBDRS	55	13.0	16.7	3.6		
		(12.4)	(16.3)	(3.9)	2.96[c]	0.17
FCBDRP	19	12.8	25.5	12.7		
		(13.0)	(14.9)	(1.9)	1.61	

[a], [b], [c] Significant at the 1%, 5%, and 10% levels, respectively.

Table 9: Comparison of performance changes following equitisation for listed firms and non-listed firms

Measures	N	Mean (median) before	Mean (median) after	Mean (median) change	Z-Statistic for difference in medians (after – before)	Z-Statistic for difference in medians between sub-samples
IBTA						
Listed firms	18	0.1380	0.1265	-0.0115		
		(0.1067)	(0.1229)	(0.0162)	0.24	2.46[b]
Non-listed firms	82	0.0838	0.1238	0.0400		
		(0.0707)	(0.1039)	(0.0332)	2.81[a]	
IBTS						
Listed firms	18	0.0963	0.1003	0.0040		
		(0.0659)	(0.0726)	(0.0067)	0.11	2.99[a]
Non-listed firms	103	0.0549	0.0815	0.0266		
		(0.0337)	(0.0590)	(0.0253)	3.40[a]	
IBTE						
Listed firms	18	0.3234	0.2516	-0.0718		
		(0.3033)	(0.2543)	(-0.0490)	0.74	3.14[a]
Non-listed firms	103	0.2127	0.2793	0.0666		
		(0.1666)	(0.2231)	(0.0565)	3.71[a]	
Sales efficiency						
Listed firms	17	1.0587	1.4473	0.3886		
		(1.0000)	(1.3313)	(0.3313)	3.38[a]	0.35
Non-listed firms	102	1.0140	1.2325	0.2185		
		(1.0000)	(1.0933)	(0.0933)	3.83[a]	
Income efficiency						
Listed firms	17	0.9944	1.6679	0.6735		
		(1.0000)	(1.4226)	(0.4226)	2.93[a]	2.06[b]
Non-listed firms	101	1.1191	3.4644	2.3453		
		(1.0000)	(1.7946)	(0.7946)	8.64[a]	
Real sales						
Listed firms	18	1.0521	1.6594	0.6073		
		(1.0000)	(1.3977)	(0.3977)	4.57[a]	1.65[c]
Non-listed firms	103	0.9965	1.3667	0.3702		
		(0.9942)	(1.1457)	(0.1515)	6.51[a]	
Total debts/total assets						
Listed firms	18	0.5156	0.4711	-0.0445		
		(0.5306)	(0.5392)	(0.0086)	0.36	0.31
Non-listed firms	82	0.5331	0.5071	-0.0260		
		(0.5740)	(0.5443)	(-0.0297)	0.75	
Number of employees						
Listed firms	17	850	908	58		
		(518)	(655)	(137)	0.38	2.39[b]
Non-listed firms	102	269	294	25		
		(126)	(129)	(3)	0.44	

[a], [b], [c] Significant at the 1%, 5%, and 10% levels, respectively.

In addition, the mean (median) IBTE of the non-listed firms increases by 6.66 percentage points (5.65 percentage points), while the mean (median) IBTE of listed firms decreases by 7.18 percentage points (4.90 percentage points) following equitisation. Using the Mann-Whitney test we find that the differences between the two subsamples are significant at the 1 percent level for IBTS and IBTE, and at the 5 percent level for IBTA. Our results also show a significant difference (at the 5 percent level) in income efficiency improvement between these subgroups. Indeed, income efficiency of the non-listed firms increases by a mean (median) of 234.53 percentage points (79.46 percentage points) while this measure also increases in the case of the listed firms, but the gains are less impressive, only 67.35 percentage points (42.26 percentage points).

In general, the results indicate that listed firms show greater improvements in real sales, sales efficiency, leverage, and employment compared to non-listed firms. However, gains in profitability measures are lower for listed firms than for non-listed ones. A possible explanation for the differences is that by exploiting the benefits from the listing, listed firms substantially expand their business. This results in substantial increases in real sales and employment. The profit margin of listed firms is almost unchanged after equitisation (the average IBTS increases only 0.4 percent) while the total assets of the firms increase considerably due to business expansion. This causes the decrease in IBTA of listed firms following equitisation. The average leverage of listed firms falls in years following equitisation while their total assets increase. This results from increases in the equity of listed firms. Similar to the return on assets, the increase in equity explains the decline in IBTE of listed firms after equitisation.

7. THE SOURCES OF PERFORMANCE CHANGES: CROSS-SECTIONAL REGRESSION RESULTS

To validate the nonparametric tests and to examine what determines differences in effects of equitisation, a cross-sectional regression is used to measure the sources of performance changes after equitisation. In our regression equations the dependent variables represent the percentage changes in income before tax on assets (PIBTA), income before tax on sales (PIBTS), income before tax on equity (PIBTE), real sales (PRS), sales efficiency (PSE), income efficiency (PIE) and employment (PEmp) following equitisation. To explain the changes in performance measures (dependent variables), we use size (log of pre-equitisation real sales average), residual state ownership, background of the chairperson of the board of directors, background of the chairperson of the board of supervisors, stock-market listing of firms, real sales change and employment change as independent variables. Definitions of explanatory variables used and expected signs in regression analyses are shown in Table 10.

Table 10: Definitions of explanatory variables used and expected sign in regression analyses

Variable	Definition	Expected sign of effect on performance
Size	Log of pre-equitisation real sales average	Negative
State ownership	Percent of shares owned by the state at the time of the first share issue	Negative
Chairperson of the board of directors (CBD)	Dummy variable equal to 1 if the chairperson of the board of directors represents the state, 0 otherwise	Negative
Chairperson of the board of supervisors (CBS)	Dummy variable equal to 1 if the chairperson of the board of supervisors represents the state, 0 otherwise	Negative
Listing	Dummy variable equal to 1 if a firm is listed on the stock exchange, 0 otherwise	Positive

The equation used for each performance measure is:

$$PM_i = \alpha_0 + \beta_1 Size + \beta_2 \text{ State ownership} + \beta_3 CBD + \beta_4 CBS + \beta_5 Listing$$

where PM_i represents the percentage change in a given performance measure. The results of regression analyses are shown in Table 11.

Profitability

Consistent with the results of Harper (2002) for the Czech Republic the regression analyses show a significant negative relationship between profitability changes (PIBTA, PIBTS, and PIBTE) and firm size. Moreover, according to Table 11, corporate governance appears as an important determinant to explain profitability changes of firms following equitisation. Specifically, our results indicate that residual state ownership has a significant negative effect (at the 5 percent level) on PIBTS. Similarly, residual state ownership also has a negative impact on PIBTE, although the

effect is insignificant statistically. Additionally, regression results show that if the chairperson of the board of supervisors represents the state this has a significant negative effect on PIBTA and PIBTS. Contrary to expected signs, regression analyses show a significant negative relationship between listing on the stock exchange and profitability measures. The possible explanation for the negative impact of listing is presented in the previous section.

Overall, ownership and corporate governance play a major role in explaining profitability improvement of equitised firms after equitisation. In addition, regression results reveal a significantly negative effect of firm size and listing on the stock exchange on the profitability improvements of equitised firms. The independent variables explain 10.4 percent of the percentage change in PIBTA, 35.3 percent in PIBTS change, and 26.4 percent in PIBTE.

Real sales

As predicted, Table 11 shows that firms where the chairperson of the board of directors represents the state have significantly lower improvements in real sales after equitisation than firms where the chairperson of the board of directors represents private owners. Specifically, firms in the former group show a 27.10 percentage points lower improvement in real sales than firms of the latter group. Additionally, we find a significant positive impact of listing on real sales change following equitisation. Indeed, listed firms experience a 28.96 percentage points greater increase in real sales than non-listed firms. This results could mirror the effect hypothesized above that listed firms exploit the benefits from the listing through enlarging their business and market share. These lead to a higher growth rate of sales compared to non-listed firms. Contrary to predictions, our results show a significant positive relationship between real sales and state ownership. In fact, a one percent increase in state ownership results in a 0.79 percentage point real sales increase following equitisation.

Efficiency

First, we discuss the regression results for sales efficiency. The regression for this performance measure reveals a significant negative effect of firm size on improvement in sales efficiency in the post-equitisation period. The employment regression shows a significant positive relationship between the size of firms and employment change. However, in the regeression for real sales we find that size has a negative effect on real sales, although it is insignificant. A combination of these results explains the negative relationship between size and sales efficiency. In addition, we find that listed firms experience a significantly higher increase (33.56

Table 11: Cross-sectional regression results

	PIBTA	PIBTS	PIBTE	PRS	PSE	PIE	PEmp.
Constant	8.935	10.149	40.777	19.678	77.204	756.119	-
	(2.82)[a]	(6.08)[a]	(3.97)[a]	(0.73)	(2.83)[a]	(4.28)[a]	19.801
							(-0.94)
Size	-0.511	-0.748	-3.031	-0.577	-8.030	-35.864	4.016
	(-1.73)[c]	(-4.87)[a]	(-3.08)[a]	(-0.23)	(-3.24)[a]	(-3.02)[a]	(1.90)[c]
State ownership	0.007	-0.029	-0.022	0.793	0.580	-4.260	-0.249
	(0.23)	(-2.17)[b]	(-0.29)	(3.43)[a]	(2.68)[a]	(-3.43)[a]	(-1.24)
CBD	-1.119	0.973	-4.700	-27.096	-6.432	-112.517	-24.069
	(-0.98)	(2.18)[b]	(-2.07)[b]	(-3.48)[a]	(-0.87)	(-1.64)[c]	(-2.68)[a]
CBS	-1.819	-1.125	-2.380	21.014	18.822	-39.857	-3.270
	(-1.80)[c]	(-2.40)[b]	(-0.98)	(2.52)[b]	(2.72)[a]	(-1.67)[c]	(-0.58)
Listed firms	-2.168	-1.303	-6.422	28.958	41.909	-64.801	-4.394
	(-1.90)[c]	(-1.85)[c]	(-2.30)[b]	(2.33)[b]	(4.35)[a]	(-1.96)[c]	(-0.73)
Observations	84	84	84	84	84	56	91
Adjusted R^2	0.104	0.353	0.264	0.267	0.297	0.393	0.106
F-statistic	2.92[b]	10.07[a]	6.96[a]	7.03[a]	8.01[a]	8.11[a]	3.15[a]
Jarque-Bera	3.74	1.02	0.70	1.23	2.50	4.06	1.44

[a, b, c] Significant at the 1%, 5%, and 10% level, respectively
t-values in parenthesis (they are based on White Heteroskedasticity-Consistent Standard Errors & Covariances)

percentage points) in sales efficiency than non-listed firms. Similar to the real sales measure, the analysis shows that state ownership also has a significant positive impact on sales efficiency.

Beside the sales efficiency regression, we also conducted an income efficiency regression. The results show that there is a significant negative relationship between size and the change in income efficiency. Moreover, our results confirm the prediction that state ownership has a negative effect on firm performance, including income efficiency. Specifically, a one percent increase in state ownership causes a 4.26 percentage point decrease in income efficiency. This relationship is statistically

significant at the 1 percent level. Similar to sales efficiency, the regression results show a significantly lower increase in income efficiency for FCBDRS as compared to FCBDRP. In fact, FCBDRS have a 112.52 percentage point lower improvement in income efficiency than FCBDRP. Contrary to what was found for sales efficiency, we find that listing on the stock exchange has a significant negative impact on income efficiency. According to Table 11, the listed firms' gain in income efficiency is 64.80 percentage points lower than the non-listed firms'. Finally, the regression shows that the explanatory variables explain 39.3 percent of the variation in the income efficiency improvement.

Generally, our data indicate that firm size, residual state ownership, corporate governance and listing on the stock exchange are the major determinants of post-equitisation efficiency improvements. Specifically, our results reveal that firm size has significantly negative effects on the both of efficiency measures. Moreover, the regression results show a significant relationship, but of different sign, between state ownership and both efficiency measures. Indeed, while state ownership has a positive effect on sales efficiency, the impact on income efficiency is negative. Similarly, we also find a significant relationship, but with a sign that is at odds with expectations, between stock-exchange listing and the efficiency measures, and between the chairperson of the board of supervisors representing the state and the efficiency measures.

Employment

According to the regression results, the size of firms and the background of the chairperson of the board of directors are the major sources of the changes in employment following equitisation. Specifically, there is a significant positive relationship between size and employment change after equitisation. It suggests that larger size entails a greater increase in employment. A possible explanation for this relationship is that with a new capital source through issuing new shares after equitisation, large firms realise a greater expansion in their production and business as compared to small firms. Greater expansion of business requires large firms to hire more employees compared to small firms. Additionally, as expected, firms with the chairperson of the board of directors representing the State show a significantly lower increase (at the 1 percent level) in employment compared to firms where the chairperson of the board of directors represents private owners. In fact, Table 11 reveals appoints that firms that have chairperson of the board of directors representing the State report a 24.07 percent lower increase in employment than firms that have chairperson of the board of directors representing private investors. Consistent with most other studies we find that higher state ownership results in lower post-equitisation employment change. The relationship is insignificant, however.

8. SUMMARY AND CONCLUSIONS

In this paper we examine the effects of equitisation, the Vietnamese version of privatisation, on firm performance in Vietnam by using data of 121 firms that were equitised during the 1993-2002 period. Applying the methodology of Megginson, Nash and Randenborgh (1994), we find that profitability (measured by income before tax on assets, income before tax on sales, and income before tax on equity), efficiency (measured by real sales efficiency and income efficiency), real sales, and employee income increase significantly following equitisation (all significant at the 1 percent level). These findings support the growing empirical evidence that firms become more profitable and efficient following privatisation. In the case of Vietnam the performance improvement is, however, remarkable since the equitisation process in that country is such that the state retains a considerable portion of the shares of equitzed firms and employees of the firms acquire a substantial portion of the shares, whereas in the literature the performance improvement of privatisation often is ascribed to control by outside shareholders (see, *e.g.*, Earle and Estrin, 1996).

In addition, consistent with the results of Megginson et al. (1994), Boubakri & Cosset (1998), and D'Souza & Megginson (1999), we come up with an increase in employment and an increase in employee income for the equitised firms after equitisation, although the increase in employment is not statistically significant. Nevertheless, this finding is at odds with the model of Boycko *et al.* (1996) where the positive effect of privatisation on firm performance hinges on the redress of excess labour spending. An explanation for the absence of a negative employment effect of equitisation in Vietnam may be that employees hold substantial portions of the shares of equitised firms and consequently are able to influence firms' decision-making in the sphere of employment and wages. It is remakable, however, that the employment and employee-income effects of equitisation do not seem to lead to negative effects in terms of profitability and efficieny of equitised firms, which could indicate that the rises in employee income after privatisation have positive incentive effects in the sense of stimulating rises in labour productivity.

Given the empirical evidence of performance gains after equitisation, we go further to identify the sources of these improvements. The cross-sectional regression results show significant negative effects of size on the change on the profitability and efficiency measures, thus supporting the hypothesis that smaller firms may be more flexible in the necessary adjustment process after privatisation. On the other hand, firm size appears to have a significant positive impact on employment change of equitised firms in the Vietnamese case. Additionally, ownership and corporate governance are uncovered as key determinants of the performance improvements of firms after equitisation. Indeed, we find a significant negative relationship between state ownership and the change in before-tax income on sales, and between state

ownership and the change in income efficiency. Similarly, the regression analyses report that firms having a chairperson of the board of directors who represents the state experience a significantly lower increase in real sales, sales efficiency, income efficiency, and employment compared to firms having a chairperson of the board of directors from the private sector. Contrary to the predictions, our results show a significant negative effect of stock-market listing on profitability changes and income efficiency improvement. However, being listed has a significant positive impact on real sales and sales efficiency changes.

Overall, our empirical results suggest that equitisation in Vietnam works in the sense of improving firm performance in terms of most performance measures. Apart from equitisation, performance improvements could be attributed to changes in the macroeconomic environment and changes in other government policies, such as regulation. Therefore, isolating concurrent effects of theses factors while measuring the effect of equitisation can be an interesting topic for further research.

REFERENCES

Berenson, Mark L., David M. Levine and David Rindskopf, 1988. *Applied Statistics: A First Course*, Prentice-Hall, Inc.

Boubakri, Narjess and Jean-Claude Cosset, 1998. "The Financial and Operating Performance of Newly Privatized Firms: Evidence from Developing Countries," *Journal of Finance*, 53, 1081-1110.

Boubakri, Narjess and Jean-Claude Cosset, 2002. "*Does Privatization Meet the Expectations in Developing Countries? A Survey and Some Evidence from Africa," Journal of African Economies*, 11, 111-140.

Boycko, Maxim, Andrei Shleifer and Robert W. Vishny, 1996. "A Theory of Privatisation," *The Economic Journal*, 106, 309-319.

Chi, Tin, 2004. "Hard to Achieve the Target of Equitization", *Securities Investment Magazine*, No. 260 (Nov. 29).

Chu, Viet Luan, 2002**.** *Equitisation: Important Measure in SOE Reform*, National Political Publishing House.

Claessens, Stijn, Simeon Djankov, and Gerhard Pohl, 1997. "Ownership and Corporate Governance: Evidence from the Czech Republic," *World Bank Policy Research Papers*, No. 1737.

Claessens, Stijn and Simeon Djankov, 1999. "Ownership Concentration and Corporate Performance in the Czech Republic," *Journal of Comparative Economics*, 27, 498-513.

Comstock, Arthur, Richard J. Kish and Geraldo M. Vasconcellos, 2003. "The Post-Privatization Performance of Former State-Owned Enterprises", *International Financial Markets, Institutions and Money*, 13, 19-37.

D'Souza, Juliet and William Megginson, Robert Nash, 2001. "Determinants of Performance Improvements in Privatized Firms: The Role of Restructuring and Corporate Governance," *Social Science Research Network Electronic Paper Collection* (working paper).

D'Souza, Juliet and William L. Megginson, 2001. "*The Financial and Operating Performance of Privatized Firms during the 1990s," The Journal of Finance*, 54, 1397-1438.

Earle, John E. and Saul Estrin, 1996. "Employee Ownership in Transition," in: Roman Frydman, Cheryl W. Gray and Andrzej Rapaczynski (eds.*), Corporate Governance in Central Europe and Russia*, Vol. 2, Budapest, Central European University Press, 1-61

Frydman, Roman, Cheryl Gray, Marek Hessel, Andrzej Rapaczynski, 1999. "When Does Privatization Work? The Impact of Private Ownership on Corporate Performance in the Transition Economies," *Quarterly Journal of Economics*, 114, 1153-1191.

Gupta, Nandini, 2001. "Partial Privatization and Firm Performance: Evidence from India," *William Davidson Institute Working Paper Series*, No. 426, William Davidson Institute at the University of Michigan Business School.

Harper, Joel T., 2002. "The Performance of Privatization Firms in the Czech Republic," *Journal of Banking & Finance*, 26, 621 – 649.

Havrylyshyn, Oleh and Donal McGettigan, 1999. "Privatization in Transition Countries: A Sampling of the Literature," *IMF Working Papers*, No. 6

Kikeri, Sunita, John Nellis, and Mary Shirley, 1992. *Privatization: The Lessons of Experience*, The World Bank, Washington, D.C.

La Porta, Rafael and Florencio López-de-Silanes, 1999. "Large-Scale Privatization in Transition Economies," *The American Economic Review*, 83, 1199-1210.

La Porta, Rafael and López-de-Silanes, Florencio, 1999. "The Benefits of Privatization: Evidence from Mexico," *Quarterly Journal of Economics*, 114, 1193-1241.

Megginson, William L., Robert C. Nash, and Matthias Van Randenborgh, 1994. "The Financial and Operating Performance of Newly Privatized Firms: An International Empirical Analysis," *The Journal of Finance*, 49, 403-452.

Megginson, William and Jeffry M. Netter, 2001. "From State to Market: A Survey of Empirical Studies on Privatization," *Journal of Economic Literature*, 39, 321-389.

Minh Duc, 2004. "450 Days for Completing an Equitization Process", *Vietnam Economic Times* (in Vietnamese), August 19th.

Nguyen, Hoang Xanh, 2003. "On the Privatisation of State-Owned Companies", *Economic Development Review*, 106.

Nguyen, Manh Cuong, 2004. *Does Ownership Matter to Enterprise Performance? A Comparative Study of Private and State Enterprises in Vietnam's Textile-Garment Industry*, Shaker Publishing.

Pistor, Katharina, and Joel Turkewitz, 1996. "Coping with Hydra - State Ownership after Privatization", in: Roman Frydman, Cheryl W. Gray and Andrzej Rapaczynski (eds.), *Corporate Governance in Central Europe and Russia*, Vol. 2, Budapest, Central European University Press, 192-244

Sheshinski, Eytan and Luis F. Lopez-Calva, 1999. “Privatization and its Benefits: Theory and Evidence,” *HIID Development Discussion Papers*, No. 698, Harvard University.

Shirley, Mary, and Patrick Walsh, 2000. “Public versus Private Ownership: The Current State of the Debate”, *Policy Research Working Papers*, No. 2420, The World Bank.

Walder, A.G., 1989. “Factory and Manager in an Era of Reform,” *China Quarterly*, 118, 242-264.

Webster, Leila and M. Reza Amin, 1998. “Equitisation of State Enterprises in Vietnam,” *MPDF (Mekong Project Development Facility) Working Paper*.

Yarrow, George, 1986. “Privatization in Theory and Practice”, *Economic Policy*, 2, 324-364.

Zuwaylif, Fadil H., 1984. *Applied Business Statistics*, Addison Wesley Publishing Company.