



Government Intervention and Investment Efficiency: Empirical Evidence from Vietnam

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ARTICLE INFO	ABSTRACT
Published Online: 17 August 2022	The government ownership's impact on the investment efficiency of enterprises in the transitional market – Vietnam – was studied using the model of Tobin's Q, which measures the interaction between investment spending and the opportunities for investing as a scale. The study exercises the method of the linear regressions based on OLS model with a sample of 251 companies listed on the Ho Chi Minh Stock Exchange from 2015 to 2019. The empirical results indicate that there is no relationship between firm investment spending and investment opportunities in state-owned enterprises (SOEs). Furthermore, in non-state-owned enterprises (non-SOEs), this relationship exists at a positively minimal level. In addition, the results also show the negative relationship between leverage and firm's investment spending in Vietnam. Separately, there is a negative association between net operating cash flow and investment expenditure for SOEs while there is a negative link between firm's size and funds for investing in non-SOEs.
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1. INTRODUCTION

After unification of the country in 1975, Vietnam's economy has become a failure due to central planning and self-isolation. At that time, Vietnam's economy was called "the command economy market", in which corporate bodies were built and maintained by only state-owned enterprises (SOEs). In 1986, the reform policies known as Doi Moi were launched, which saved the country from the brink of economic collapse. After "Doi Moi", the Vietnamese economy has transformed from a command economy into a multi-sectored market economy. During this period, Vietnam committed firmly to friendly relations with all countries. This new approach was also consistent with its high level of economic openness and global economic integration.

Since the early 1990s, Vietnamese government started the "equitization" process, there were many SOEs converted into equity firms or limited liability firms. However, many important sectors in Vietnam's economy are still monopolized by the State or largely dominated by wholly SOEs such as those in education, electricity, oil and gas, post and telecommunications, etc. In many equitized SOEs, the State maintains 51% of shares and governs via the general meeting of shareholders (GMS) and the directors appointed by the State to the company's Board of Directors (IFC Advisory Services in East Asia and the Pacific 2010). The reason why the State keeps controlling numerous important sectors is their substantial effect on a large part of the population and

other economic sectors. The State considers them as core tools to implement policies for long-standing macro-economy and dealing with market instability, especially in economic crises (Thanh Hai 2016). Thus, these interventions may impact the firm's investment efficiency.

Previously, there was much research on company investment. As Stein (2003) reported, informational asymmetries and agency problems are the most popular and important factors impacting the investment of the firm. Chen et al. (2012) supplements this opinion by asserting that good corporate governance helps mitigate these two factors and positively affects the efficiency of investment; in addition, the study also mentioned the costly equity and debt financing models and moral hazard models. While the former anticipates under-investment due to a problem of adverse selection, the later suggests over-investment due to the goal of constructing an empire. There's a plethora of empirical evidence supporting these types of models, but the research is still bounded in mature markets, which mainly concerns conflicts from executives and external investors. Therefore, in this research, I decided to examine one different type of friction in the Vietnamese market: whether the government intervention in SOEs creates another disagreement accruing inefficient investment.

According to Chen et al. (2011), there are two levels of measurements of government intervention on the firms. On the first level, they studied differences between listed

companies that have government ownership and listed ones that do not. They reported that SOEs are firms that take the lead in supporting the State's request for agenda program concerning national society and policy, leading to investment inefficiency. On the second level, Chen et al. (2011) compared government intervention levels between firms with political connections and firms without. The research referred to the definition of political connection from Fan, Wong, and Zhang (2007), which suggested that a company with a chairman or chief executive officer who's a current or former government official is considered politically related. Based on that, Chen et al. (2011) indicated that political links make SOEs' investment less optimal, but this is not necessarily true for non-SOEs. As the State exerted their control in SOEs through the GMS and the directors appointed by them, SOEs with political relationships are more likely to invest for the State's sake but not for the companies' own values. On the contrary, the investment policies of non-SOEs are mainly to maximize their values and political relationships are necessary for them only if they can make use of these relationships for economic benefits.

Following the mentioned literature, I decided to study the first level of government intervention in Vietnam. I disregard the second level measurement of government intervention because there is a lack of political information related to firms' Board of Directors (BODs). I hope my study contributes to the literature on corporate investment and show a different side of agency conflict in Vietnam.

2. LITERATURE REVIEW

2.1. Agency theory and agency conflict

Agency theory (Michael C. Jensen and William H. Meckling, 1976) poses that there is a problem with the relationship between an owner of a company, called a principal, and its manager, called an agent. As a result, misinformation and disagreement can lead to many problems and discord within the firm. Incompatible desires may create conflict among stakeholders and trigger financial harm and inefficiency. In previously discussed models, there is no significant conflict between manager and stockholder in equilibrium (Stein 2003) because executive directors are simply supposed to work for the sake of shareholders (as in Myers and Majluf 1984). On the other hand, the managerial threat of external shareholders is so extensive that there is no equilibrium for equity and that the company is still governed by the owner.

In this study, I argue another kind of agency conflict, which arises when most stockholders are associated with the government and a minority with outside stockholders. According Shleifer and Vishny (1994), political power is utilized by self-interested politicians to control SOEs to serve their own purposes. The research of Chen et al. (2011) on the background of the transitional economy of China reports that the socio-political objectives of

government owners contradict the minority shareholders' objectives of maximizing profit. The government ownership has a positive relationship with overinvestment because socio-political objectives are normally accomplished by encouraging overinvestments. Since Vietnam has a transitional economy like China, the government plays two opposing roles: managers of social issues and owners of SOEs. As a governing shareholder, the State should benefit from optimizing value. However, to raise their political capital and motivational potential, the State must fulfill political and social objectives (specifically national development, financial health, and stability) through their association with SOEs. Therefore, the government aims to increase its intervention in SOEs to achieve these goals.

2.2. Investment Efficiency

Firm investment efficiency is a chief concern in corporate finance. In a theoretical and empirical method, researchers have determined numerous problems and distortional factors which block firms to maximize investment. Among them, prior researched has focused most on informational asymmetries and agency conflict (Chen et al. 2011). When informational asymmetry exists, market problems can occur because of adverse selection (Akerlof 1970) and moral hazard (Jensen 1986). In this situation, managers with more information are motivated to plan the time of the issuance of shares overpriced, which leads the smart investors to reduce the price of new shares notwithstanding their quality (Chen et al. 2011). This decreases the firm's external capital. According to Gao and Yu (2020), companies can minimize this effect by generating cash internally, which leads to the correlation between capital investment and the availability of internal funds. Therefore, if the firm does not generate enough internal funds, it may give up positive net present projects due to lack of capital (Myers and Majluf 1984)

From an agency problem perspective, the separation of ownership and governance from companies' activities and investments makes SOEs inefficient (O'Toole, Morgenroth, and Ha 2016). Firm ownership belongs to the public, but governance belongs to managerial staff whose goals are set by politicians. This may result in maximizing objective function, but not value in either unilaterally or under instruction behavior of managers (O'Toole et al. 2016). In addition, managers evade market rigors via effective capital allocation, which continues to ensure a separation between fundamentals and investment (Megginson and Netter 2001).

Empirically, the investment of the firm should be solely measured by its investment's profitability calculated by Tobin's Q (James Tobin 1969). TQ is an indicator for market's statistical data on corporate opportunities to invest (Hubbard, 1998; Stein, 2003). In 2011, Bushman (2005) developed a concept of Tobin's Q called "investment-q sensitivity". In this concept, they proposed a nonlinear relationship between investment expenditure and

opportunities for investment, which allows the sensitivity of investment to differ when investment opportunities change. The model of Bushman et al. (2005) can transform to test whether one factor affects investment spending response to investment opportunities or not by incorporating that factor with Q. In this study, this model is used with state ownership as variable interacting with Q.

2.3. State ownership and Investment Efficiency

Many prior studies report that political associations enhance company value (Raymond Fisman 2001; Simon Johnson 2013; Faccio, Masulis, and McConnell 2006). In contrast, Fan et al. (2007) give contradictory evidence based on data of new Chinese firms that were partly privatized. They found that Chinese firms with political affiliation did not perform as well as unaffiliated firms. In 2011, Chen et al. proposed that this is due to State ownership. While other studies focused on the private sector with political affiliation, most sample firms in the research conducted by Fan et al. (2007) are SOEs. Chen et al. (2011) also looked deeper into government intervention and investment efficiency. In this study, they focused on investment efficiency, which relates to resource allocation, and concluded that the State can take the resources from SOEs for their social or political purposes, resulting in inefficient investment.

According to James Tobin (1969), the investment policy of the firm is entirely dependent on its investment opportunities. However, in the real world, the existing research has long proven that firms deviate from this optimal investment behavior because of many contradictions, one of which is the state ownership. State intervention will surely alter the goals functions of firms having government ownership to another priority given by the State (Lin, Cai, and Zhou 1998), which results in inefficient investment for two reasons (Chen et al. 2011). In the past, SOEs with government intervention are more likely to neglect investment opportunities with positive net present value in favor of meeting the objectives and requests of the State. For example, when projects fail to achieve the expected return or the decrease of the investment opportunities, SOEs are likely to face difficulty in either canceling failed projects or decreasing investment because of the risk of governmental conflict in agendas and policies. Furthermore, government intervention can affect exacerbated negative on investment efficiency due to budgetary constraints and the ability to easily access financial funds set by SOEs with government back-up.

Almost all research on the effect of government intervention on investment efficiency is conducted in China. Vietnam is a developing country and has a transitional economy like China. Therefore, I decided to explore a Vietnamese setting to examine any differences in investment efficiency between SOEs and non-SOEs.

2.4. Literature on independent variables

In addition to the factors mentioned above, the standard control measurement used by prior studies is conducted to identify the sensitivity of investment expenditure to investment opportunities (Tobin's Q) as a proxy of investment efficiency. This means if the firm's investment spending is less sensitivity to opportunities, it will be considered as inefficiency (Chen et al. 2011). The first variable is TQ, which is a proxy for investment opportunities and is scaled as the total of market value of tradable shares, book value of non-tradable shares and liabilities, divided by book value of total assets. CFO is the second variable, which is the net operating cash flows of the firm. The third variable Lev is the firm's leverage, which represents the company's investment ability. The SEO variable is equity capital as another source of external financing. The size of the firm (Size) is a fifth factor as it reflects the resource of investment. A company's listing age is also included as Listage.

2.4.1. TQ

According to Hayashi (1981), Tobin's Q theory can be used to summarize the neoclassical model with adjustment costs. This model comes from a study by Jorgenson and suggests that investment behaviors are affected by either the marginal return to capital or the adjustment costs. In Tobin's Q theory, the optimal rate of investment is defined as the balance between the marginal value of capital and the marginal adjustment cost, also known as the ratio of new supplementary investment goods' market value to their replacement expenses. Hence, Tobin's Q theory considers projected future expenses in investment decision-making (Gao and Yu 2020).

In the most popular calculation of TQ, the market value of liabilities and equity of the firm is divided by total assets' book value (Erickson and Whited 2000). This measurement agrees with the method of Chen et al. (2011), suggesting that the ratio of Q is the total of the non-tradable shares' book value, tradable shares' market value, and liabilities of firms scaled by total assets' book value. According to O'Toole et al. (2016), TQ statistics represent the hidden interest of investment to the company, which means the additional profit the company receives regarding the profitability of one additional capital unit. The book value of stocks that are not traded is used in measuring TQ due to their non-liquidity (Chen et al. 2011). These stocks are commonly bought and sold at a price approximate to the equity book price in the markets.

Based on these methods, to calculate TQ, I needed to collect the tradable and non-tradable shares of the firms, the book value of shares, and book value of total assets from 2015 to 2019. Due to the lack of market value of the shares of each year, the market value is calculated by multiplying the ratio of market value to book value to the book value of the shares. Following the hypothesis, the coefficient of TQ is anticipated to be insignificant for SOEs and significant for non-SOEs.

2.4.2. CFO

According to Modigliani & Miller, 1958, the investment funds of the firm should not be depended on cash flows generated internally. Nevertheless, the previous literature has proved the positive link between investment spending and these cash flows (Hubbard, 1998). Richard argues that there are two explanations for this relationship. The first is that it represents an agency problem where company managers of have free cash flow to invest in wasteful expenses (Jensen 1986). Because of the conflicting goals of shareholders and managers, the internal cash flow is generated to surpass that needed to maintain the firm's available assets and these funds will be spent on new positive net present value projects. The second is that the capital market is not perfect, which makes raising external funds costly and use of internal fund preferable for investment opportunities (Hubbard 1998). In addition, the literature of Lang also suggested that companies with less cash flow usually invest less because they have fewer valuable investment opportunities.

In line with these literatures, Chen et al. (2011) used net operating cash flow as internal cash flow of the company. They asserted that the company having a bigger operating cash flow is provided with more financial funds to invest. Therefore, this paper expects the coefficient of CFO to be positive.

2.4.3. Lev

The research of Lang et al. (1995) indicated a negative association between leverage and the growth investment of the firm. They argued that the leverage of the companies has a greater impact on the firm's investment than operating cash flows. The reason is that leverage constraints firm investment due to lack of current existing cash flow and the limitation in raising external cash. Prior research also stated that the level of investment of companies is reduced as firms meet difficulties in raising additional funds to support the new projects (Hubbard 1998). Therefore, in this paper, I expect the coefficient of Lev to be negative.

In the original model of Chen, it calculates Lev as the total borrowing from banks or other financial institutions divided by total assets. Hence, this data is collected based on the firm's financial statements, including both long-term and short-term loans.

2.4.4. SEO

Many researches found that firms with political affiliation can easily access outside finance (Khwaja and Mian 2005; Leuz and Oberholzer-Gee 2006; Fan et al. 2007). Chen et al. (2011) included SEO and Lev in their model to help control this financing effect.

2.4.5. Size

A larger firm is projected to have a positive coefficient for Size due to its greater resources for investment. For a smaller firm in the expansion stage, this coefficient may be negative (Chen et al. 2011).

2.4.6. Listage

According to Chen et al. (2011), the longer a company is listed, the more likely it is to be in the maturity or decline phase of the life cycle of business. This also indicates a decrease in investment activity. Hence, the coefficient of Listage variable is expected to be negative. In this study, Listage is also measured by the method of Chen et al. (2011), where the listed year is subtracted from the calculated year and plus one.

2.5. Hypothesis development

This research tests if government intervention in SOEs reflects another friction which affects companies when making optimal investment decisions. The sample includes all non-financial firms in Vietnam in the period 2017-2019. The hypothesis focuses on SOEs versus non-SOEs. I hypothesize that the investments of SOEs are not as effective as non-SOEs due to the ownership of government in SOEs, reflected in the lower interaction between investment spending and investment opportunities for SOEs. The State exercises this control to promote social and economic affairs even when not benefiting the firm. The summary of the paper's hypothesis is as follow:

Hypothesis: Investment spending of Vietnamese firms controlled by the State has no relationship or has lower sensitivity to investment opportunities compared to non-state-owned enterprises.

3. RESEARCH METHODOLOGY

3.1. Data collection

The objective of this research is to examine whether the efficiency of firms' investments is affected by the intervention of the government. The sample data is gathered manually from annually audited financial statements, which are available on the websites of Vietstock, HOSE or firms. Ownership information is collected manually from secondary data of reliable stock websites (s.cafef.vn and finance.vietstock.vn). Additionally, some variables are calculated following the model formulas with collected data.

Valid data must meet the following three requirements. First, the companies must be listed on the Ho Chi Minh City Stock Exchange (HOSE) from 2015 to 2019. Secondly, information about ownership must be available fully on the previously mentioned stock websites to clearly determine the percentage shares of the government. The final criterion is that the financial statements of the firms have to be disclosed yearly and transparently to calculate needed variables.

This paper excluded 149 firms including banks, financial institutions, and the ones lacking published information. The final sample includes 251 companies and 1004 observations.

3.2. Research methodology

3.2.1. Construction of the dummy Indicator

There are many definitions for SOEs. According to the new Law on Enterprises 2014, a state-owned company is any enterprise of which 100% charter capital is held by the State. In 2020, a new law was adopted and took effect on January 1st, 2021. Firms in which the state holds over 50 percent of the charter capital were reclassified as SOEs. However, this regulation may have limited SOEs in my sample and observable data. Thus, I chose SOEs based on the conditions of Berkman, Cole, and Fu (2010) and Chen, Firth,

and Xu (2009). Following Berkman et al. (2010), a firm which has the State as the largest shareholder in the board is classified as a SOE with strong political linking. Chen et al. (2009) also reported that while the largest shareholder of the firm holds about 42.6% shares, the stake of the second largest shareholder is only 5%. Therefore, there is little chance the second largest shareholder will take over control.

3.2.2. Variable definitions

Variables involved in the calculation are defined and measured in Table 1.

Table 1. Variable definition

<i>Dependent variable</i>		
<i>Panel A: Investment Expenditure variable</i>		
Inv	Inv = Cash payment for assets minus Cash receipts from selling such assets scaled by initial total assets. Assets include fixed assets, intangible assets, and other long-term assets, measured by initially total assets.	All assets are collected from all financial statement of the firms or reliable website (Vietstock or Cafef)
<i>Independent variables</i>		
<i>Panel B: Control variables</i>		
Variables	Calculation	Sources
TQ	Total market value of tradable shares, book value of non-tradable stocks and liabilities, scaled by total assets	Financial statement of the firm published on company website or other reliable stock website (Vietstock, Cafef)
CFO	Net operating cash flow scaled by initial total assets	As above
Lev	The sum of money borrowing from banks or other financial institutions, scaled by total assets	As above
SEO	Cash proceeds from seasoned equity offerings scaled by initial total assets	As above
Size	Natural logarithm of total assets	As above
Listage	Listing age, defined as the number of years a firm's stocks have been listed	Annual report of the firm or reliable stock website (Vietstock, Cafef)
<i>Panel C: Indicator variable</i>		
Indicator	Equals one if the company is SOE Equals zero if it is non-SOE	As above

3.2.3. Research model

The research applies the models used by Chen et al. (2011) to identify the impact of government ownership on the firm's investment efficiency. This model uses the sensitivity of investment spending to investment opportunities (Tobin's Q) to calculate investment efficiency.

According to Chen et al. (2011), this research's hypothesis could be rephrased as follows: SOEs have lower investment spending sensitivity to investment opportunities compared to non-SOEs.

Chen et al. (2011) also argues that the model (1) supports the research of Lang et al. (1995), Richardson (2006)

on the factors that influence investment spending. Richard indicated that corporate spending for investment comprises the fund used to maintain capital and the new projects of investment, and what remains after forming a new project investment's regression model with positive net present value could be considered an un-projected investment. Many existing researches follow this measurement to examine investment efficiency of enterprises (Du et al. 2018).

Bushman (2005) proposed another method to test investment efficiency of the firm, indicating a nonlinear association between investment efficiency and investment opportunities depending on the conditions of investment opportunities (expanding or narrowing). This model can be converted to consider whether other expected elements affect investment response to investment opportunities, called "investment-q sensitivity". This method uses an element that interacts with the marginal q. In this paper's model, I use the Indicator to define SOEs and non-SOEs and interact with TQ.

$$Inv_{i,t} = \beta_0 + \beta_1 TQ_{i,t-1} + \beta_2 TQ_{i,t-1} \times Indicator_{i,t-1} + \beta_3 CFO_{i,t-1} + \beta_4 Lev_{i,t-1} + \beta_5 SEO_{i,t-1} + \beta_6 Size_{i,t-1} + \beta_7 Listage_{i,t-1} + \text{Firm fixed effects} + \epsilon_{i,t}, \quad \text{Model (1)}$$

Where,

$Inv_{i,t}$ = Investment expenditure of firm i in year t

$TQ_{i,t-1}$ = Investment opportunities of firm i in year t-1

$TQ_{i,t-1} \times Indicator_{i,t-1}$ = The interaction between TQ and Indicator

$CFO_{i,t-1}$ = Net operating cash flow of firm i in year t

$Lev_{i,t-1}$ = Leverage of firm i in year t

$SEO_{i,t-1}$ = Equity capital of firm i in year t

$Size_{i,t-1}$ = The size of firm i in year t

$Listage_{i,t-1}$ = Listing age of firm i in year t

$\epsilon_{i,t}$ = error

The Model (1) uses Inv as a dependent variable; control variables include investment opportunity (TQ), net operating cash flow (CFO), leverage (Lev), equity capital (SEO), company size (Size), and the listing age of a firm (Listage). All control variables and the investment opportunity measure (TQ) have a lag of one year. The measurement also uses the firm fixed-effects technique to estimate Model (1) in order to control the impact of a firm's unobservable characteristics on investment costs.

This paper also consults an additional regression model of China, which alters the TQ x Indicator variable to Indicator variable. Therefore, I want to consider whether differences appear after replacing this variable. The model is as follows:

$$Inv_{i,t} = \beta_0 + \beta_1 TQ_{i,t-1} + \beta_2 Indicator_{i,t-1} + \beta_3 CFO_{i,t-1} + \beta_4 Lev_{i,t-1} + \beta_5 SEO_{i,t-1} + \beta_6 Size_{i,t-1} + \beta_7 Listage_{i,t-1} + \text{Firm fixed effects} + \epsilon_{i,t}, \quad \text{Model (2)}$$

Where,

$Inv_{i,t}$ = Investment expenditure of firm i in year t

$TQ_{i,t-1}$ = Investment opportunities of firm i in year t-1

$Indicator_{i,t-1}$ = The dummy variable, equal 1 if SOEs and 0 if non-SOEs

$CFO_{i,t-1}$ = Net operating cash flow of firm i in year t

$Lev_{i,t-1}$ = Leverage of firm i in year t

$SEO_{i,t-1}$ = Equity capital of firm i in year t

$Size_{i,t-1}$ = The size of firm i in year t

$Listage_{i,t-1}$ = Listing age of firm i in year t

$\epsilon_{i,t}$ = error

The Model (2) is also consistent with the model of O'Toole et al. (2016), which analyzed the efficiency of capital investment allocation of firms. Similar to Chen et al. (2011), this model considers whether the relationship between investment and fundamentals differs by corporate ownership. O'Toole et al. (2016) reported that the Q model reflects the hidden benefit of the firm's investment, which means the additional profit the firm earns increases as a unit of capital. They also argued that only the marginal Q is anticipated to impact investment with a perfect capital market; thus, a positive association between TQ and the investment growth of the companies is expected.

Referring to the three models by Chen et al. 2011, Du et al. 2018, O'Toole et al. 2016, Model (2) is similar to Model (1). The only difference is the TQ x Indicator variable is replaced by the Indicator variable. The key is the coefficient of Indicator with projection lower or not significant for SOEs.

The study also separates the data of the firms owned by the State and the ones not affiliated with the government to test whether any changes take place. To be in line with the existing literature, I maintain variables in the measurement of Model (2) and exclude only the Indicator variable as it is not necessary for separated data. Then, the data is run as with the two models above. Model (3) is shown below:

$$Inv_{i,t} = \beta_0 + \beta_1 TQ_{i,t-1} + \beta_2 CFO_{i,t-1} + \beta_3 Lev_{i,t-1} + \beta_4 SEO_{i,t-1} + \beta_5 Size_{i,t-1} + \beta_6 Listage_{i,t-1} + \text{Firm fixed effects} + \epsilon_{i,t}, \quad \text{Model (3)}$$

Where,

$Inv_{i,t}$ = Investment expenditure of firm i in year t

$TQ_{i,t-1}$ = Investment opportunities of firm i in year t-1

$CFO_{i,t-1}$ = Net operating cash flow of firm i in year t

$Lev_{i,t-1}$ = Leverage of firm i in year t

$SEO_{i,t-1}$ = Equity capital of firm i in year t

$Size_{i,t-1}$ = The size of firm i in year t

$Listage_{i,t-1}$ = Listing age of firm i in year t

$\epsilon_{i,t}$ = error

In Model (3), the noticeable coefficient is of TQ. This coefficient is expected to be significant for non-SOEs and to be lower or not significant for SOEs. This measurement aims to determine when performing TQ model separately for two data whether the results for the coefficient of TQ are the same as for Models (1) and (2). This also strengthens for the paper's final findings.

3.3. Analysis method

Quantitative methods were used as this is empirical research. All data and regression analyses are

conducted using STATA 16.0. The data analysis is performed on tabular data so the synthetic OLS method may run into

endogeneity problems. Therefore, I use fixed-effects models to minimize this problem.

4. DATA ANALYSIS

4.1. Sample Distribution

Table 2. Sample Distribution

Year	SOEs		Non-SOEs	
	No. of sample firms	Percent	No. of sample firms	Percent
2015	58	22.83	193	19.28
2016	49	19.29	202	20.18
2017	57	22.44	194	19.38
2018	47	18.5	204	20.38
2019	43	16.93	208	20.78
Total	254	100	1001	100

In Table 2, the sample data of the research includes 1255 observations consisting of 254 SOEs and 1001 non-SOEs. The SOE sample includes companies where the government takes a dominant position

on the board by holding the largest proportion of shares. The non-SOE sample consists of firms ultimately governed by non-state organizations or individuals. The percentage of firms affiliated with the State witnessed a slight decline, suggesting that the government was reducing their intervention on the enterprises.

4.2. Descriptive statistics

Table 3. Descriptive statistics of main variables

Panel A: Mean values				
Variables	SOEs	Non-SOEs	t-value	
Inv _t	0.041	0.049	1.238	
TQ _{t-1}	1.127	1.175	0.857	
CFO _{t-1}	0.092	0.052	-3.244**	
Lev _{t-1}	0.210	0.265	3.022**	
SEO _{t-1}	0.005	0.043	2.758*	
Size _{t-1}	27.879	28.182	2.997**	
Listage _{t-1}	7.867	8.109	0.984	
Panel B: Median values				
Variables	SOEs	Non-SOEs	Wilcoxon value	Z-value
Inv _t	0.017	0.018	1.101	
TQ _{t-1}	1.017	1.000	-0.641	
CFO _{t-1}	0.087	0.048	-3.574***	
Lev _{t-1}	0.187	0.221	2.569***	
SEO _{t-1}	0.000	0.000	5.238***	
Size _{t-1}	27.763	28.066	3.412***	
Listage _{t-1}	8.000	8.000	0.372	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 3 illustrates the mean and median values in panel A and B, respectively. There seems to be no significant relationship between SOEs and non-SOEs in Inv, TQ and Listage. It is noticeable that, despite having more chances to access loans and funds thanks to government relationships, companies that affiliated with the State are less

likely to borrow from banks (Lev) and raise funds from the secondary market (SEO) compared to non-SOEs. These firms are also smaller in size than non-SOEs. The reason might be the government gradually reallocating capital from large, older firms to newer companies.

4.3. Regression analysis

4.3.1. Model 1

Table 4. Panel regression result for model (1)

Variables	SOEs vs. Non-SOEs
TQ _{t-1}	0.016* (1.83)
TQ _{t-1} xState _{t-1}	0.001 (0.09)
CFO _{t-1}	-0.023 (-1.15)
Lev _{t-1}	-0.041* (-1.78)
SEO _{t-1}	0.017 (1.03)
Size _{t-1}	-0.020 (-1.52)
Listage _{t-1}	0.001 (0.46)
Firm fixed effects	Yes
R ²	0.488
N	1004

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4 includes test results, which show that in Vietnam, SOEs have lower investment efficiency than non-SOEs. For testing, the entire sample data was used, and the State variable was defined as one for SOEs and zero for non-SOEs. The TQ's coefficient is relatively positive at the 10% level, which implies that there is a relationship between investment expenditure and investment opportunities in non-SOEs. In contrast, for SOEs, there are no differences in TQ and investment, which means that these companies have investment expenditure less sensitive to investment opportunities, suggesting non-optimal investment. The results are in line with the thesis' hypothesis that the investment of Vietnam's SOEs is less efficient than non-SOEs. That also supports the existing literature which argues

that SOEs' investment is not mainly for profitability but rather for economic and societal concerns of the State.

This research also displays some noticeable results regarding other variables. There is no link among Inv and other four variables: CFO, SEO, Size and Listage. On the other hand, the Lev coefficient is negative at the level of 10%, which means that debts are obstacles for investment. This finding is in line with the research of Lang et al. (1995), suggesting a negative relationship between leverage and investment spending as high leverage firms might not have ability to salvage growth opportunities in investment. According to Lang et al. (1995), the underlying reason is that the growth of leverage decreases both the firm's existing capital and the capability to raise additional investing funds.

4.3.2. Model 2

Table 5. Panel regression result for model (2)

Variables	SOEs vs Non-SOEs
TQt-1	0.016* (1.81)
Indicatore _{t-1}	-0.004 (-0.3)
CFO _{t-1}	-0.023 (-1.16)
Lev _{t-1}	-0.042* (-1.79)
SEO _{t-1}	0.017 (1.03)
Size _{t-1}	-0.019 (-1.51)
Listage _{t-1}	0.001 (0.66)
Firm fixed effects	Yes
R ²	0.4879
N	1,004

*** p<0.01, ** p<0.05, * p<0.1

Table 5 depicts the findings of Model (2). It is obvious that the result is not different from Model (1), suggesting that the changing variable does not alter the coefficient or the significance of variables. This result is consistent with the findings of O’Toole et al. (2016) regarding the corporate investment expenditure growth when there is

government intervention. There is no link between firm investment and fundamentals as the coefficient of Indicator is insignificant. This finding reinforces the research on leverage and growth opportunities for investment, suggesting that leverage negatively impacts corporate investment.

4.3.3. Model 3

4.3.3.1. State-owned enterprises

Table 6. Panel regression result for model (3) - SOEs

Variables	SOEs
TQ _{t-1}	0.073 (1.22)
CFO _{t-1}	-0.102** (-2.04)
Lev _{t-1}	-0.014 (-0.1)
SEO _{t-1}	-0.360 (-0.96)
Size _{t-1}	-0.104 (-1.14)
Listage _{t-1}	-0.010 (-1.26)
Firm fixed effects	Yes
R ²	0.4177
N	167

*** p<0.01, ** p<0.05, * p<0.1

Table 6 illustrates the results for Model (3) with the data of SOEs. The TQ coefficient has no significance relevant to investment expenditure of the firm, which aligns with the findings of Models (1) and (2). One significant point is that the coefficient of CFO has a negative relationship with corporate investment growth at the level of 5%. This differs from the findings of Chen et al. (2011), which indicated that higher net operating cash flows generate great funds for

investment. For SOEs, it might be argued that these cash flows are used for other objectives rather than investment. According to Chen et al. (2011), this also shows the significant influence of the State on the investment decisions of SOEs. To achieve societal and economic control, government intervention on firms might lead to investment behaviors that cannot be interpreted by economic factors.

4.3.3.2. Non state-owned enterprises

Table 7. Panel regression result for model (3) – Non-SOEs

Variables	Non-SOEs
TQ _{t-1}	0.016* (1.68)
CFO _{t-1}	0.011 (0.44)
Lev _{t-1}	-0.023 (-0.93)
SEO _{t-1}	0.023 (1.35)
Size _{t-1}	-0.023* (-1.66)
Listage _{t-1}	-0.005 (1.53)
Firm fixed effects	Yes
R ²	0.5177
N	764

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 7 provides information on the impact of control variables on investment spending. The TQ coefficient result aligns with the first two models regarding non-SOEs. The TQ coefficient in non-SOEs is positively associated with investment funds at the level of 10%, indicating that the firms without government intervention tend to be sensitive to growth opportunities for investment.

Noticeably, the Size coefficient is negatively correlated with firm investment. According to Chen et al. (2011), the result of this coefficient can be explained in small and young companies as they may be in the expansion and growing stage where they tend to invest more to increase future development.

4.4. Discussion:

	SOEs	Non-SOEs
Model 1	no relationship	Positive (*)
Model 2	no relationship	Positive (*)
Model 3	no relationship	Positive (*)

The results are based on the model of previous studies using the sample of 251 firms listed on HOSE from 2015 to 2019. The findings suggest that government intervention has a negative impact on firm investment and confirm the hypothesis: in Vietnam, SOEs have lower investment efficiency than non-SOEs.

Vietnam is a country in the process of transitioning but still having a traditional economy of central plan. Despite having transferred away from the structure of the board after Doi Moi reform, the great influence of the State on the economy via SOEs absolutely remains. Such intervention by the government reduces the value of SOEs’

investments in lieu of prioritizing the country's objectives. This finding is in line with the literature of O'Toole et al. (2016), indicating no association between Vietnamese SOEs' investment and their fundamentals. Moreover, they also reported better efficiency of investment for private firms and non-SOEs, suggesting that the reform agenda had positive impact on privatized and equitized companies in Vietnam.

The result in Table 1 indicates that the government gradually decreases their influence on enterprises through equitizing and divesting their shares in these firms. According to Knutsen and Khanh (2020), this process is still slow because potential investors believe that the State overvalued SOEs to earn as much revenue as possible to benefit the country's infrastructure, economy, and society.

5. CONCLUSION

In this study, the objective is to examine the influence of state ownership on investment activities of firms in Vietnam with the data of 251 companies listed on HOSE from 2015 to 2019 excluding banks and other financial institutions. The research used the panel regression model referred to the model of Chen et al. (2011) to study the impact of independent variables (TQ, CFO, Lev, SEO, Size, Listage) on investment expenditure.

Based on the results, there is no association between investment funds and investment opportunities in state-owned enterprises. However, this relationship is present in non-state-owned enterprises at the minimal level. As discussed in the background section, despite experiencing the "equitization" process, the government still retained their dominant positions in some firms belonging to important sectors. Thanh Hai (2016) proposed that the State makes such interventions to achieve macro-economy objectives to regulate market and economic crises through the activities of SOEs. Because of that intervention, investment plans and strategies of these SOEs become difficult to predict due to lack of adherence to the investment fundamentals.

This research also finds that in the Vietnamese market, the leverage of the firms have a negative impact on investment expenditure due to the lack of corporate investment funds. Particularly, net operating cash flows negatively affect the investment spending in state-owned enterprises. This may be because the government wants to reserve these funds for national objectives, or State intervention in these firms results in investment decisions that cannot be explained by economic elements.

For companies without government ownership in Vietnam, aside from the influence of investment opportunities, the result also shows a negative association between size and the funds for investment. This can be explained by the research of Chen et al. (2011), indicating that small and young companies are in the developing stage and will invest more to aid their future expansion.

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