State ownership and corporate investment: evidence from Vietnamese stock market

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Abstract

The literature shows that the relationship between state ownership and corporate investment is debatable. This study examines this relationship in Vietnam as a transitional economy. Our sample consists of 4,680 observations from 2009 to 2020. Using fixed effects and random effects for panel data, random effects Tobit, and pooled OLS, we find that state ownership decreases investment expenditures. Moreover, this negative impact is stronger if the firms are financially unconstrained. Our results indicate that weak corporate governance and soft budget constraints arising from state ownership may fail to determine investment decisions. A government's negative attitude toward risk and conservatism may effectively affect corporate investment.

Keywords: State ownership, Investment, Vietnam

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1. Introduction

Corporate investment is an interesting topic in financial research since it plays a vital role in shareholders' wealth. Modigliani and Miller (1958) argue that firms' investment decisions are only driven by profitable opportunities. Nevertheless, the real world has many frictions that may affect their investment decisions.

This paper investigates how state ownership influences corporate investment in Vietnam due to the following motivations. First, the extant literature shows opposite implications on the relationship between state ownership and corporate investment. Firms with state ownership have weaker corporate governance than those without state ownership since they face a "double agency" problem. Managers tend to expropriate shareholders, and politicians are likely to follow social goals instead of economic goals. Therefore, state-owned firms have higher overinvestment (Chen *et al.*, 2017) and hold less cash (Kusnadi *et al.*, 2015). Moreover, due to preferential treatment from the government, firms with state ownership have better access to external funds and lower financing costs. Chang *et al.* (2018) and Shailer and Wang (2015) show that state ownership results in higher investment. D'Souza *et al.* (2005) also show that firm performance is improved after privatization across countries. However, some academics argue that the government is conservative in corporate investment to maintain a stable base for rent extraction. They document that firms tend to underinvest or reduce their investment after privatization (Boubakri and Cosset, 1998; D'Souza and Megginson, 1999). Jaslowitzer *et al.* (2018) find a negative effect of state ownership on corporate investment across European countries. However, no study has been conducted on this topic in a transition economy.

Second, in a transition economy like Vietnam, firms with state ownership have strong footholds across industries. Before 1986, Vietnam was a centrally planned economy, most economic activities relied on 100% state-owned enterprises. Since 1986, the Vietnamese government has pursued the "Doi Moi" policy. Hence, a centralized economy is gradually replaced by a market economy. Along with the "Doi Moi", the government started privatizing 100% state-owned firms, encouraging the private sector to participate in most industries (Dang *et al.*, 2021). The government intends to hold over 50% of shares in some key enterprises and tries to reduce state ownership in most state-owned enterprises. As a result, most enterprises have developed their business activities and had better performance after privatization. However, the privatization process has been conducted slowly due to many reasons. Therefore, state-owned firms have been popular and still played an important role in the Vietnamese economy. Their connections with the government are still strong since their managers are former government officials, their board members are government officials, or their managers have relationships with government officials. Besides, the four largest commercial banks in Vietnam, including BIDV, Agribank, Vietcombank, and Vietinbank, are state-owned. The government may take advantage of this opportunity to support firms with state ownership. However, firms with state ownership also face pressure to have safe and profitable investment projects since the government expects their capital to be secure and generate much profit. Consequently, our paper provides empirical evidence for the government to conduct public policies.

To examine how state ownership influences firms' investment expenditure, we consider investment expenditure as a function of state ownership and control variables. With a sample of 4,680 observations between 2009 and 2020, we document that state ownership negatively affects investment expenditure. Besides, this impact is more pronounced in financially unconstrained firms. This paper provides supporting evidence for the risk-taking behavior of state-related firms, as shown by Vo (2018), John *et al.* (2008), and Boubakri *et al.* (2013). State ownership not only creates more severe agency problems but also helps firms engage in less risk-taking. Moreover, it shows that firms with high state ownership still have low investment expenditure in a weak corporate governance environment. Weak corporate governance in Vietnam is a favorable environment for managers of state-related firms to divert resources to overinvestment. However, state agencies prefer safe investment; thus, corporate managers cannot increase investment expenditure.

The rest of this paper is organized as follows. Section 2 analyzes prior theoretical and empirical studies. Section 3 proposes research models, defines variables, and presents the data collection method. Section 4 reports descriptive statistics and results from various regression techniques to investigate how state ownership influences corporate investment. Finally, section 5 is the conclusion.

2. Literature review and hypothesis development

Investment decisions are one of the most important topic in financial management since corporate investment determines the firm value and economic growth. However, contrary to Modigliani and Miller (1958), many researchers show that several frictions make firms increase or decrease their investment expenditure in practice. These frictions come from the external environment, including national culture (Shao *et al.*, 2013), legal protection of shareholders and creditors (Tran, 2020a; Xiao, 2013), economic policy (Kang *et al.*, 2014; Wang *et al.*, 2014) or firms' financial characteristics such as capital structure, cash holdings, cash flow, firm size, and ownership structure (Chen *et al.*, 2017; Tran, 2020b).

According to the agency theory, managers may expropriate shareholders since they run companies owned by shareholders (Jensen and Meckling, 1976). To steal value from shareholders, managers tend to increase investment in negative NPV projects (overinvestment) (Richardson, 2006; Harford, 1999). From the agency relationship perspective, firms with state ownership have more severe agency problems than those without state ownership. State ownership is represented by politicians who are evaluated mainly by political/social goals rather than maximizing shareholders' wealth (Laffont and Tirole, 1993). With a sample of 989 observations, Borisova *et al.* (2012) find that state ownership reduces governance quality. Chen *et al.* (2017) document that state ownership increases firms' overinvestment and thus reduces their investment efficiency across 64 countries. Kusnadi *et al.* (2015) argue that state-controlled firms have weaker corporate governance than non-state-controlled firms; their managers are more likely to divert their cash into overinvestment. Using a sample of 9743 firm-years from Chinese firms from 1999 to 2007, they find supporting evidence for the argument. Moreover, Vu and Pratoomsuwan (2019) examine how state ownership determines

the positive effect of corporate governance on Vietnamese firms over the period 2008-2014 and find that state ownership tends to make corporate governance less effective in improving firm performance. Nguyen *et al.* (2021) also document that state ownership is positively associated with cash holdings in Vietnam. Using data from annual enterprise surveys conducted by the General Bureau of Statistics and Provincial Competitiveness Index (PCI) surveys from 2011 to 2017, Le *et al.* (2021) show that firms with state ownership have total factor productivity. Moreover, Ho *et al.* (2021) document that Vietnamese firms with higher state ownership tend to engage in more risk-taking. These prior studies imply that firms with state ownership suffer weak corporate governance, and thus their managers tend to use resources for overinvestment. In other words, firms with state ownership have higher investment expenditure.

Moreover, the soft budget constraint theory states that the government facilitates firms with state ownership to raise external funds (Kornai, 1979). Chang *et al.* (2018) show that these firms obtain on-balance sheet bank loans while private firms depend on off-balance sheet loans and face credit spread. Megginson *et al.* (2014) also document a negative impact of state ownership on cash holdings since the soft-budget constraint goes with state ownership. Consistently, Shailer and Wang (2015), Borisova and Megginson (2011), and Borisova *et al.* (2015) show a negative relationship between state ownership and the cost of debt financing. Better access to credit and lower cost of external financing make firms increase their investment expenditure. However, prior research also provides implications for a negative relationship between state ownership and investment expenditure. John *et al.* (2008) posit that the government tends to prefer a safe investment that gives it a stable base for rent extraction. Boubakri *et al.* (2013) also argue that state owners are risk-averse and document an adverse effect of state ownership on corporate risk-taking across 57 countries. Megginson *et al.* (1994) investigate firm performance before and after privatization across 18 countries and find that firms tend to underinvest during the pre-privatization period. With a sample of 79 firms in 21 developing countries during the period 1980-1992, Boubakri and Cosset (1998) show that state ownership reduces corporate investment, and firms significantly increase their investment expenditure after privatization. D'Souza and Megginson (1999) find consistent evidence across 28 industrialized countries from 1990 to 1996. D'Souza *et al.* (2005) investigate how state ownership determines firm performance in 23 OECD members and that privatization (i.e., reduction of state ownership) improves firm profitability, efficiency, output, and investment expenditure. Jaslowitzer *et al.* (2018) document a negative effect of state ownership on corporate investment in 624 European firms. Consistently, Vo (2018) finds that state ownership has a negative impact on corporate risk-taking in Vietnam. When firms with state ownership are less willing to take risks, their investment tends to be lower. Kubo and Phan (2019) and Tran *et al.* (2014) show that Vietnamese listed firms have better performance when they have higher state ownership.

Consequently, we hypothesize that state ownership has a negative relationship with investment expenditure.

H1: State ownership is negatively related to corporate investment.

3. Research method

3.1 Models and variables

Following Tran (2020b), McLean *et al.* (2012), and Chen *et al.* (2017), we consider investment expenditure as a function of state ownership and control variables as follows:

$$INV_{i,t} = \alpha + \beta_1 STA_{i,t} + \beta_2 TOB_{i,t-1} + \beta_3 PRO_{i,t-1} + \beta_4 CAF_{i,t-1} + \beta_5 CAS_{i,t-1} + \beta_6 DEB_{i,t-1} + \beta_7 SIZ_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

where INV is investment expenditure, STA is state ownership, TPB is Tobin's Q which represents investment opportunities. According to Modigliani and Miller (1958), firms increase their investment expenditure when they have more investment opportunities. PRO is firm profitability. Firms with higher profitability have more resources for investment projects. CAF is cash flow. CAS is cash holdings. Firms with high cash levels are ready to seize emerging profitable projects, and thus they tend to have higher investment. DEB is the debt ratio. SIZ is firm size. High debt ratio and small size increase the cost of external financing, which in turn reduce corporate investment (Chen *et al.*, 2017; Du *et al.*, 2018). Since the dependent variable may have reverse effects on control variables (i.e., Tobin's Q, cash flow, cash holdings, debt ratio, and firm size), we use the first lags of control variables to eliminate this endogeneity problem. Table 1 presents definitions of all variables.

Table 1. Variable definitions

Variables	Variable names	Definitions
INV	Investment	$\dfrac{\text{Capital expenditure in year t}}{\text{Total assets in year t-1}}$
STA	State ownership	Percentage of shares held by government agencies
TOB	Tobin's Q	$\dfrac{\text{Market value of equity + book value of debt in year t-1}}{\text{Total assets in year t-1}}$
PRO	Profitability	$\dfrac{\text{Net income in year t-1}}{\text{Total assets in year t-1}}$
CAF	Cash flow	$\dfrac{\text{Operating cash flow in year t-1}}{\text{Total assets in year t-1}}$
CAS	Cash holdings	$\dfrac{\text{Cash,cash equivalents and short-term investment in year t-1}}{\text{Total assets in year t-1}}$
DEB	Debt ratio	$\dfrac{\text{Total liabilities in year t-1}}{\text{Total assets in year t-1}}$
SIZ	Firm size	Natural logarithm of total assets in year t-1

Source: Authors' compilation

3.2 Data

Our data cover non-financial firms listed in both Hanoi and Ho Chi Minh City Stock Exchanges between 2009 and 2020. We eliminate financial firms since they follow different accounting standards and legal regulations. Accounting information and state ownership are provided by the Fiinpro database. After firm-years with missing information are deleted, our sample has 4,680 observations from 587 firms. To ensure that our regression results are not influenced significantly by outliers, we winsorize all variables at 1%. We also employ 3% and 5% of winsorization as robustness checks and find that our findings are unchanged.

4. Empirical results

4.1 Data description

Table 2 describes our data. Panel A reports that capital expenditure accounts from 0% to 47% of total assets. From an econometric perspective, investment expenditure is left-censored. Its mean is 6%. On average, state ownership is 26%. The maximum value of state ownership is 80%. Tobin's Q varies from 0.4 to 3.57 and its mean is 1.09 higher than 0.99 in the study conducted by Tran (2020b). This implies that Tobin's Q of listed firms in Vietnam tends to increase over the period 2018-2020. The descriptive statistics of other variables indicate that they are appropriate for subsequent regression analysis. Furthermore, Panel B shows that the number of firms rises sharply from 2009 to 2012, then increases slightly in the next five years and remains stable over the period 2018-2020. In addition, Panel C shows the distribution of observations based on the Industry Classification Benchmark. Industrials constitute 42.52% of observations in the sample. The second largest industry is consumer goods with 16.22%, followed by basic materials with 15.88%. The smallest industry accounts for about 1% of observations in the data.

Table 2. Data description

Panel A. Descriptive statistics

Variables	N	Mean	SD	Min	Max
INV	4,680	0.06	0.08	0.00	0.47
STA	4,680	0.26	0.25	0.00	0.80
TOB	4,680	1.09	0.50	0.40	3.57
PRO	4,680	0.07	-0.12	0.34	0.07
CAF	4,680	0.07	0.13	-0.28	0.45
CAS	4,680	0.15	0.15	0.00	0.72
DEB	4,680	0.48	0.22	0.04	0.90
SIZ	4,680	27.07	1.49	23.73	31.04

Table 2. Data description *(continued)*
Panel B. Number of firms by year

Year	N	Year	N	Year	N
2009	204	2013	381	2017	451
2010	246	2014	386	2018	491
2011	341	2015	410	2019	492
2012	363	2016	424	2020	491

Panel C. Number of observations by industry

Industry	N	Percent	Industry	N	Percent
Industrials	1,990	42.52	Consumer services	450	9.62
Technology	150	3.21	Consumer goods	759	16.22
Health care	180	3.85	Basic materials	743	15.88
Oil & Gas	45	0.96	Utilities	363	7.76

Source: Authors' calculation

4.2 The effect of state ownership on corporate investment

Table 3 presents estimation results to examine how state ownership affects corporate investment. Since our data are an unbalanced panel data, we use both fixed effects and random effects regression for panel data. In addition, when the dependent variable is left-censored as shown by Panel A of Table 1, Tobit regression is more appropriate than OLS regression (Wooldridge, 2010). We also present Tobit and pooled OLS regression results as robustness checks. We use robust standard errors (clustered by firms) for fixed effects, random effects, and pooled OLS regression models to avoid autocorrelation and heteroscedasticity. The regression results show that state ownership is negatively related to corporate investment. This finding is contrary to the agency hypothesis and soft budget constraint hypothesis, which are empirically supported by many studies (Chen *et al.*, 2017; Kusnadi *et al.*, 2015; Shailer and Wang, 2015; Borisova *et al.*, 2015). However, our findings are consistent with John *et al.* (2008), Boubakri *et al.* (2013), Megginson *et al.* (1994), and D'Souza *et al.* (2005). The incentives to protect government capital and create stable profits from government capital are possible explanations. First, firms with state ownership are essential in the Vietnamese government's economic policy; therefore, the government is risk-averse and conservative in investment decisions (John *et al.*, 2008; Boubakri *et al.*, 2013). Second, managers in state-owned firms are mostly government officials or government-nominated managers. These government-related managers are more concerned about their career; consequently, they are less willing to take risks. With a negative attitude towards risk and conservatism from the government, firms with high state ownership may miss many investment opportunities and have low investment expenditure.

Table 3. The effect of state ownership on corporate investment

Variables	Fixed effects	Random effects	Random effects Tobit	Pooled OLS
Intercept	0.565***	0.010	-0.045	-0.056**
	(6.14)	(0.26)	(-1.02)	(-2.24)
STA	-0.031***	-0.028***	-0.026***	-0.021***
	(-2.68)	(-4.02)	(-3.44)	(-4.13)
TOB	0.020***	0.012***	0.012***	0.005
	(4.97)	(3.47)	(3.37)	(1.50)
PRO	0.140***	0.149***	0.169***	0.173***
	(4.96)	(5.82)	(6.25)	(6.93)
CAF	-0.019*	0.011	0.011	0.061***
	(-1.89)	(1.13)	(1.02)	(5.82)
CAS	0.080***	0.018*	0.025**	-0.038***
	(6.34)	(1.69)	(2.13)	(-4.11)
DEB	-0.014	-0.001	0.003	0.011
	(-1.10)	(-0.06)	(0.26)	(1.56)
SIZ	-0.020***	0.001	0.003	0.004***
	(-5.90)	(0.60)	(1.60)	(4.17)
Industry dummies	No	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
F statistics	21.57***			14.62***
Wald chi-squared		311.66***	335.60***	
No. observations	4,680	4,680	4,680	4,680

Notes: t-statistics are in parentheses. *, **, *** denote statistical significance at 10%, 5%, and 1%, respectively.

Source: Authors' calculation

Moreover, in line with Modigliani and Miller (1958), we document that Tobin's Q positively affects capital expenditure. Firms with higher investment opportunities have higher investment expenditure. The positive effect of firm profitability on investment implies that highly profitable firms have more resources for their investment. Other control variables have mixed impacts on corporate investment across regression results.

Table 4. The role of financial constraint

Variables	WW index		Firm size		Debt ratio	
	Low	**High**	**Big**	**Small**	**Low**	**High**
Intercept	0.946***	0.492***	1.109***	0.657***	0.540***	0.854***
	(6.37)	(3.62)	(7.07)	(4.65)	(4.13)	(5.88)
STA	-0.039**	-0.002	-0.041**	-0.005	-0.030*	-0.027
	(-2.30)	(-0.12)	(-2.28)	(-0.29)	(-1.76)	(-1.55)
TOB	0.011*	0.027***	0.019***	0.014***	0.016***	0.048***
	(1.68)	(5.43)	(2.87)	(2.88)	(3.55)	(4.88)
PRO	0.168***	0.106***	0.153***	0.119***	0.112***	0.243***
	(3.43)	(2.97)	(3.06)	(3.51)	(3.38)	(4.28)
CAF	-0.016	-0.020	-0.037**	-0.007	-0.031**	-0.012
	(-0.90)	(-1.55)	(-2.18)	(-0.58)	(-2.19)	(-0.79)
CAS	0.102***	0.054***	0.144***	0.050***	0.065***	0.132***
	(4.87)	(3.38)	(6.23)	(3.32)	(4.40)	(5.19)
DEB	0.008	-0.030*	-0.026	-0.017	-0.030*	-0.076***
	(0.35)	(-1.73)	(-1.20)	(-1.02)	(-1.67)	(-3.00)
SIZ	-0.033***	-0.018***	-0.038***	-0.025***	-0.019***	-0.030***
	(-6.20)	(-3.50)	(-6.84)	(-4.48)	(-3.97)	(-5.50)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
F statistics	14.76***	9.09***	19.99***	6.86***	7.70***	22.73***
No. observations	2,330	2,350	2,337	2,343	2,337	2,343

Notes: t-statistics are in parentheses. *, **, *** denote statistical significance at 10%, 5%, and 1%, respectively.

Source: Authors' calculation

Since corporate investment decisions rely on firms' financial status, we extend our analysis by examining the effect of state ownership on corporate investment by financial constraint. We argue that financial constraint reflects the importance of firms in the government's economic policy; therefore, the government has higher incentives to be risk-averse and conservative in investment decisions of financially unconstrained firms. This makes the effect of state ownership on corporate investment in financially unconstrained firms. We use the yearly medians of Whited and Wu's (2006) score, firm size, and debt ratio to split the data into two groups. An observation is considered as financially unconstrained in a year if its WW score (debt ratio) is lower than the year median or its firm size is bigger than the year median. We estimate Equation (1) for the financially constrained and unconstrained sub-samples. We have used six Hausman tests to compare regression results of fixed effects and random effects and

six Breusch-Pagan LM tests to compare regression results of fixed effects and pooled OLS. For brevity, we do not present them in this paper but we find that the results of fixed effects are better than those of random effects and pooled OLS. Therefore, we present regression results of fixed effects models in Table 4. We find that state ownership coefficients are both statistically and economically higher in the financially unconstrained group.

5. Conclusion

The relationship between state ownership and corporate investment is a debatable topic in corporate finance. This study examines this relationship in Vietnam using a sample of 4,680 observations for the period 2009-2020. The results of the fixed effects and random effects for panel data, random effects Tobit, and pooled OLS indicate that state ownership has a negative impact on investment expenditure. Moreover, this negative relationship is more pronounced if the firms are financially unconstrained. Our results imply that weak corporate governance and soft budget constraints arising from state ownership may not influence investment decisions. Instead, risk-taking behavior is a possible explanation. As firms with state ownership still support the government's economic policy, government agencies are more conservative in their investment decisions. Government-controlled firm managers are typically appointed or nominated by the government. They are more concerned about their political careers and less willing to engage in risk-taking. When firms with high state ownership are risk averse, they tend to miss many investment opportunities. Consequently, they have lower investment expenditure.

Our paper suggests that investors should understand how state ownership affects corporate decisions when purchasing shares of firms with state ownership. In addition, policy makers should enhance the privatization of state-owned firms to enhance economic efficiency since firms with lower state ownership are less likely to miss profitable investment opportunities. Furthermore, due to the data unavailability, we fail to control other ownership variables such as insider ownership, ownership concentration, and large shareholder ownership in this study. Therefore, future research may re-examine this topic with more control variables for better results.

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Appendices

Appendix A. Correlation matrix

	INV_t	STA_t	TOB_{t-1}	PRO_{t-1}	CAF_{t-1}	CAS_{t-1}	DEB_{t-1}
STA	-0.019						
TOB	0.112	0.046					
PRO	0.158	0.072	0.576				
CAF	0.129	0.140	0.269	0.409			
CAS	-0.005	0.073	0.296	0.411	0.241		
DEB	-0.006	0.087	-0.181	-0.458	-0.229	-0.402	
SIZ	0.057	0.005	0.126	-0.068	-0.044	-0.091	0.326

Notes: INV is investment expenditure. STA is state ownership. TOB is Tobin's Q. PRO is profitability. CAF is cash flow. CAS is cash holdings. DEB is the debt ratio. SIZ is firm size.

Source: Authors' calculation

Appendix B. VIF analysis

Variable	VIF	1/VIF
STA	1.05	0.95
TOB	1.59	0.63
PRO	2.06	0.49
CAF	1.23	0.81
CAS	1.33	0.75
DEB	1.57	0.64
SIZ	1.17	0.86
Mean VIF	1.43	

Source: Authors' calculation