The Determinants of Equitization Success of State-Owned Enterprises in Vietnam

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Abstract

This study aims to investigate the factors that affect the success of Vietnam's State-owned enterprises' (SOEs) equitization. Using a unique sample of equitization of unregulated SOEs in Vietnam from January 2010 to April 2016, we find that age, valuation, and gross margin of the SOEs are significant determinants of the success of the equitization. Specifically, in contrast with prior literature, age is found to have a negative impact on the success of the equitization. On the other hand, valuation and gross margin have a positive impact on the success of the equitization.

1. Introduction

In the last few decades, Vietnam's economic renovation focuses on two main elements: (1) the shift from the centrally-run, bureaucratic and state-subsidized market economy to a socialist-oriented market economy and (2) the shift from the autarkical economy to an open economy. To fulfill this mission, Vietnam's economy must integrate into regional and global economies. In recent years, the international integration process in Vietnam has achieved numerous milestones, including accession to the World Trade Organization (WTO) in 2007 and the establishment of the ASEAN Economic Community (AEC) in 2015.

The economic integration will bring benefits only when Vietnam is able to raise its competitiveness and the concentration should be on State-owned enterprises (SOEs), as the main players in the country's economy. SOEs play an important role in Vietnam's economy since these enterprises employ a majority of total capital and generate a large portion of GDP. However, SOEs are a drag on economic performance. Unproductive SOEs control access to and implement the majority of development and infrastructure projects, thus decreasing the efficiency of public investment. SOEs' borrowing to invest in non-core businesses is likely to account for many of the non-performing loans held by Vietnamese banks, which have lent excessively to SOEs on the assumption that the loans will be guaranteed by the State (UK Trade & Investment, 2014). It is obvious that SOEs have priority access to investment funds and land-use rights. Moreover, the close connection with political decision-makers will bring unfair competitive advantages to SOEs.

This lack of a level playing field is a serious problem for the development of Vietnam's economy as a whole and for the efficient use of economic resources. Shapiro and Willig (1990), Shleifer and Vishny (1994), Megginson and Netter (2001), and Cavaliere and Scabrosetti (2008) argue that state-owned enterprises are less efficient than private firms. Berkowitz et al. (2017) show that SOE productivity lagged behind that of foreign and private firms and SOEs are under political pressure to hire excess labor. Therefore, there is an urgent need to reform the SOEs in Vietnam. Equitizing SOEs in Vietnam should be an important solution to raise the competitiveness of Vietnam's economy. Moreover, equitization can reduce monopolistic behavior and national budget deficits by decreasing subsidies to SOEs, and creating a more favorable business environment.

Equitization refers to the privatization of a wholly-state-owned enterprise by selling a part or all of the assets and liabilities of the SOE to the private sector, thus transforming the SOE into a joint-stock company or a corporation. In Vietnam, the equitization of SOEs began in 1992 and has accelerated since 2001. By the end of 2011, the Government had equitized nearly 4,000 enterprises. However, the equitization progress has been slower than planned. In 2015, only 222 SOEs were equitized, raising the number of equitized SOEs to 478 for the 2011-2015 period. The Government aims to equitize about 174 SOEs in the 2016-2020 period. More importantly, Tran Dinh Thien[1] notes that the equitization will be meaningless if SOEs stay as state-owned enterprises after equitization. In Vietnam, several equitized enterprises successfully sold only a small portion

of their capital. In these cases, the Vietnamese government failed to sell the entire ownership in the SOEs. For example, Cam Ranh Port Company Limited was only able to sell a little less than 10 percent of its chartered capital and the State remains the biggest shareholder in the firm. In that case, the State still plays the most important role in the firm's operation and the purpose of improving the competitiveness for the economy might fail.

The prior literature mostly focuses on the success and withdrawal of Initial Public Offerings (IPOs) (Dunbar, 1998; and Busaba et al., 2001). To the knowledge of the authors, there are almost no studies that pay attention to the success of equitization cases. Moreover, most markets use book-building method to determine asset prices. The equitization cases in Vietnam mostly are partial-privatization and asset prices are determined by the auction method (Tran et al., 2015). Thus, investigating the factors affecting the success of equitization cases, in terms of the portion of ownership sold, is an interesting topic in the context of Vietnam, especially when there is usually a very long time gap between going public and the actual listing of shares for trading.

2. Literature review

Since there are almost no studies that investigate the success of equitization cases, the literature regarding IPO failure is examined. Raising equity through IPOs is a difficult mission and not all firms are successful with the IPO process. Hao (2011) shows that in the U.S., around 21 percent of IPOs during the 1996-2005 period were withdrawn and this figure rose to a staggering 90 percent in 2008. The increase in number of withdrawn IPOs has captured the attention of the literature. However, the prior literature on IPO withdrawals has largely been confined to U.S. firms.

Dunbar (1998) and Busaba et al. (2001) show that between the mid-1980s and mid-1990s almost one in five IPOs was withdrawn. Moreover, Busaba et al. (2001) argue that the decision to withdraw an IPO depends on the issuer's reservation value for the offering relative to possible investor valuations. Welch (1992) argues that negative information 'cascades' can result in investor valuations falling below a level deemed reasonable by issuers, resulting in withdrawal.

Busaba (2006) presents a theoretical model predicting withdrawal based on the offer price during the book-building process. The idea is that firms assess the demand of the shares and the decision to withdraw (complete) the IPO is made based on the low (high) interest of investors. The Busaba model corresponds to a real option perspective. If investors are willing to pay a high price, the firm will exercise the IPO option. Busaba et al. (2001) show that the decision to withdraw an IPO depends on the issuer's reservation value relative to potential investors' valuation of the issue. Using a probit model, their results show that issuers with a higher debt ratio and whose main intention is to use the proceeds to pay down debt have a higher probability of withdrawal. Issuers with larger issues and who file an IPO in periods when many other offerings are filed are also more likely to withdraw. On the other hand, firms are less likely to withdraw their IPO if they have larger revenues prior to the offering and venture-backing, and if the IPO was filed during favorable market conditions.

Dunbar and Foerster (2008) show that only 9 percent of withdrawn IPOs ever return for a successful IPO. Boeh and Dunbar (2013) note that about 13 percent of their sample successfully returned for an IPO, whereas the number is only 7 percent in Hao's study (2011). Moreover, Chen et al. (2010) argue that IPO withdrawals can be a costly corporate event. They find that the cost of withdrawing an IPO is an important determinant of a firm's decision on whether to complete or withdraw its IPO. Moreover, the firm's performance decreases after the withdrawal since there is a significantly higher likelihood of bankruptcy for firms that choose to withdraw their IPO. This finding is supported by Boeh and Dunbar (2013) who show that 11 percent of withdrawn firms filed for bankruptcy later and Lian and Wang (2009) who find that withdrawn IPOs that return to the market obtain considerably lower valuations than comparable first-time IPOs. However, Lian and Wang (2012) document that, after an IPO withdrawal, the valuation of the firm increases when it is acquired by or merged with another firm. Thus, IPO withdrawals have an opposite effect on the valuation of withdrawn IPOs that are subsequently taken over by public acquirers.

Latham and Braun (2010) examine a sample of internet IPOs. The authors document an inverse U-shaped relation between CEO ownership and IPO withdrawal as equity markets deteriorate. They explain that in weakening capital market conditions, CEOs with high (low) firm ownership show risk aversion by withdrawing the IPO in order to protect their own wealth. They also find that firms with a higher level of debt are less likely to withdraw their IPO in deteriorating capital markets, which is consistent with the findings of Pagano et al. (1998). Moreover, they also show that CEOs with low (high) equity ownership in firms with low (high) leverage are more likely to withdraw the IPO in weak capital markets in order to protect their employment.

Recent literature also examines the impact of accounting factors on the success of IPOs. For example, Alhadab et al. (2015) find that IPO firms with high levels of real and/or accrual earnings' management during the IPO year have a higher probability of IPO failure and lower survival rates in subsequent periods. Moreover, financial innovation is also a factor influencing the success of an IPO. For example, Cumming et al. (2014) investigate the success factors for taking firms to public ownership with Special Purpose Acquisition Companies (SPACs). The authors show that, in the context of SPACs, more experienced managers and boards, glamor underwriters and larger underwriter syndicates are less likely to be associated with successful IPOs.

Equitization is a unique aspect of communist countries. It is a process of transforming State-owned enterprises into joint-stock companies. Most recent studies about equitization are about the process in Vietnam. The Vietnamese government emphasizes that the equitization process is not the same thing as privatization and it is part of a socialist-oriented mixed economic plan managed by the State (Evans, 2004). The majority of prior studies focus on the impact of equitization on firm performance. Truong and Ngo (2016) find that equitization has a significantly positive impact on the ratio of income before tax to total assets and the ratio

of income before tax to sales. Nguyen and Tran (2017) show that equitization can consistently enhance firm performance in terms of profitability and sales efficiency in exchange for employment security. The findings imply that equitization plays a vital role in enhancing the performance of Vietnamese State-owned enterprises. Moreover, Duong et al. (2017) argue that equitization has several merits for stock market development and that firms with state origins have better earnings, profitability and total asset turnover compared to other firms.

3. Hypotheses

The prestige of auditor

Titman and Trueman (1986) argue that higher quality firms will use higher quality auditors in order to signal their quality to investors. Michaely and Shaw (1995) show that more prestigious auditors are associated with IPO firms that seem *a priori* less risky, that the market subsequently perceives to be less risky, and those are less likely to fail. We hypothesize that the quality of the employed auditors has a positive impact on the success rate of the equitization of SOEs in Vietnam. We use a dummy variable BIG4, which equals one if the SOEs use the service of big 4 auditors in Vietnam, and 0 otherwise[2].

Firm age

By analogy, firms should weaken over time and lose their ability to compete (Pagano et al., 1998). However, age can actually help firms become more efficient since firms discover what they are good at and learn how to do things better over time. In addition, there is greater uncertainty associated with newer firms that do not have a record of past performance. Thus, we expect that LOGAGE, which equals

the natural log of one plus the number of years from the firm's incorporation date to the date of its equitization, has a positive impact on the success rate of the equitization of SOEs in Vietnam.

Winning price

Welch (1992) shows that the decision to withdraw an IPO depends on the issuer's reservation value relative to potential investors' valuation of the issue. Fernando et al. (2004) note that the IPO offering price per share is a significant determinant of attrition. Since the main method to sell shares of SOEs in Vietnam is by auction, we expect a positive relationship between the average winning price and the success rate of the equitization of SOEs in Vietnam. We measure LOGPRICE as the natural log of one plus the average winning price.

Firm leverage

Leverage has been documented to be an important factor affecting the withdrawal of IPOs. Busaba et al. (2001) argue that issuers with a higher debt ratio have a higher probability of withdrawal. Consistent with the literature, we expect leverage has a negative impact on the success rate of the equitization of SOEs in Vietnam. We define LEVERAGE as the total liabilities at the end of the prior year to equitization divided by the sum of total assets at the end of the year prior to equitization, plus the proceeds raised at the date of equitization.

Selling, general, and administrative (SG&A) expenses

Demers and Joos (2007) argue that SG&A expenses may serve as a proxy for a firm's operational inefficiencies. Following Demers and Joos, we include the natural log of one plus

SG&A expenses, LOGSGA, and expect this variable to be negative related to the success rate of the equitization of SOEs in Vietnam.

Gross margin

Demers and Joos (2007) also note that better margins are indicative of greater production efficiencies, better brand names, higher pricing power, and generally less competitive conditions in the firm's product markets. Thus, gross margin should have a positive impact on the success rate of the equitization of SOEs in Vietnam. GROSSMARGIN is defined as sales minus cost of goods sold, all divided by sales.

Sales

Firms with higher revenues are less risky than those with lower revenues since they are more established in their product markets. Moreover, Hensler et al. (1997) find that size has a positive impact on the success of IPOs. Therefore, we hypothesize that LOGSALES, which is defined as the natural log of one, plus total revenue for the fiscal year prior to equitization, has a positive impact on the success rate of the equitization of SOEs in Vietnam.

4. Data and methodology

4.1. Data

A sample of SOEs that attempted to sell their whole State ownership to the public from January 2010 to April 2016 was collected from the Stoxplus database[3]. The initial sample has 125 transactions. Due to the difference in governing regulations, we eliminate 13 transactions that belong to the banking and finance industry. Detailed information for the remaining 112 transactions was hand collected from the prospectus, financial statements prior to the equitization date, and equitization results. Only 70

transactions have full information. Among the sample firms, 52 percent of the firms are in the manufacturing sector, 33 percent of the firms are in the real estate sector, and 7 percent of the firms are in the services sector.

4.2. Methodology

Traditionally, the prior literature uses a dummy variable that captures only qualitative information to measure the success of the offerings (Brau and Osteryoung, 2001; Demers and Joos, 2007). Due to the unique context in Vietnam, we are able to collect quantitative information about the outcome of the offerings. Thus, we apply a Tobit multivariate model to investigate the importance of various variables on the success of the equitization event of Vietnam SOEs. In the Tobit regression model, the dependent variable is the portion of shares actually sold in the auction of Vietnam SOEs, which must be in the interval [0, 1]. In our sample, all values of the dependent variable are within the [0, 1] interval. We apply the model:

$$y_i^* = \beta X_i' + u_i$$

where $y_i = y_i^*$ if $0 < y_i^* < 1$, X_i' is the vector of independent variables, and u_i is an independently distributed error term assumed to be normal with zero mean and variance σ^2.

When applying this model to our sample, the quasi-maximum likelihood (QML) White/ Huber standard errors are used to correct for heteroskedasticity. For each hypothesis of a characteristic that we believe affects the portion of shares actually sold in the auction, an independent variable is used to proxy for that characteristic. In addition to the above analyses, we also conduct logit regression models as robustness tests. In the logit regression models, the dependent variable equals one if the portion

Table 1: Definition of variables

Variable name	Variable definition
SUCCESSRATE	equals the number of shares sold divided by the number of shares offered in the equitization
SUCCESSDUMMY	equals one if the SUCCESSRATE is greater than 50 percent and 0 otherwise
BIG4	equals one if the SOEs use the service of big 4 auditors in Vietnam and 0 otherwise
LOGAGE	equals the natural log of one plus the number of years from the firm's incorporation date to the date of its equitization
LOGPRICE	equals the natural log of one plus the average winning price
LEVERAGE	equals the total liabilities at the end of the year prior to equitization divided by the sum of total assets at the end of the prior year to equitization plus the proceeds raised at the date of equitization
LOGSGA	equals the natural log of one plus selling, general, and administrative (SG&A) expenses
GROSSMARGIN	equals sales minus cost of goods sold, all divided by sales
LOGSALES	equals the natural log of one plus total revenue for the fiscal year prior to equitization

of shares actually sold in the auction is greater than 50 percent and 0 otherwise. When more than 50 percent of the shares are sold in the auction, we consider that it is a successful deal. Table 1 provides the summary of the variables that are included in the model to explain the portion of shares actually sold in the auction, along with their definitions.

5. Results

5.1. Univariate results

Table 2 shows the descriptive statistics of the sample. Out of 112 observations, we have full information for SUCCESSRATE, SUCCESS-DUMMY, and LOGPRICE. On the other hand, we only have information about LOGSGA for 70 observations.

The mean and median of SUCCESSRATE are 0.71 and 1, respectively. This result indicates that a majority of transactions are successful. BIG4 has a mean of 0.15 and a median of 0. This result suggests that, even though the big 4 audit firms dominate the Vietnam audit market, the SOEs that underwent equitization did not use their services. LEVERAGE has a mean of 0.36 and a median of 0.37, indicating that the targeted SOEs have a low debt level in comparison with the debt level of other Vietnamese SOEs. The mean and median of GROSSMAR-GIN are 0.20 and 0.15, respectively. It seems that the targeted SOEs perform well in terms of profit margin.

Table 3 presents the correlation matrix of variables. LOGAGE is significantly and neg-atively correlated with SUCCESSRATE and

Table 2: Descriptive statistics of the sample

Variable	Mean	Median	Standard deviation	Number of observation
SUCCESSRATE	0.71	1	0.40	112
SUCCESSDUMMY	0.70	1	0.46	112
BIG4	0.15	0	0.36	87
LOGAGE	3.17	3.20	0.89	100
LOGPRICE	9.49	9.31	0.40	112
LEVERAGE	0.36	0.37	0.34	105
LOGSGA	25.11	24.30	4.28	70
GROSSMARGIN	0.20	0.15	0.18	75
LOGSALES	26.92	26.97	1.91	75

BIG4. The correlation coefficients are: 0.22 and -0.38, respectively. LOGSALES is significantly and positively correlated with BIG4, LEVEAGE, and LOGSGA. The correlation coefficients are 0.25, 0.51, and 0.46, respectively. Other than that, the correlation coefficients between variables are quite low.

5.2. Multivariate results

The results from Table 4 show evidence of the factors that influence the success of the equitization of SOEs in Vietnam. The dependent variable, SUCCESSRATE, is measured as the portion of shares actually sold in the auction. There are three models applied. Yet, all three models yield qualitatively similar results for all variables.

Model 1 shows the impact of all variables on the portion of shares actually sold in the auction. LOGAGE is negatively significant with a value of -0.11. This result indicates that younger SOEs in Vietnam are more attractive to investors. The result is not in line with our prediction. Due to the heavy impact of the centrally-run economy on SOEs in Vietnam, it does not mean that older SOEs are more estab-

lished and more efficient compared to younger SOEs. In fact, older SOEs have been under the influence of inefficient management methods of State officials longer. This might be the reason why investors try to avoid investing in these firms. LOGPRICE is positive and significant with a value of 0.33. This result suggests that SOEs with high valuation are more attractive to investors. It is in line with the results from Welch (1992) and Fernando et al. (2004). The coefficient for GROSSMARGIN is positive and significant, indicating that investors are more interested in SOEs with higher profit margins.

Since LOGSALE is significantly correlated with three other explanatory variables, the inclusion of this variable might create problems. Thus, we eliminate this variable and run another regression model. Model 2 shows these results. In consistency with the results in model 1, LOGAGE, LOGPRICE, and GROSSMARGIN are significant determinants of the portion of shares actually sold in the auction. The coefficients for LOGAGE, LOGPRICE, and GROSSMARGIN are -0.13, 0.33, and 0.48,

Table 3: Correlation matrix

SUCCESSRATE equals the number of shares sold divided by the number of shares offered in the equitization. SUCCESSDUMMY equals one if the SUCCESSRATE is greater than 50 percent and 0 otherwise. BIG4 equals one if SOEs use the service of the big 4 auditors in Vietnam and 0 otherwise. LOGAGE equals the natural log of one plus the number of years from the firm's incorporation date to the date of its equitization. LOGPRICE equals the natural log of one plus the average winning price. LEVERAGE equals the total liabilities at the end of the year prior to equitization divided by the sum of total assets at the end of the year prior to equitization plus the proceeds raised at the date of equitization. LOGSGA equals the natural log of one plus selling, general, and administrative (SG&A) expenses. GROSSMARGIN equals sales minus the cost of goods sold, all divided by sales. LOGSALES equals the natural log of one plus total revenue for the fiscal year prior to equitization.

	SUCCESSRATE	SUCCESSDUMMY	BIG4	LOGAGE	LOGPRICE	LEVERAGE	LOGSGA	GROSSMARGIN	LOGSALES
SUCCESSRATE	1								
SUCCESSDUMMY	0.933**	1							
BIG4	0.09	0.12	1						
LOGAGE	-0.22*	-0.19	-0.38**	1					
LOGPRICE	0.16	0.21*	-0.16	0.10	1				
LEVERAGE	0.03	0.08	0.11	-0.07	0.14	1			
LOGSGA	-0.03	-0.02	0.04	0.16	-0.01	0.25*	1		
GROSSMARGIN	0.23*	0.17	0.06	-0.21	-0.05	-0.13	-0.15	1	
LOGSALES	0.04	0.09	0.25*	0.09	0.11	0.51**	0.46**	-0.12	1

respectively. Model 3 presents the regression results when we further eliminate LOGAGE, which significantly correlated with two other explanatory variables. The results of model 3 are also consistent with those in model 1 and model 2. Regarding the power of the Tobit regression, the McFadden's R^2 has a range from 45.4 percent to 48.5 percent and the likelihood ratio indicates that the model is significant at the 1% level. The above results show that the variables are jointly significant and have high explanatory power in all models.

We have a sample of 112 observations. However, only 70 observations have full information. Thus, as robustness tests, we rerun the Tobit regressions for a subgroup of variables that cover a different number of observations. Table 5 reports the results of model 4 and model 5.

Model 4 shows the results of the Tobit regression that applied to 3 variables, which are LOGAGE, LOGPRICE, and LEVERAGE. 100 observations have full information about these variables. Model 5 shows the results of the Tobit regression that applied to 4 variables, which are BIG4, LOGSGA, GROSSMARGIN, and LOGSALES. Seventy observations have full information about these variables. The two models yield similar results in comparison with those of the first 3 models.

We also run various Logit regression analyses as robustness checks for our main Tobit regression analyses. The Logit analysis attempts to distinguish between successful transactions in which more than 50 percent of the shares are sold and transactions in which less than 50 percent of the shares are sold. Table 6 and 7 provide the results from applying the Logit model to the sample.

Table 4: Tobit regressions explaining the portion of shares actually sold in the auction

The estimation is based on a two-boundary Tobit model to reflect lower and upper bound constraints on the portion of shares actually sold in the auction. The z-stats are based on QML (Huber/White) heteroskedasticity-consistent standard errors. BIG4 equals one if the SOEs use the service of big 4 auditors in Vietnam and 0 otherwise. LOGAGE equals the natural log of one plus the number of years from the firm's incorporation date to the date of its equitization. LOGPRICE equals the natural log of one plus the average winning price. LEVERAGE equals the total liabilities at the end of the year prior to equitization divided by the sum of total assets at the end of the year prior to equitization plus the proceeds raised at the date of equitization. LOGSGA equals the natural log of one plus selling, general, and administrative (SG&A) expenses. GROSSMARGIN equals sales minus cost of goods sold, all divided by sales. LOGSALES equals the natural log of one plus the total revenue for the fiscal year prior to equitization.

Variable	Model 1		Model 2		Model 3	
	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat
Intercept	-2.04	(-2.34)**	-2.16	(-2.76)***	-1.99	(-2.43)**
BIG4	-0.07	(-0.51)	-0.08	(-0.59)	0.04	(0.37)
LOGAGE	**-0.14**	**(-2.02)****	**-0.13**	**(-2.01)****		
LOGPRICE	**0.33**	**(4.00)*****	**0.33**	**(4.02)*****	**0.27**	**(3.69)*****
LEVERAGE	0.15	(0.86)	0.13	(0.74)	0.09	(0.49)
LOGSGA	0.01	(0.14)	0.01	(0.10)	-0.01	(-0.18)
GROSSMARGIN	**0.47**	**(2.32)****	**0.48**	**(2.32)****	**0.55**	**(2.79)*****
LOGSALES	-0.01	(-0.23)				
No. of Obs	70		70		70	
McFadden's R^2	48.5%		48.4%		45.4%	

*Note: ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.1 levels, respectively.*

Table 5: Other Tobit regressions explaining the portion of shares actually sold in the auction

The estimation is based on a two-boundary Tobit model to reflect lower and upper bound constraints on the portion of shares actually sold in the auction. The z-stats are based on QML (Huber/White) heteroskedasticity- consistent standard errors. BIG4 equals one if the SOEs use the service of big 4 auditors in Vietnam and 0 otherwise. LOGAGE equals the natural log of one plus the number of years from the firm's incorporation date to the date of its equitization. LOGPRICE equals the natural log of one plus the average winning price. LEVERAGE equals the total liabilities at the end of the year prior to equitization divided by the sum of total assets at the end of the year prior to equitization plus the proceeds raised at the date of equitization. LOGSGA equals the natural log of one plus selling, general, and administrative (SG&A) expenses. GROSSMARGIN equals sales minus cost of goods sold, all divided by sales. LOGSALES equals the natural log of one plus total revenue for the fiscal year prior to equitization.

Variable	Model 4		Model 5	
	Coefficient	z-stat	Coefficient	z-stat
Intercept	-1.68	(-2.65)***	0.28	(0.40)
BIG4			0.10	(0.80)
LOGAGE	**-0.11**	**(-2.70)*****		
LOGPRICE	**0.29**	**(4.22)*****		
LEVERAGE	-0.04	(-0.32)		
LOGSGA			-0.01	(-0.12)
GROSSMARGIN			**0.55**	**(2.86)*****
LOGSALES			0.01	(0.42)
No. of Obs	100		70	
McFadden's R^2	29.81%		36.28%	

*Note: ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.1 level, respectively.*

Table 6: Logit regressions explaining the portion of shares actually sold in the auction

The estimation is based on a Logit regression model. The z-stats are based on QML (Huber/White) heteroskedasticity-consistent standard errors. BIG4 equals one if the SOEs use the service of big 4 auditors in Vietnam and 0 otherwise. LOGAGE equals the natural log of one plus the number of years from the firm's incorporation date to the date of its equitization. LOGPRICE equals the natural log of one plus the average winning price. LEVERAGE equals the total liabilities at the end of the year prior to equitization divided by the sum of total assets at the end of the year prior to equitization plus the proceeds raised at the date of equitization. LOGSGA equals the natural log of one plus selling, general, and administrative (SG&A) expenses. GROSSMARGIN equals sales minus cost of goods sold, all divided by sales. LOGSALES equals the natural log of one plus total revenue for the fiscal year prior to equitization.

Variable	Model 1		Model 2		Model 3	
	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat
Intercept	-34.88	(-2.14)**	-34.48	(-2.24)**	-31.69	(-2.15)**
BIG4	-0.32	(-0.31)	-0.31	(-0.31)	0.43	(0.48)
LOGAGE	**-0.82**	**(-1.75)***	**-0.82**	**(-1.76)***		
LOGPRICE	**3.85**	**(2.35)***	**3.85**	**(2.35)***	3.34	(2.15)**
LEVERAGE	1.25	(0.91)	1.31	(1.11)	0.92	(0.81)
LOGSGA	0.02	(0.29)	0.02	(0.32)	0.01	(0.03)
GROSSMARGIN	2.88	(1.38)	2.87	(1.38)	3.12	(1.54)
LOGSALES	0.02	(0.08)				
No. of Obs	70		70		70	
McFadden's R^2	20.49%		20.48%		16.42%	

Note: ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.1 level, respectively.

Table 7: Other Logit regressions explaining the portion of shares actually sold in the auction

The estimation is based on a Logit regression model. The z-stats are based on QML (Huber/White) heteroskedasticity-consistent standard errors. BIG4 equals one if the SOEs use the service of the big 4 auditors in Vietnam and 0 otherwise. LOGAGE equals the natural log of one plus the number of years from the firm's incorporation date to the date of its equitization. LOGPRICE equals the natural log of one plus the average winning price. LEVERAGE equals the total liabilities at the end of the year prior to equitization divided by the sum of total assets at the end of the year prior to equitization plus the proceeds raised at the date of equitization. LOGSGA equals the natural log of one plus selling, general, and administrative (SG&A) expenses. GROSSMARGIN equals sales minus cost of goods sold, all divided by sales. LOGSALES equals the natural log of one plus total revenue for the fiscal year prior to equitization.

Variable	Model 4		Model 5	
	Coefficient	z-stat	Coefficient	z-stat
Intercept	-31.55	(-3.09)***	-2.01	(-0.86)
BIG4			0.41	(0.86)
LOGAGE	-0.60	(-1.70)*		
LOGPRICE	3.64	(3.14)***		
LEVERAGE	0.39	0.53		
LOGSGA			-0.01	(-0.31)
GROSSMARGIN			1.64	(1.68)*
LOGSALES			0.09	0.95)
No. of Obs	95		72	
McFadden's R^2	14.49%		5.27%	

Note: ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.1 levels, respectively.

Table 6 and 7 correspond to the same samples for which the Tobit model was applied, and those results were reported in the same order in Tables 4 and 5. The results in Table 6 and 7 are highly similar to those found when applying Tobit analysis to the sample. However, when applying the Logit model to our samples, the fit of the model is lower than when applying the Tobit model, as the dependent variable used in the Tobit models is more precise. Overall, the results reinforce our findings regarding the characteristics that significantly impact the success of the equitization of SOEs in Vietnam.

6. Conclusion

To strengthen the competitiveness of Vietnam's economy, a sharp focus should be paid to the state sector where SOEs need to be undergoing better transformation processes. Our paper aims at examining the factors that determine the success of Vietnamese SOEs' equitization process in an attempt to examine further directions in restructuring Vietnam's state economic sector. Our statistical analysis shows that age, valuation, and gross margin of SOEs are significant determinants of the success of equitization. Especially, in contrast with prior literature, age has a negative impact on the success of the equitization. In the context of Vietnam, the longer firms are under the central planning regime means higher inefficiency and more difficulty in changing firm culture. More established (older) enterprises are more resistant to change, especially change in ownership and management style. Therefore, in order to complete the plan to equitize the majority of state-owned enterprises, the Vietnamese government should pay special attention to older firms. Probably, the Government should have a transition period in the case of more established enterprises. The transition period would ease the resistance to change and improve the efficiency of the equitization.

On the other hand, valuation and gross margin have a positive impact on the success of the equitization. The findings emphasize the importance of the investors' point of view and expectations when deciding to buy stakes in Vietnamese SOEs. Similar to the prior literature, more highly profitable state-owned enterprises are easier to equitize in Vietnam. Our sample is hand-collected and therefore unique, but we believe that a larger sample might provide more insights into the determinants of SOEs' equitization process in Vietnam. In addition, corporate governance variables would be interesting factors to be included in a future study.

Notes:

1. Director of the Vietnam Institute of Economics
2. Among almost 200 independent auditing firms licensed in Vietnam, foreign invested firms or the subsidiaries of foreign groups, especially the "Big Four" have been dominating the market. They are KPMG, Ernst & Young, Deloitte and PricewaterhouseCoopers.
3. StoxPlus, an associate company of Nikkei Inc. and QUICK Corp. (Japan), is the leading financial and business information corporation in Vietnam.

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