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**Ownership concentration, state ownership and firm performance:  
Empirical evidence from the Vietnamese stock market**

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A thesis  
submitted in partial fulfilment  
of the requirements for the Degree of  
Master of Commerce and Management

at  
Lincoln University  
by  
Lai Trung Hoang

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Abstract of a thesis submitted in partial fulfilment of the  
requirements for the Degree of Master of Commerce and Management

Ownership concentration, state ownership and firm performance:  
Empirical evidence from the Vietnamese stock market

by

Lai Trung Hoang

This study examines the effects of ownership structure on firm performance in the Vietnamese stock market using a sample of 76 manufacturing companies listed on the Ho Chi Minh Stock Exchange (HOSE) during 2007-2015. Firm performance is measured by Tobin's Q, and ownership structure is investigated in three different aspects: managerial ownership, block ownership and state ownership.

Descriptive statistics reveal a significantly concentrated ownership structure in the manufacturing companies listed on the HOSE. In each company, the largest owner on average owns 40% of its total shares, which is nearly three times higher than that of the second largest. Executive managers on average hold around 15% of firm shares, of which the majority belongs to the Board of Directors. State ownership is at a moderate level of 20% on average, but it varies significantly across companies as well as through time.

Given multiple sources of the endogeneity of ownership structure, instead of traditional OLS and Fixed-Effects, the well-developed system-GMM estimator is employed to examine the effects of ownership structure on firm performance. Empirical results show a cubic relationship between managerial ownership and Tobin's Q, i.e. positive at low and high levels of managerial ownership and negative at the middle level, while block ownership has no impact on firm performance. It implies that internal managerial incentives play a more important role than external monitoring from outside shareholders in improving corporate governance quality. It also indicates that to increase firm performance, shareholders in general and blockholders in particular, should monitor more closely and be involved more actively in the day-to-day operations of the firm, or even engage directly in corporate governance by undertaking positions in management teams. On the other hand, an inverted U-shaped relationship between state ownership and Tobin's Q is discovered, indicating that partial privatization could be an efficient way to improve firms' financial performance.

**Keywords:** firm performance, ownership structure, managerial ownership, block ownership, state ownership, corporate governance.

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# Chapter 1

## Introduction

### 1.1 Introduction

The question of how to improve firm performance has long been a question of interest for both researchers and practitioners. In finance literature, it has been widely accepted that the ultimate goal of a firm is maximizing shareholders' wealth, which can be reflected in the market stock price. Meanwhile firm performance significantly affects the variance of stock returns, especially in the long term (Fama, 1990; Fama & French, 1988; Sivakumar & Waymire, 1993). On the other hand, from a macroeconomics perspective, performance reflects firms' efficiency in utilizing scarce resources to produce outcomes. Thus, sustainable high-performing firms are desirable as they can attract new investments, as well as reflect a healthy economy in general. As a result, factors affecting firm performance have long been sought by researchers. Among these factors, ownership structure is specified in the literature as a possible candidate. In a flat world nowadays, through open transactions on stock markets, almost all market participants (including domestic and foreign individuals, institutions and governments) could become companies' owners. Distinctions in nature among these types of owners and among their relationships with the companies lead to differences in their behavior, motivation and expectations, as well as the way they exploit their owner positions. Thus, how and to what extent ownership structure could affect firm performance are worthy matters of debate.

In its relationship with firm performance, ownership structure is usually studied in two distinct aspects: ownership concentration and ownership identity. The ways that firms' ownership concentration affects their performance are well explained in the notable agency theory developed by Jensen and Meckling (1976). The preliminary idea of the agency theory could be traced back to Berle and Means (1932), who long ago predicted that in the modern corporation model, the separation of ownership and control in companies would lead to the agency problem (also called the principal-agent problem). In those companies, non-operating owners usually hold a significant proportion of firm shares, while managers who directly operate the firm own a much smaller part. As a result, the latter have opportunities and incentives to exploit firms' resources to satisfy their own interest, which could harm that of the former. Resolving this conflict is a central issue for corporate governance. It is possible that these "selfish" motivations of managers could be limited by the monitoring activities of outside shareholders. However, while outside shareholders are numerous and dispersed, these mechanisms could be inefficient because "everybody's business is nobody's business". This is formally called the

free rider problem. While monitoring shareholders have to bear related costs, non-monitoring owners (who are “free riders”) could also benefit from the former’s activities, but at no expense. Perceiving this fact, monitoring owners have incentives to give up their tasks to become “free riders”. Consequently, the supervision from outside shareholders on managers could be weakened.

A highly concentrated ownership structure could alleviate both the agency problem and the free rider problem because it assists to align the interest of managers and that of outside shareholders, as well as to increase the efficiency of monitoring mechanisms. In the literature, two common measures of ownership concentration are the fractions of shares owned by the largest shareholders (block ownership) and by the top managers (managerial ownership<sup>1</sup>). Because the largest shareholders can affect firm strategies and operations through their significant voting rights and controlling power over the company’s management team, block ownership represents the ability and motivation of shareholders in monitoring managers’ activities (external pressure). Meanwhile, managerial ownership reflects the inside incentives of the management team itself in operating the firm effectively (internal motivation). However, it should be noted that external pressures and internal motivations are not necessarily separated, for example in the case that the largest shareholders are also managers. High ownership concentration increases both external pressure and internal motivation, thus it is expected to positively impact firm performance.

Another commonly investigated aspect of ownership structure is ownership identity. Each type of shareholders (state, institution, foreigner, family or individual etc.) has distinct characteristics, roles and positions in the market, which lead to different ways in which they might affect the company. Among these mentioned entities, state ownership has attracted significant concern. Since the development of Keynesian economics, it has been widely agreed that the governments should play an important role in economic stabilization and development as well as public welfare, not only via their public policies but also through financial interventions (Keynes, 2007). While state ownership in companies is considered a type of government intervention, how it affects firm performance certainly becomes a question of interest. Furthermore, the last few decades have witnessed the collapse of socialist economies which only approved state ownership and at the same time attempted to limit private ownership. The collapse was followed by a tidal wave of privatization in transition economies of the former Soviet Union and Western Europe. Although the efficiency of these privatization programs is inconclusive, it is widely accepted that, from a financial perspective, state-owned enterprises (SOEs) normally perform worse than their private counterparts. The failure could be explained by the dual principal-agent problem in SOEs: managers are agents of the state in the daily decision making process, but the state in turn is an agent of public properties’ “true” owners: the voting

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<sup>1</sup> The term managerial ownership is normally used interchangeably with insider ownership or board ownership (De Miguel, Pindado, & De la Torre, 2004; McConnell & Servaes, 1990; Westman, 2011, among others).

population (Yarrow, King, Mairesse, & Melitz, 1986). As those “true” owners are extremely diffuse, the free rider problem in SOEs may become more severe than in private companies. This potentially leads to the inefficiency of the former compared to the latter.

## **1.2 Problem Statement**

Along with the dissolution of the Soviet Union and its centrally planned socialist economic model, Vietnam has been carrying out some reforms toward a market-oriented economy since 1986, such as the approval of private capital ownership, private land use or some free-traded markets. Private ownership permission facilitated the launch of various types of companies other than the previous fully state-owned model. The establishment of the Ho Chi Minh Stock Exchange (HOSE) in 2002 and the Hanoi Stock Exchange (HNX) in 2005 allowed listed stocks to be traded officially on centralized stock markets. Although the ownership structure of Vietnamese companies has been changed considerably since then, ownership concentration and state ownership currently are still significantly high, even in listed companies, because of market immaturity. While most theories and empirical evidence on the impacts of ownership structure (particularly ownership concentration) on firm performance are explored based on the conditions of well-developed economies of the U.S. and European countries where firm ownership is highly dispersed, there is a lack of research focusing on emerging countries with a highly concentrated ownership structure. Thus, this study attempts to fill the gap by examining a sample of manufacturing companies listed on the HOSE. To the best of my knowledge, there has been no prior study investigating the effects of ownership concentration on firm performance in Vietnam. In addition, as discussed in Demsetz (1983), Demsetz and Lehn (1985) and Demsetz and Villalonga (2001), the endogeneity of ownership structure should be taken into consideration when studying its relationship with firm performance. Unfortunately, many studies especially in emerging countries have ignored this issue, leading to potential bias in their estimations. This study overcomes this problem by applying an advanced technique of Generalized Method of Moments (GMM) to control for both simultaneity and unobserved heterogeneity, which are considered two main sources of the endogeneity of ownership structure (Himmelberg, Hubbard, & Palia, 1999). In addition, the GMM is also able to control for the dynamic endogeneity, which is another problem arising in a panel data set (Nickell, 1981).

Furthermore, some prior studies showed that the relationship between state ownership and firm performance in Vietnamese companies could be negative (Tran, Nonneman, & Jorissen, 2014) or inverted U-shaped (Phung & Hoang, 2013). However, traditional ordinary least squares (OLS) and Fixed Effects estimators used in these studies could suffer from problems arising from endogeneity, serial correlation and heteroscedasticity. In this study, the use of an updated dataset and the GMM estimator could improve the validity of the empirical results.

### **1.3 Research Objectives**

This study aims to identify relationships between ownership concentration as well as state ownership and firm performance in the Vietnamese stock market by examining a sample of manufacturing firms listed on the HOSE during 2007-2015. In addition, the study also investigates the effects of other firm-specific characteristics on firm performance. The results are expected to shed more light on practical corporate governance as well as to assist firms to improve their performance.

Specifically, the objectives of this study are to:

1. Examine the impacts of ownership concentration, including block ownership and managerial ownership, on firm performance in the Vietnamese stock market.
2. Examine the effects of state ownership on firm performance in the Vietnamese stock market.
3. Examine the effects of firm-specific characteristics, including firm size, leverage, growth opportunity, market risk and firm age, on firm performance in the context of Vietnam.

### **1.4 Significance of the study**

First, this is a pioneer study investigating in detail the ownership concentration of Vietnamese companies, particularly manufacturing companies listed on the HOSE, as well as its impacts on firm performance. Whilst prior studies on ownership structure structure in Vietnam mainly focused on the effects of state ownership or foreign ownership, the wide range of ownership concentration from very concentrated to very diffuse in Vietnamese companies calls for the importance of investigating its roles on firm performance improvement. Second, this study also re-examines impacts of state ownership on firm performance by employing an updated data set. Finally, the commonly-ignored endogeneity problem is taken into consideration by using the advanced estimation technique of GMM, which promises more valid empirical results.

### **1.5 Structure of the study**

The rest of the thesis is structured as follows. Chapter 2 reviews the literature on the relationship between ownership concentration, state ownership and firm performance, as well as providing a brief overview of the stock market and corporate governance structure in Vietnam. Data and methodology are presented in Chapter 3, followed by the empirical results in Chapter 4. Chapter 5 summarizes the main findings and their policy implications and then suggests some promising future research based on the study's limitations.

## **Chapter 2**

### **Literature Review**

Section 2.1 briefly reviews the agency theory - the central theory explaining the relationship between ownership structure and firm performance. The theoretical frameworks and empirical evidence on the impacts of ownership concentration and state ownership on firm performance are presented and discussed in Section 2.2 and Section 2.3 respectively. Hypotheses employed in this study are proposed in Section 2.4. In addition to the related literature, Section 2.5 provides an overview of the Vietnamese stock market, followed by the introduction of a typical corporate governance model in the Vietnamese listed companies in Section 2.6.

#### **2.1 Agency theory**

Initial ideas of the agency problem were formed in the ground-breaking study of Berle and Means (1932), and were then developed into the so-called agency theory by the many other authors, such as Jensen and Meckling (1976), Fama (1980), Fama and Jensen (1983) and Jensen (1986). The agency theory deals with the principal-agent relationship between owners (the principals) and managers (the agents) of a company. In the simplest form of business organization, i.e. sole proprietorship, ownership and management are identical, as the owner is simultaneously the manager. However, in the early twentieth century, Berle and Means (1932) predicted that the continuing growth of the economy would lead to the rise of large corporations, which would have the significant competitive advantage of economies of scale over small companies. To finance their activities, these large firms require enormous financial resources that one or several owners cannot afford because of financial constraints. This fact has led to the emergence of modern corporate models (e.g. public companies), in which firm equity is contributed by numerous owners. In such companies, managers are no longer sole owners; there are numerous outside shareholders who do not directly operate companies on a daily basis. In an extreme case, "pure" managers do not own any firm shares. Thus, managers could be considered agents of shareholders; they are paid to act on the shareholders' behalf to operate the firms with the proposed mission of serving the shareholders' interest. However, because managers' shares in the companies are normally negligible and the interest of owners and managers may conflict, the mission may be not (and in practice usually is not) fully carried out. According to Jensen and Meckling (1976), the separation of ownership and control facilitates managers' incentives and opportunities to exploit firm resources to satisfy their own interest rather than that of owners. This problem is commonly known as the agency problem. In a highly dispersed ownership structure, owners are more likely to lose controlling power over the companies to managers and thus fail to monitor

them effectively, and managers may have more room to act in their own self-interest. Thus, it is expected that the more dispersed the ownership structure, the more severe the agency problem.

The main presumption of the agency problem is the presence of information asymmetry between firm owners and managers (Myers & Majluf, 1984). Acting as decision makers in the daily operations of the company, the managers should know more about the firm than outside owners do. Therefore, the managers could utilize this inside information for their own benefit at other owners' expense, in forms both pecuniary and non-pecuniary. On the other hand, the severity of the information asymmetry increases with the level of dispersion of the ownership structure. The main reason is the well-known free rider problem: owners who do not gather information and look after the firm could freely benefit from those who do. Small shareholders generally lack expertise and incentives to reduce the information gap since potential benefits could not offset the corresponding costs they have to bear (Yammeesri, 2003). Therefore, they have stronger motivation than large shareholders to become "free riders", rather than taking the initiative of gathering information and monitoring companies. Thus, in a dispersed ownership structure where there is a lack of large shareholders, the free rider problem could become more severe, leading to a worse agency problem and higher agency costs.

The emerging costs associated with the agency problem are called agency costs. Jensen and Meckling (1976) stated that there are three components of agency costs, including (i) monitoring cost - expenditure by owners to establish appropriate monitoring mechanisms over managers in order to ensure that the latter's activities align with the former's interest, (ii) bonding cost - compensation for managers to decrease their exploitation incentive, and (iii) residual loss - the gap between the theoretical optimal value of owners (if the agency problem does not exist) and their realized value. However, because these aspects are difficult to observe or estimate (especially the residual loss), in current literature there is no way to measure the agency costs of the firm directly. Instead, proxy variables such as operating cost, free cash flow to the firm or total asset turnover, are normally used (Wang, 2010).

The agency problem is undeniable, as long as ownership and control are separated. Shleifer and Vishny (1997) stated that the agency problem is a result of the inevitable imperfection of the principal-agent contract between owners and managers. A function of this contract is to specify what managers are allowed to do in serving owners' best interest in various future circumstances. Unfortunately, because these contingencies are usually not possible to be predicted, there are a number of situations that require *ex ante* agreements on who would have rights to make decisions, which are called residual control rights (Grossman & Hart, 1986). Obviously, it is very unlikely that owners will take these residual control rights, because they "are not qualified or informed enough to decide what to do – the very reason they hired the manager in the first place" (Shleifer & Vishny, 1997, p. 741). Therefore,

these substantial residual control rights are in the hands of managers, leaving them much room to freely act in their own self-interest.

Although the agency theory was originally developed based on conflicts between owners and managers within a joint stock company, its concept could be extended to the context of SOEs. Although state shares seem to be owned by the government, they essentially belong to the true owners: the voting population (Yarrow et al., 1986). Thus, the agency problem could also arise from the relationship between the voting population and politicians, who act as the voting population's representatives in managing state ownership. Therefore, politicians could take advantage of their positions to exploit public resources to serve their own self-interest. As the voting population is very diffuse, the free rider problem and the inefficiency of monitoring mechanisms become extremely severe.

In conclusion, the agency problem is undeniable in the modern corporate model, especially in publicly-held companies. Given the commonly accepted assumption that the ultimate incentive of firm owners is value maximization, the agency problem is expected to negatively affect firm value. Thus, although public companies have competitive advantages of specialization and economies of scale, the agency problem is a factor offsetting these advantages. Thus, limiting the drawbacks of the agency problem could be an effective way to promote firm performance.

## **2.2 Ownership concentration and firm performance**

In the literature, there are two common measurements of ownership concentration in a company: (i) the percentage of shares owned by the firm's most significant shareholders and (ii) the percentage of shares owned by the management team, including board members, the CEO and top managers (Demsetz & Villalonga, 2001). These two measurements reflect two different aspects of the agency problem. The former represents the shareholders' ability and motivation in monitoring and supervising managers, meanwhile the latter is a proxy for the inner incentive of the management team itself in operating the firm effectively. Thus, there are some differences in the expected relationships between the two measurements of ownership concentration and firm performance.

### **2.2.1 Block ownership and firm performance**

#### **Monitoring hypothesis**

An important implication of the agency theory is that the agency problem will be less severe if firm ownership structure is more concentrated, and the agency costs are equal to zero if the owner is simultaneously the manager, as in the sole proprietorship. On the other hand, in a dispersed ownership structure, the insignificant fraction of shares owned by each principal weakens their power and incentive in controlling and monitoring the management team. Therefore, significant controlling

power over the firm is in the hands of managers. In addition, because of the free rider problem, small shareholders are less interested in carrying out these monitoring activities. Jensen and Meckling (1976) stated that monitoring owners have to bear 100% of the cost, but only receive  $\lambda$  % of total benefit that is commensurate with  $\lambda$  % of the total equity they own. The more diffuse the ownership structure, the smaller the  $\lambda$  for each owner. As a result, shareholders find it expensive to take responsibility for monitoring since the benefits cannot offset the associated costs. Consequently, every owner has an incentive to become a “free rider”, who can benefit from other shareholders’ monitoring activities, instead of taking the responsibility for looking after the company.

A possible solution to the free rider problem is that all shareholders agree to pay the monitoring costs. Practically, this idea has been applied through the appointment of the Board of Directors and in some countries, the Supervisory Board. These boards get paid by shareholders to monitor operations of professional managers, as well as to supervise one another. However, the paradox is that Directors and Supervisory Board members are also the agents of shareholders in monitoring executive managers. Given the small percentage of shares in a highly dispersed ownership structure, the controlling power makes Directors’ and Supervisory Board members’ incentive more likely to align with executive managers’ (for example the CEO’s) rather than outside shareholders’. Thus in practice, researchers usually categorize these board members’ shares as managerial ownership, along with that of the CEO and top managers (for example Demsetz and Villalonga (2001); Kapopoulos and Lazaretou (2007); Morck, Shleifer, and Vishny (1988), among others).

These arguments imply that the lack of large owners in the firm could result in a decrease in monitoring incentive and efficiency. In contrast, in a highly concentrated ownership structure, closer monitoring mechanisms can be carried out by significant shareholders, resulting in a better performance of the managers in terms of serving the owners’ interest. This expectation is commonly called the *monitoring hypothesis*.

### **Expropriation hypothesis**

Shleifer and Vishny (1997) stated that the agency problem could also exist among shareholders. If one (or some) shareholder owns enough share to be a controlling shareholder, he/she could have strong influence on the management team, and thus on the firm’s strategies and daily operations. Therefore, it is possible for the controlling shareholder to abuse that power to serve their own self-benefit, which may conflict with that of minority shareholders. This private benefit of control could be in pecuniary forms (for example, higher-than-deserved salaries and personal consumption of blockholders at the firm’s expense) or non-pecuniary forms (for example, unfair related party transactions, i.e. selling the firm’s products to companies owned by the controlling shareholder at a lower-than-market price and/or buying at a higher-than-market price) (Barclay & Holderness, 1989). In these cases, firm



resources are distributed inefficiently to benefit controlling shareholder(s) but not minority shareholders. These arguments form the *expropriation hypothesis*, which predicts that higher ownership concentration could lead to lower firm performance. For example, Shleifer and Vishny (1997) reported a case in which the controlling shareholder of DWG Victor Posner received over 8 million USD in salary in 1985 while his company was losing money. La Porta, Lopez-De-Silanes, Shleifer, and Vishny (2002) in their investigation of 27 wealthy economies found that the better the protection of minority shareholders against blockholders, the higher the firm value. A meaningful inference is that in transition economies where legal protection is poorly developed, the expropriation of minority shareholders could be a severe problem, which could offset the positive effects of blockholders' monitoring incentives.

## **2.2.2 Managerial ownership**

### **Convergence-of-interest hypothesis**

According to Jensen and Meckling (1976), in the modern corporation model, managers usually hold the power of controlling and operating firms but do not own significant shares. Consequently, they naturally tend to take advantage of their positions to exploit owners, i.e. using companies' resources to maximize their own self-interest which conflicts with that of shareholders. *Ceteris paribus*, the smaller the fraction of equity the managers hold, the higher the motivation for them to do so, as their private benefit/cost ratio increases. Thus, the agency theory predicts that, in an extreme case of pure professional managers, i.e. the managers do not own any firm shares, the divergence of interest between the managers and shareholders becomes most severe. On the contrary, unlike the case of the largest shareholders who provide external monitoring, the rise in managers' shares increases their internal incentives in serving non-manager shareholders' interest. In this circumstance, managers are also significant shareholders, thus their benefit from the increase in firm value is more converged with that of other owners. As a result, the *convergence-of-interest hypothesis* predicts that managerial ownership positively affects firm performance.

### **Entrenchment hypothesis**

The convergence-of-interest hypothesis implies that with regard to firm performance, the sole proprietorship model should outperform others, *ceteris paribus*. However, the fact is that, in spite of the above-mentioned disadvantages of the dispersed ownership structure, in practice this corporate model is still surviving well and becoming prominent in the financial market. This may be partly attributed to the efficiency of corporate governance mechanisms, which could mitigate these disadvantages. Fama (1980) stated that even if managers hold only insignificant shares and thus have little internal incentive in acting as perfect decision making agents of firm owners, a competitive market could provide efficient monitoring mechanisms other than that of shareholders. The most

prominent mechanism among them could be the managerial labor market and the threat of takeover. In a competitive managerial labor market, a firm can easily replace its inefficient managers with better ones. On the other hand, a manager can easily leave the firm if his/her reward is lower than what he/she deserves. In addition, the *ex post* performance of the firm, to which a manager has contributed, is an important indicator to negotiate his/her *ex ante* salary and reward in current and future principal-agent contracts. Furthermore, even within a firm, there is competition among managers for promotion (Fama, 1980). As a result, for their own long-term benefits, managers will try to serve the firm owners' best interests, regardless of how many shares they own. Along with the managerial labor market, the threat of takeover could be another complementing discipline (Jensen & Ruback, 1983). Because low-performing firms could easily be targeted for takeover, the positions of inefficient managers are more likely to be threatened in an active takeover market. For example, Mikkelson and Partch (1997) found that in the U.S. industrial companies that had not been acquired, the management turnover was negatively related to firm performance in the active takeover period (1984-1988), but this relationship disappeared in the subsequent less active takeover years (1989-1993). This absence of a relationship during the time of inactive takeover activities is consistent with the findings of Hadlock and Lumer (1997) during the period of 1933-1941.

However, if managers own enough significant shares to classify themselves as large shareholders, these disciplines seem to be less efficient. In this circumstance, the managers could have enough power and influence to ignore both shareholders' and market monitoring mechanisms to entrench their employment and salary, as well as to stay in their positions even if they are no longer competent (Shleifer & Vishny, 1989). This situation is somehow similar to the expropriation effect in the case of blockholders, i.e. highly concentrated managerial ownership could lead to high managers' private benefit of control, which is an exploitation of outside shareholders. For example, managers with significant ownership is more likely to have strong power to access inside information that outside shareholders do not have. This information could facilitate their insider's trading or transactions with their related parties, which may benefit these managers themselves, but potentially harm the outside shareholders' benefit (Barclay & Holderness, 1989). Based on these arguments, the *entrenchment hypothesis* expects that the more shares firm managers own, the worse the firm's performance.

Table 2.1 summarizes the expected relationships between ownership concentration and firm performance, based on the monitoring hypothesis and the entrenchment hypothesis.

**Table 2.1. Expected relationships between ownership concentration and firm performance**

<i>Managerial Ownership</i>	
<i>Convergence-of-Interest Hypothesis</i>	<i>Entrenchment Hypothesis</i>
+	-
<i>Monitoring Hypothesis</i>	<i>Expropriation Hypothesis</i>
<i>Block Ownership</i>	

### **2.2.3 Empirical evidence**

Based on above discussions, obviously the entrenchment hypothesis conflicts directly with the convergence-of-interest hypothesis, and the case of the expropriation and monitoring hypotheses is similar. Both the monitoring and convergence-of-interest hypotheses expect that a firm will perform better if its ownership structure is more concentrated because of the increase in shareholders' monitoring incentive and in managers' internal motivation to serve shareholders best. In contrast, the expropriation and entrenchment hypotheses focus on drawbacks of the private benefit of control, i.e. the possible exploitation of minority shareholders by controlling shareholders and managers. Fama (1980); Jensen and Ruback (1983); La Porta et al. (2002), among others proposed that the prominent effect is strongly contingent on several factors, such as the legal framework (especially the level of legal protection of minority shareholders), the level of market competition and perfection, the level of information asymmetry and business culture. Thus, the relationship between ownership concentration and firm performance seems to be context-dependent and thus unpredictable. In addition, failing to incorporate the endogeneity of ownership structure into the empirical model could lead to biased regression estimates (Demsetz & Villalonga, 2001). Consequently, many conflicting results in the relationship between ownership concentration and performance have been reported in the literature.

#### **Evidence from the U.S.**

Early empirical evidence on the relationship between ownership structure and firm performance may be traced back to Demsetz and Lehn (1985). On a sample of 511 firms in the U.S. from 1976 to 1980, they employed the Ordinary Least Square (OLS) regression while controlling for profit-determined factors, including capital, advertising and R&D expenditure, firm size, idiosyncratic volatility of stock prices, and utility and financial industry dummies. The authors did not find a significant relationship between the largest ownership (i.e. the total shares owned by the top five and 20 largest shareholders) and firms' accounting profit rates. This result is consistent with the prediction of Demsetz (1983), who stated that, although a very diffuse ownership structure weakens the shareholders' interest in monitoring, there must be a compensating reduction in risk and in the annoyance of monitoring management because otherwise, companies could not attract prospective investors to provide equity capital. Thus, the argument that the diffuse ownership could destroy firm value is unreasonable.

Morck et al. (1988) examined a sample of 371 Fortune 500 firms in the U.S. in 1980. In their study, Tobin's Q and accounting profit rates were used as measurements of firm performance, while the ownership concentration was proxied by the managerial ownership. Their findings suggested an insignificant relationship between board ownership and firm performance in the linear regressions. However, a non-monotonic relation was discovered in the piecewise linear regression with Tobin's Q as the dependent variable. The effect was negative for managerial ownership between 5% and 25%, and positive for managerial ownership between 0% and 5% or greater than 25%. Similarly, Hermalin and Weisbach (1991) employed the piecewise linear regression to study a sample of 134 NYSE firms in 1971, 1974, 1977, 1980 and 1983. The chosen managerial ownership thresholds were 1%, 5% and 20%. In both the all-year-pooled sample and the 1977 sample, similar sign patterns were observed, i.e. positive from 0% to 1% and from 5% to 20%, and negative from 1% to 5% and greater than 20%. However, only coefficients of managerial ownership from 0% to 5% were statistically significant. When board ownership was treated as an endogenous variable by using the Instrumental Variables (IV) estimator, both the size of coefficients and the significance level increased. The results indicated an inverted U-shaped relationship between managerial ownership and firm performance.

McConnell and Servaes (1990) also applied the piecewise linear regression of Morck et al. (1988) to two separated samples from 1976 (1173 firms) and 1986 (1093 firms) in the NYSE and the AMEX. Although the positive relationship between insider ownership and Tobin's Q was confirmed when insider ownership was smaller than 5%, the relationship was generally insignificant afterwards. However, in the linear models in which the quadratic term of managerial ownership was included as an independent variable, they found an inverted U-shaped relationship with the optimum level of insider ownership of approximately 40%-50%. However, regardless of the models and samples used, the effect of block ownership on Tobin's Q was insignificant.

Using a sample of 867 firms in the U.S. from 1965 to 1988, Loderer and Martin (1997) found a positive effect of the managerial ownership on cumulative abnormal stock returns, but not on Tobin's Q in the traditional OLS regression. Furthermore, based on the evidence of significant impacts of firm performance on board ownership, they stated that the previous single-equation tests could be biased because of the serious simultaneity problem. Supporting this view, when the 2SLS regression was employed to control for endogeneity, the relationship discovered in the OLS vanished.

Demsetz and Villalonga (2001) re-examined a 223-firm random subsample from the sample of 511 firms in Demsetz and Lehn (1985) and used the Two Stage Least Square (2SLS) to control for the endogeneity problem. The study examined two aspects of ownership structure: the proportion of shares owned by the five largest shareholders and the proportion of shares owned by managers, including the CEO and board members. Only the managerial ownership was treated as the endogenous

variable. The findings suggested that neither managerial ownership nor block ownership significantly affected Tobin's Q.

Similarly, by using the Fixed Effect estimator to control for invariant unobserved firm heterogeneity which is a possible source of endogeneity, Himmelberg et al. (1999) also found an insignificant relationship between managerial ownership and Tobin's Q. However, when they applied the Instrumental Variable (IV) technique with the instrument for managerial ownership as firm idiosyncratic risk (proxied by the standard deviation of residuals from the CAPM-typed regression) to control for simultaneity, an inverted U-shaped relationship was discovered. These opposing results implied that the identification of the sources of endogeneity could significantly alter the empirical results.

### **Evidence from other countries**

Although the relationship between ownership structure and firm performance has long been studied in the U.S. market, most empirical evidence from other countries is recent. Investigating the UK corporate governance system, Short and Keasey (1999) stated that the UK managers have less freedom to mount takeover defenses than their U.S. counterparts, and the cooperation of institutional investors in monitoring managers in the UK is more effective. Therefore, they expected that the UK management would become entrenched at a higher level of managerial ownership. Applying both pooled and panel data regressions, their empirical results confirmed the cubic relationship between managerial ownership and firm performance found in Morck et al. (1988). In addition, the higher levels of turning points at 15% and 42%, instead of 5% and 25%, were consistent with their initial hypothesis of the entrenchment at a higher ownership level.

Using the OLS regression for the sample of 435 companies in 12 European nations<sup>2</sup> during 1990-1995, a similar inverted U-shaped relationship between block ownership and market-to-book value as well as return on asset (ROA) was reported in Thomsen and Pedersen (2000). However, there was no relationship between block ownership with the third measurement of firm performance, i.e. sale growth. Another European country, Spain, was also examined by De Miguel et al. (2004). On a sample of 135 listed financial companies during 1990-1999, the authors used the Generalized Method of Moments (GMM) estimator to control for the endogeneity. The bell-shaped impact of ownership concentration on the ratio of market value of shares to replacement value of total assets (the proxy for firm performance) was also discovered. Furthermore, the impact of managerial ownership was

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<sup>2</sup> Including Austria, Belgium, Denmark, Finland, France, Germany, the United Kingdom, Italy, the Netherlands, Norway, Spain and Sweden.

found to be non-linear. It was positive at the low and high levels of ownership, but negative at the intermediate level. This cubic relationship is consistent with that of Morck et al. (1988).

Kapopoulos and Lazaretou (2007) employed the 2SLS estimator to investigate 175 Greek listed companies in 2000. Managerial ownership and block ownership were treated as endogenous variables in separated models. The results from the 2SLS yield evidence of endogenous ownership structure, and profitability was a positive predictor of block ownership but not of managerial ownership. Thus, the authors proposed that block ownership was more likely to be endogenous than insider ownership. The finding was directly opposite to what Demsetz and Villalonga (2001) had proposed. Controlling for endogeneity, Kapopoulos and Lazaretou (2007) found positive influences of both block ownership and managerial ownership on Tobin's Q. The positive impact of block ownership on firm performance, which is measured by ROA, was also found in Gedajlovic and Shapiro's (2002) study of 334 Japanese firms in the 1986-1991 period. Similarly, Liu, Uchida, and Yang (2012) stated that the positive relationship between managerial ownership and the change of Tobin's Q was observed in China during the financial crisis of 2007-2008. However, their most striking result was the U-shaped relationship between large shareholders' ownership and firm performance, which was distinct from most empirical evidence in the literature.

Welch (2003) also applied the 2SLS to 114 public companies listed on the Australian Stock Exchange in the period 1999-2000 and found no linear relationship between managerial ownership as well as block ownership and firm performance. In addition, she also employed a generalized non-linear model to examine a possible cubic relationship. Unlike the findings of Morck et al. (1988), there was limited evidence of a non-linear relationship between managerial ownership and Tobin's Q as well as the average of annual profit rate. Recently, New Zealand, another Oceanian country, was considered in Fauzi and Locke (2012) by examining the roles of board structure and board ownership on firm performance in a sample of 79 listed companies during 2007-2011. The results from the Generalized Linear Model (GLM) indicated that managerial ownership positively affected firm performance, which was measured by Tobin's Q and ROA. Meanwhile, the impact of block ownership was negative, which was consistent with the result of G. Jiang, Yue, and Zhao (2009) in China. However, both studies simply ignored the commonly accepted endogeneity of ownership structure, casting doubt on the validity of their results.

Balsmeier and Czarnitzki (2015) investigated the relationship between block ownership and employment growth, the proxy for firm performance, in 28 Central and Eastern European countries and found an inverted U-shaped relationship by using the OLS. While the result was robust for the non-EU-member countries, the relationship vanished in the subsample of the EU members. Based on these results, the authors proposed that firms in well developed countries do not need blockholders'





monitoring over management. However, this explanation strictly conflicts with the significant relationships found in the U.S in previous studies.


Sheu and Yang (2005) conducted their study on a sample of 333 Taiwanese listed electronics companies in 1996-2000. The results from the OLS showed that insider ownership did not have any influence on the value added of a firm – the measurement of firm performance. The same method was applied in Shah and Hussain (2012) on non-financial companies listed on the Karachi Stock Exchange; however, a negative relationship was observed. In addition, they also reported an insignificant impact of block ownership on firm performance.

In conclusion, empirical evidence from both developed and developing countries has been very inconclusive. In addition, most studies in transition economies, especially in Asia, simply ignored the widely accepted endogeneity of ownership structure. Some others did care about this problem, but their estimation techniques were usually Fixed Effects and Instrumental Variables, which cannot completely control for endogeneity. This study attempts to fill this gap by applying the better developed estimation of GMM in panel data. Thus, the results could provide more valid empirical evidence to the existing inconclusive literature.

**Table 2.2. Selected empirical evidence on the relationships between block ownership, managerial ownership and firm performance**







**(a) Evidence from the U.S.**

Study	Research sample	Research period	Firm performance variable	Regression method	Relationship with firm performance	
					Block ownership	Managerial ownership
Demsetz and Lehn (1985)	511 firms	1976-1980	ROE	OLS	X	
Morck et al. (1988)	371 Fortune 500 firms in the U.S.	1980	Tobin's Q	Piecewise OLS		
Himmelberg et al. (1999)	Randomly selected 600 firms in the U.S.	1982-1992	Tobin's Q	OLS, fixed effects, IV		OLS, fixed effects (X) IV ( $\wedge$ )
Cho (1998)	326 Fortune 500 manufacturing firms	1991		Piecewise OLS, 2SLS		X
Demsetz and Villalonga (2001)	Subsample of 223 listed firms from Demsetz and Lehn (1985)	1976-1990	Tobin's Q	OLS, 2SLS	X	X
Loderer and Martin (1997)	867 firms	1965-1988				X
Chung and Pruitt (1996)	404 firms	1987	Tobin's Q	2SLS		+
Palia and Lichtenberg (1999)	600 firms from random digit generator	1982-1984	Total factor productivity	Piecewise OLS		+
Hermalin and Weisbach (1991)	134 firms listed in NYSE	1971, 1974, 1977, 1980, 1983	EBIT, Tobin's Q	Piecewise OLS, IV		
McConnell and Servaes (1990)	1173 firms in 1976 and 1093 firms in 1986 in NYSE and AMEX	1976 and 1986	Tobin's Q	OLS, Piecewise OLS	X	
Holderness, Kroszner, and Sheehan (1999)	1419 listed firms in 1935 and 4202 listed firms in 1995	1935 and 1995	Tobin's Q	Piecewise OLS		

$\wedge$  - inverted U-shaped,  $\vee$  - U-shaped relationship, + - positive relationship,  - cubic relationship, X - no relationship, - -negative relationship



**(b) Evidence from other countries**

Study	Research sample	Research period	Firm performance variable	Method	Relationship with firm performance	
					Block ownership	Managerial ownership
Thomsen and Pedersen (2000)	435 companies from 12 European countries	1990-1995	Market-to-book value (MBV), ROA and Sale Growth	OLS		
Gedajlovic and Shapiro (2002)	334 Japanese companies	1986-1991	ROA	OLS	+	
De Miguel et al. (2004)	135 non-financial listed companies in Spain	1990-1999	Market value of share/replacement value of total assets	IV-GMM		
Kapopoulos and Lazaretou (2007)	175 listed firms covering all sectors in Greece	2000	Tobin's Q	OLS, 2SLS	+	+
Li, Moshirian, Nguyen, and Tan (2007)	290 post-privatized SOEs in China	1992-2000	ROA and ROS	OLS		+
G. Jiang et al. (2009)	149 Chinese listed manufacturing firms	1999-2002	Change in return on sale (ROS)	Multivariate Regression	-	
Liu et al. (2012)	970 Chinese listed firms (excluding financial)	Crisis period of 2007-2008	Change in Tobin's Q	OLS		+
Short and Keasey (1999)	Random sample of 225 UK listed firms	1988-1992	MBV, ROE	OLS, panel data		
Welch (2003)	114 Australian listed firms	1999-2000		2SLS, piecewise OLS	X	X
Fauzi and Locke (2012)	79 listed firms in New Zealand	2007-2011	Tobin's Q, ROA	Generalized Linear Model	-	+
Balsmeier and Czarnitzki (2015)	28 Central and European countries	2002-2009	Employment growth	OLS		
Sheu and Yang (2005)	333 Taiwanese electronics listed companies	1996-2000	Value added of a firm	OLS		X
Shah and Hussain (2012)	61 non-financial listed companies	2008-2010	Tobin's Q	Fixed Effects	X	-

$\wedge$  - inverted U-shaped,  $\vee$  - U-shaped relationship, + - positive relationship,  $\sim$  - cubic relationship, X - no relationship, - - negative relationship

## 2.3 State ownership and firm performance

### 2.3.1 Theoretical perspectives

The debate on the efficiency of state ownership versus private ownership has attracted a fair amount of concern in the literature. Supporters of state ownership usually appeal to the traditional objective of state-owned enterprises (SOEs), i.e. providing instruments to cure market failures through pricing policies that have taken marginal social costs into consideration. Thus, although privatization of SOEs possibly creates benefits for new private owners, observed higher profitability possibly “has come at the expense of the rest of society through the exploitation of market power” (La Porta & Florencio, 1999, p. 1193). The exploitation of public interest and social welfare could be more severe in the case of for-profit monopolies because they can abuse their monopoly power to take advantage of customers through high price and/or low product quality (Loc, 2006). Another potential disadvantage of privatization is that workers could suffer from the post-privatization restructuring process through layoffs or wage cuts. Furthermore, since the state is usually the sole owner or a significant owner of SOEs, they do not face the free rider problem in management monitoring, which is significant in the dispersed ownership structure of privately-owned companies (Yarrow et al., 1986).

However, the arguments and empirical evidence against state ownership and in favor of private ownership as well as privatization have been becoming dominant. This view is supported by three main theories, including (i) agency theory, (ii) property right theory, and (iii) public choice theory. In essence, these theories are not totally different; they somehow overlap and complement one another in explaining the superiority of private ownership. The *agency theory* states that, although managers overall have a natural tendency to exploit firm owners through their selfish decisions, this problem in private firms seems to be less severe than in state-owned counterparts. The reason is that under an efficient market, managers of private firms are disciplined by numerous control mechanisms. They include internal mechanisms such as compensation and reward incentives, as well as external mechanisms such as monitoring activities from shareholders and debt holders, a competitive managerial labor market and the threat of takeover (Jensen, 1986). These mechanisms create incentives and pressures that not only motivate but also force managers to act as good agents of shareholders, but unfortunately, they are almost absent in SOEs (Cuervo & Villalonga, 2000). For example, SOEs are not likely to be threatened by takeovers or bankruptcy because their budget constraint is “soft”, i.e. they are able to easily access loans or bailouts from the government (Ramamurti, 2000). In addition, SOEs face a dual principal-agent relationship: the management team is the agent of and monitored by the government, which in turn is an agent of the real owners, i.e. the

voting public (Yarrow et al., 1986). Because these owners are extremely diffuse, the consequences of the free rider problem are significantly severe. Thus, although the state does not actually own shares, it does have almost the ultimate rights of a sole shareholder. These arguments somehow can be linked to the *property rights theory*, which points out that in SOEs, “the property rights are poorly defined” (Ramamurti, 2000, p. 528). As a result, the dual agency relationship leads to less motivation and efficiency of owners (the public) in monitoring managers, which in turn could result in lower firm performance of the state-owned firms compared to the private counterparts.

As an expansion of the property rights theory, the *public choice theory* focuses on the unique principal-agent relationship in SOEs between the public and politicians. It proposes that politicians tend to force SOEs under their control to carry out personal objectives that could assist them to gain reputation, re-election or promotion. These objectives may conflict with firm performance (Cuervo & Villalonga, 2000). Compounding the problem, the voting public is so dispersed that control mechanisms over politicians become extremely weak and inefficient. Even if the voting population perceives the inefficiency, a highly imperfect “market” for political control (through public voting rights) prevents them from carrying out frequent modifications (Yarrow et al., 1986). These conditions favor private incentives of politicians, which can also be classified as private benefits of control. Thus, those arguments can be considered another aspect of the expropriation hypothesis, in which minority shareholders are expanded to the population as a whole.

It should be noted that the arguments against state ownership rely on the assumption of an efficient and competitive market that can provide favorable conditions for effective market controlling mechanisms over management. Under an inefficient market, the failure of these mechanisms could make corporate governance in private-owned companies become no better than in SOEs. On the other hand, political system characteristics play a role in determining the performance of SOEs, as they could limit or favor exploiting the incentives of politicians. Thus, Yarrow et al. (1986, p. 332) stated that “the relative merits of private and public monitoring depend upon the trade-off between market inefficiencies and incentive failure in government departments or agencies”. Consequently, it is not easy to predict whether state ownership or private ownership is superior in all contexts.

### **2.3.2 Empirical evidence**

In spite of conflicting arguments on the role of state ownership, in recent literature supporting evidence for the positive relationship between private ownership and firm performance has been dominant. This situation could partly stem from how firm performance is measured. An ideal measurement of SOEs’ efficiency should take into consideration all objectives of SOEs, i.e. curing

market failures and providing social welfare while accepting the trade-off with profitability. However, these overall outcomes are generally difficult to observe. Instead, researchers usually use firm-level outcomes, such as firm profitability, market value or a firm-level efficiency frontier, to measure firm performance. This possibly leads to underestimates of state ownership efficiency, especially in terms of its social benefits.

There are two popular approaches used to investigate the impact of state ownership on firm performance. The most common approach is the cross-sectional comparison of performance among firms with different levels of state and private ownership. Under the presumption that private ownership is more efficient than state ownership, it is hypothesized that among cross-sectional firms, after controlling for other related factors, the higher the state ownership, the lower the firm performance (Demsetz & Lehn, 1985; Demsetz & Villalonga, 2001; Fauzi & Locke, 2012; Welch, 2003; among others). The second approach is evaluating the performance of SOEs before and after their privatization. If state ownership is less efficient than private ownership, firm performance and efficiency should be improved after the privatization (Kang & Kim, 2012; Loc, Lanjouw, & Lensink, 2006; Omran, 2004; among others).

Villalonga (2000) provided an in depth meta-review on existing empirical cross-sectional studies. Among 153 studies reviewed, 104 supported the hypothesis that private ownership is more efficient, 14 were against and 35 were neutral. In addition, some studies found non-monotonic relationships between the proportion of state share and firm performance. For example, in the review of Yu (2013), 6 out of 14 studies reported the U-shaped relationship, meanwhile another 4 were negative, 1 was positive, 1 reported the inverted U-shaped and 2 were neutral. In Vietnam, Tran et al. (2014) discovered the negative impact of state ownership on firms' accounting profitability (ROA, ROE) and labor productivity (value added per employee) in the examination of an unbalanced panel data set from more than 2,000 firms during 2004-2012. Meanwhile, using a sample of listed companies on the HOSE from 2007 to 2012, Phung and Hoang (2013) found that state ownership had a bell-shaped relationship with Tobin's Q and ROA. Thus, although the supporting side of private ownership is dominant, there are still many conflicts among countries or even among different periods in the same countries.

Studies on the effects of privatization on firm performance are also inconclusive. For example, Kang and Kim (2012) in the evaluation of partial privatization in China concluded that the change of SOEs from the government-controlled model to MSOEs (market or profit-seeking SOEs) model improved firm performance, which was measured by Tobin's Q, ROA and excess firm value. However, the comparison method used in this study could suffer from selection bias, because the authors simply

ignored the change in performance of state-owned firms that had not changed their operating model. Thus, one cannot conclude whether the performance improvement is truly a result of the change of ownership identity or other reasons. Loc et al. (2006) tackled this problem by using the Difference in Difference (DID) method to compare the performance of the treatment group (privatized SOEs) and the control group (un-privatized SOEs). They concluded that the observed improvement in profitability, sale revenue, efficiency, and employee income truly resulted from privatization. The same method was applied by Omran (2004) in Egypt, but the author did not find any post-privatization improvement in the performance of the treatment group compared to the control group. However, it should be noted that in their studies, the selection bias was not totally overcome. It is possible that privatized firms are “selected” by politicians based on certain objectives. For example, lower performing SOEs could be chosen to be privatized with the hope that their performance could be improved through private ownership. In contrast, targets could be the best performing SOEs, as the price of state ownership could be maximized. Therefore, the estimates still could be biased.

Given the social missions of SOEs, comparing only the financial performance between state ownership and private ownership could be unfair. Taking the social objectives of SOEs into consideration, Bozec, Breton, and Cote (2002) stated that in their sample of the 500 largest Canadian firms in 1985, SOEs without the profit-maximizing objective performed worse than their private counterparts (firm performance was measured by accounting profitability including return on sales, return on assets, and asset turnover). After controlling for goals, there was no difference in performance between SOEs and private companies. It implied that no form of ownership outperformed the other, as both have the same efficiency in carrying out their own targets. Bozec et al. (2002) also pointed out that there is a case in which SOEs outperform private companies, that is public monopoly. The explanation is that compared with others, public monopolies have many more competitive advantages, and thus stronger competing ability in the market.

Given that SOEs normally have a dual objective: social welfare and profitability, the question is why some empirical evidence showed that SOEs could be even more profitable than privately owned companies. One reasonable explanation could be the “helping hand” from the government (Shleifer & Vishny, 2002). Under support from the government, SOEs easily access financial and political resources as well as business networks, which are significant market competitive advantages. However, assuming that state ownership truly improves firm efficiency through this mechanism, it is not necessarily the case that increasing state shares in companies can make the economy as a whole better. The reason is that if state ownership increases in every company, there will no longer be a competitive advantage because of the saturation of accessibility to limited favorable resources.

Meanwhile, the drawbacks of state ownership may become more severe. More importantly, it is possible that if private companies had been able to access these resources, their performance would have been even better than that of SOEs. Unfortunately, there is not sufficient evidence for this argument in the current literature.

**Table 2.3. Selected empirical evidence on the relationship between state ownership and firm performance**

**(a) Cross-sectional comparison**

Study	Research sample	Research period	Firm performance variable	Regression method	Impact of state ownership
Konings (1997)	334 firms in Romania (119), Bulgaria (115) and Hungary (100)	1990-1995	Growth rate	Random effects	—
Sun, Tong, and Tong (2002)	1877 firm-year observations of listed companies in China	1994-1997	MBR, ROA, ROE	Pooled OLS, fixed effects	$\wedge$
Hovey, Li, and Naughton (2003)	97 randomly selected firms listed in China	1997-1999	Tobin's Q	OLS	X
Wei, Xie, and Zhang (2005)	5284 firm-year observations of Chinese partially privatized SOEs	1991-2001	Tobin's Q	OLS, 2SLS	$\vee$
B.-B. Jiang, Laurenceson, and Tang (2008)	794 listed companies on the Shanghai Stock Exchange	2004	ROA, ROE, ROS, REITA	OLS	+
Lin, Ma, and Su (2009)	461 publicly listed manufacturing firms in China	1999-2002	Estimated efficient score. Input = labor, capital stock, intermediate input. Output = sales revenue	Two-stage Bootstrapping DEA	—
Le and Buck (2009)	3,656 firm-year observations of listed firms in China	2003-2005	ROA, ROS	2SLS	+
Hess, Gunasekarage, and Hovey (2010)	Balanced sample of 5170 firm-year observations of 1034 Chinese firms	2000-2004	Tobin's Q	Piecewise OLS, Simultaneous Equations Model	$\vee$
Phung and Hoang (2013)	All listed companies in Vietnam	2007-2012	Tobin's Q	Fixed effects, Random effects	$\wedge$
Yu (2013)	10,639 firm-year observations of non-financial Chinese firms	2003-2010	ROA, ROE, Tobin's Q	Fixed effects, Random effects	$\vee$
Tran et al. (2014)	Unbalanced sample of 38,143 firm-year observations of Vietnam firms	2004-2012	ROA, ROE, labor productivity, efficient use of capital	Pooled, random effects, GMM	—

$\wedge$  - inverted U-shaped,  $\vee$  - U-shaped relationship, + - positive linear relationship, — negative linear relationship, X – no relationship

**b) Pre- and post-privatization comparison**

Study	Research sample	Research period	Firm performance variable	Regression method	Impact of privatization
Meggison, Nash, and Van Randenborgh (1994)	61 partially or fully privatized companies from 18 countries	1961-1990	Profitability, Operating Efficiency, Capital Investment, Sales, Employment, Leverage, Payout	Wilcoxon signed-rank test	+
Boubakri and Cosset (1998)	79 partially or fully privatized companies from 21 developing countries	1980-1992	Profitability, Efficiency, Capital Investment spending, Sales, Employment, Leverage, Dividends	Two-tailed Wilcoxon signed-rank test	+
La Porta and Florencio (1999)	170 nonfinancial privatized firms in Mexico	1983-1991	Profitability, Operating Efficiency, Labor, Assets and investment, Sales, Prices, Net taxes	OLS	+
Claessens and Djankov (2002)	6,354 privatized and state-owned manufacturing enterprises in seven Eastern European countries	1992-1995	Sale, Employment, Labor productivity	Fix effects, Cluster effects, Random effects	less than 2 years (x), 3 years or more (+)
Omran (2004)	54 privatized firms and 54 SOEs in Egypt	1994-1998	Profitability, Operation efficiency, Real sales, Employment, Leverage	Difference-in-difference	X
Gupta (2005)	2,230 firm-year observations from partially privatized companies in India	1990-2000	Profitability, Productivity, Investment	Fix effects, GMM	+
Loc, Lanjouw, and Lensink (2006)	121 equitized firms and 84 SOEs	3 years before and after privatization	Profitability, Operating efficiency, Real sale, Leverage, Employment, Employee income	Difference-in-difference	+
Kang and Kim (2012)	6,588 non-financial firm-year observations of listed companies in China	1994-2002	Tobin's Q, ROA, Excess value	Fixed effects, GMM	+
Hagemejer, Tyrowicz, and Svejnar (2014)	All Polish medium and large enterprises	1995-2009	Value added, Employment, Capital	2SLS, LIML (control for endogeneity)	X

+ - Positive impact, - - Negative impact, X - No impact



## 2.4 Hypotheses

Since there are conflicts in both theoretical perspectives and empirical evidence, I hypothesize that the relationship between ownership structure and firm performance in the context of the Vietnamese stock market could be non-monotonic. According to the empirical evidence of Morck et al. (1988), at the low and high levels of managerial ownership, the convergence-of-interest effect dominates the entrenchment effect, leading to a positive relationship between managerial ownership and firm performance. However, the opposite is observed at the middle level of managerial ownership, resulting in a negative relationship. Based on this finding, the hypothesis H1 is constructed.

*H1: The relationship between managerial ownership and firm performance is positive at the low and high levels of the managerial ownership, and negative at the middle level.*

Similarly, empirical evidence of the impacts of block ownership on firm performance is also inconsistent, especially in the countries outside the U.S. This study follows De Miguel et al. (2004) and Balsmeier and Czarnitzki (2015) who found the inverted U-shaped relationship to form the hypothesis H2.

*H2: There is an inverted U-shaped relationship between the percentage of shares owned by the blockholders (block ownership) and firm performance.*

There are several studies examining the effects of state ownership on firm performance in Vietnamese companies. The inverted U-shaped relationship was found in Phung and Hoang (2013), indicating the existence of both a “helping hand” and a “grabbing hand” from the government, and the dominant effect depends on the levels of state ownership in companies. Based on their findings, I develop the hypothesis H3.

*H3: There is an inverted U-shaped relationship between state ownership and firm performance.*

## 2.5 Overview of the Vietnamese stock market

The Vietnamese stock market was officially established after the launch of the Ho Chi Minh City Securities Trading Center in July 2000, followed by the Hanoi Securities Trading Center in March 2005. Then, they were renamed and upgraded to the Ho Chi Minh Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX) in 2007 and 2009 respectively. After their establishment, the number of stocks listed on both exchanges increased significantly before 2010, and then stabilized afterwards. However, as an immature market, the number of listed companies is still very limited. At the end of 2015, there were in total 674 listed companies in the Vietnamese stock market, including 377 on the HNX and 307 on the HOSE.

**Table 2.4. The number of stocks and Market Capitalization of stocks on the HOSE and the HNX**

	Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>No. of stocks listed</b>	<i>HNX</i>	112	168	257	367	393	396	377	365	377
	<i>HOSE</i>	138	170	196	275	301	308	301	305	307
<b>Mkt.Cap.* (trillion VND)</b>	<i>HNX</i>	130.1	55.2	125.4	131.82	83.7	86.543	106.87	136.02	151.6
	<i>HOSE</i>	364.4	169.7	495	591.3	453.8	678.4	842.1	985.3	1146.9

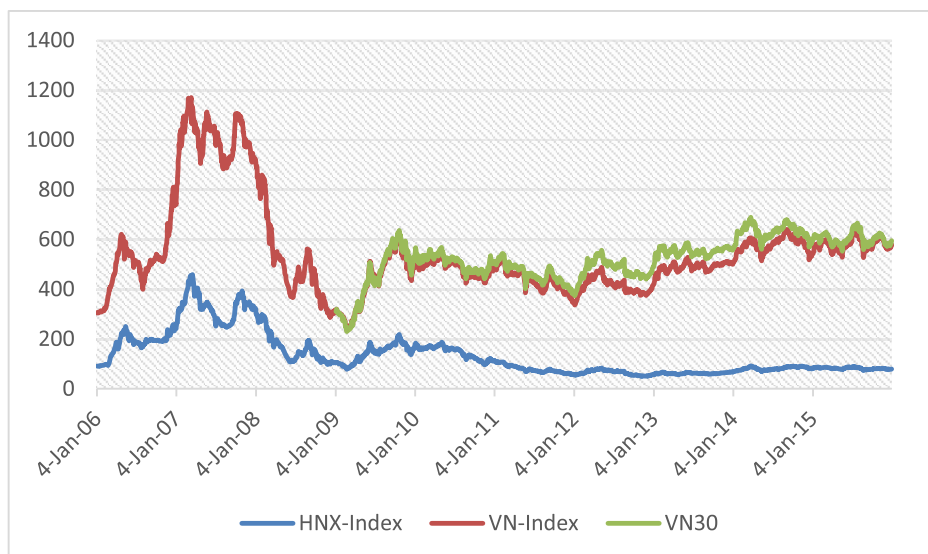
\* Value on the last trading day of the year

*Source: HOSE and HNX Annual Reports*

As illustrated in Table 2.4, the number of stocks listed on the HOSE was slightly smaller than that of the HNX over time. However, the market capitalization of stock on the HOSE was dominant. For example, at the end of 2015, market capitalization of stocks on the HOSE was nearly eight times higher than that of the HNX (1,146.9 trillion VND versus 151.6 trillion VND). Furthermore, the growth rate of market capitalization of the HOSE was also significantly higher (an annual average of 30.19% against 12.98%) during 2007-2015. This may be attributed to the fact that smaller companies normally target the HNX, which is less developed but has less strict listing rules compared to the HOSE (see Vuong (2010) for more details).

Currently, both HOSE and HNX are using total stock market indices, namely VN-Index and HNX-Index respectively. They are calculated by the volume-weighted average of share prices of all stocks listed on the markets. Besides, the HOSE is employing an additional index, i.e. VN30, that includes the most liquid stocks on the HOSE only, excludes shares that are not free to trade (e.g. shares owned by managers and their relatives, strategic shares, state shares), and restricts the weight of each stock at 10%. Although the VN30 is able to eliminate the effects of illiquid stocks and prominent weights of super large-cap stocks in calculation, its data is unavailable during the early period of the HOSE since the index was introduced in January 2009. Therefore, because of the dominance of market capitalization and the richness of data, the VN-Index is currently widely employed as the benchmark market index for the Vietnamese stock market.

**Figure 2.1. VN-Index, HNX-Index and VN30 Index**



Source: <http://www.investing.com/>

Figure 2.1 shows the daily closing prices of the VN-Index, HNX-Index and VN30 Index during 2006-2015. Introduced since 2009, the VN30 Index was nearly identical to that of VN-Index. Similarly, the VN-Index and HNX-Index also witnessed the same trend. After an extraordinary increase during their first few years after establishment, both sharply declined in 2008 as a consequence of overvalued stock prices and impacts of the U.S. subprime mortgage crisis. Although there was an increase in 2009, the domestic housing bubble crisis during 2010 destroyed the slight recovery which has been followed by a stabilization since 2011. Statistically, the Pearson correlation between the two sequences, the VN-Index and HNX-Index, is considerably high at 0.91 with the significance level of 1%. Thus, the single VN-Index may be an adequate proxy for the variability of the Vietnamese stock market.

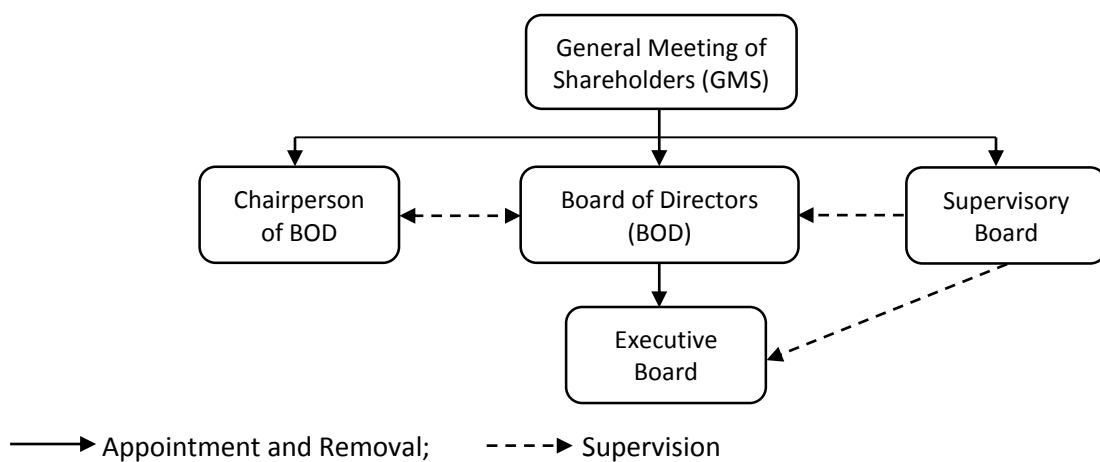
## 2.6 Corporate governance structure in Vietnam

In compliance with the Vietnamese Enterprise Law 2014, listed companies in Vietnam generally follow a two-tier corporate governance system, in which there are some modifications making it slightly different from the typical two-tier structure of Germany (Nguyen, Locke, & Reddy, 2015). There are four governance bodies in a typical Vietnamese public company: (i) the General Meeting of Shareholders (GMS); (ii) the Board of Directors; (iii) the Executive Board; and (iv) the Supervisory Board. The relationships among those bodies are visualized in Figure 2.2. The GMS (*in Vietnamese: Dai hoi dong co dong*) has the supreme power of making decisions on the most important issues of the company such as long term strategies, stock issuing and dividend. As a regulation, the GMS must be held at least once per year and within four months after the end of each financial year<sup>3</sup>. The BOD (*in Vietnamese: Hoi dong quan tri*) acts as an agent of the GMS and has full authority to make decisions in

<sup>3</sup> Article 136, the Vietnamese Enterprise Law 2014

the name of the company, especially strategic decisions that strongly affect shareholders' interest. The BOD has the right to appoint the Executive Board (*Ban dieu hanh*), which is in charge of a firm's daily operations. The Executive Board includes a Chief Executive Officer (CEO), deputy CEOs and a Chief Accountant. The GMS also appoints the Supervisory Board (*in Vietnamese: Ban kiem soat*), which is independent from both the BOD and Executive Board. A major function of the Supervisory Board is to supervise the BOD and the Executive Board in managing and operating the company. While members of the Executive Board could be selected from the BOD, members of the Supervisory Board must neither hold any position in both the BOD and the Executive Board nor be relatives of any members in both Boards<sup>4</sup>.

**Figure 2.2. Corporate governance structure in Vietnam<sup>5</sup>**



Theoretically, BOD, Supervisory Board and Executive Board must cooperate with, as well as supervise each other in managing and operating the company to serve the best interests of shareholders. However, from the principal-agent relationship perspective, all of them share the role of shareholders' representatives who act on behalf of shareholders to operate the firm. Thus, their incentives and interests are likely to be similar in terms of exploiting outside shareholders. Therefore, in the examination of the relationship between managerial ownership and firm performance, this study considers all three Boards as one unified management team, so managerial ownership is computed as total shares owned by all members of these Boards.

## 2.7 Summary

Regarding ownership concentration, the monitoring and the convergence-of-interest hypotheses predict that block ownership and managerial ownership negatively relate to firm performance. This contradicts the expectation of the expropriation and entrenchment hypotheses. A similar situation

<sup>4</sup> Article 164, the Vietnamese Enterprise Law 2014

<sup>5</sup> Because of the uniqueness of the two-tier corporate governance system in Vietnam, Board names are translated differently in different documents, which sometimes conflict and cause confusion. This study uses the translation system of Nguyen et al. (2015) to ensure consistency.

occurs in the relationship between state ownership and firm performance, as a result of the contrary effects of the agency problem and the “helping hand” from governments. Therefore, the impact of ownership structure on firm performance is unpredictable and could be non-monotonic. In this chapter, based on some empirical evidence, I hypothesized a cubic relationship between managerial ownership and firm performance in the Vietnamese stock market, while the impact of block ownership and state ownership on firm performance is expected to be inverted U-shaped.

## Chapter 3

### Data and Methodology

This chapter describes the research sample and estimation method used in the study. The first two Sections 3.1 and 3.2 introduce the data collection procedure and variable definitions, followed by the proposed empirical models in Section 3.3. Subsequently, Section 3.4 discusses the endogeneity problem in examining the relationship between ownership structure and firm performance. Estimation methods are presented in Section 3.5, in which the system-GMM is mainly focused on.

#### 3.1 Data

To investigate the relationship between ownership structure and firm performance, a sample of listed companies in the manufacturing industry on the HOSE is employed<sup>6</sup>. Although the HOSE was established in 2000, suitable data for this analysis has been available only since 2007. Thus, the sample period is restricted to nine years from 2007 to 2015. There are 95 manufacturing companies listed on the HOSE during the research period. Unlike other industries such as real estate, construction, financial or trading, outputs of the manufacturing industry are usually the most essential and necessary for the economy in both consumption and production aspects. Therefore, manufacturing companies seem to have been affected the least by the consequences of the recent global financial crisis in 2007-2008 and the Vietnamese housing bubble in 2010-2011. Thus, using the dataset of manufacturing companies could minimize potential noises affecting the relationship between ownership structure and firm performance.

Ownership data is hand-collected from companies' annual reports and corporate governance reports, while financial data is obtained from audited financial statements. According to the Circular 52/12/TT-BTC, the disclosure of managerial ownership has been compulsory in the corporate governance reports since 2012, but there is no requirement in the cases of state ownership and block ownership. Thus, in general, the release of ownership structure is optional in the Vietnamese stock market. Therefore, the ownership data is unavailable in some companies, especially at the beginning of the research period. It makes the data strongly unbalanced with almost all available information concentrating on a few recent years.

According to Vietnamese national listing rules<sup>7</sup>, all top managers (including the Board of Directors, Supervisory Board, Executive Board and the Chief Accountant) must commit to hold 100% of their

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<sup>6</sup> Although the Vietnamese stock market consists of two independent stock exchanges: HOSE and HNX, due to time constraint for data collection, the sample could not be extended to HNX.

<sup>7</sup> Decree 58/2012/ND-CP

shares for at least six months after the listing day, and 50% during the subsequent six months. Therefore, firms listed in year T are included into the sample from year T+2, in order to allow sufficient time for changes in managerial ownership and their potential effects on firm performance to take place. After combining this constraint with the availability of ownership data, the sample of 76 companies with 406 observations was formed.

## 3.2 Variable definition

### 3.2.1 Dependent variable

In order to test the proposed hypotheses, firm performance needs to be quantified. Among numerous measurements of firm performance, the market-based Tobin's Q has been used the most in studies relating to ownership structure (Demsetz & Villalonga, 2001). Compared to accounting-based measurements, the market-based Tobin's Q has several advantages. First, Tobin's Q can incorporate the market estimation of the value of intangible assets, which can be considered an aspect of performance (Perfect & Wiles, 1994). Second, as a forward-looking measurement, Tobin's Q can reflect market forecast and evaluation of current business operations and strategies, as well as capture long-term effects of corporate actions (Demsetz & Villalonga, 2001; Hu & Izumida, 2008). Thus, Tobin's Q is also employed in this study. Furthermore, using the similar proxy of firm performance as most of the recent studies could facilitate the comparisons between Vietnamese companies and their international counterparts.

The original Tobin's Q is defined as the ratio of the market value of a firm to its established replacement cost (Tobin, 1969). However, due to the unavailability of information, estimating the replacement cost of the firm's total assets is arduous. On the other hand, the market value of the firm should be the sum of the market value of equity and the market value of debt. However, since the debt market in Vietnam is still underdeveloped, estimating the market value of debt is not an easy task. Therefore, a simplified version of Tobin's Q developed by Chung and Pruitt (1994) is employed in this study. In the modified formula, the replacement cost and market value of debt are replaced by the book value of total assets and debt respectively. Chung and Pruitt's (1994) approach not only approximates the original Tobin's Q but also minimizes computational effort by utilizing available data from companies' financial reports (Nguyen, 2015). The market value of equity (also called market capitalization) is calculated as the product of the market stock price and the number of stocks outstanding. Finally, Tobin's Q at the end of year t is determined as follows:

$$Tobin's Q_t = \frac{Stock\ price_t \times Number\ of\ stocks\ outstanding_t + Book\ value\ of\ Debt_t}{Book\ value\ of\ Total\ Asset_t}$$

However, as Tobin's Q is a "snapshot" measurement, it possibly cannot provide a whole picture of firm performance during a certain period. To overcome this problem, the Average Tobin's Q (denoted as *AvQ*) is employed throughout the empirical analysis, as in Demsetz and Villalonga (2001), Fauzi and Locke (2012).

$$\text{Average Tobin's } Q_t = \frac{\text{Tobin's } Q_{t-1} + \text{Tobin's } Q_t}{2}$$

### 3.2.2 Independent variables

#### Ownership structure

In this study, ownership structure is examined in two distinct aspects: ownership concentration and state ownership. Ownership concentration is measured by two proxies: block ownership and managerial ownership.

##### *Block ownership*

In present studies, block ownership is normally measured by the total percentage of shares owned by a certain number (usually 1, 5 or 20) of the largest shareholders of the company. The largest shareholders could affect firm performance directly through their decisions on the firm's long-term strategies, capital structure or asset allocation, or indirectly through their significant voting rights and controlling power over firm managers, who are in charge of the firm's daily operations. However, in the context of Vietnam, a blockholder is defined as a shareholder who owns at least 5% of a firm's total shares<sup>8</sup>, thus only the ownerships of these owners are released in companies' annual reports. Therefore, in this study, block ownership (denoted as *BO*) is measured by the total fraction of shares owned by all the above-defined blockholders.

In addition, several block-ownership-related variables affecting firm performance are also included in empirical models. The first candidate is the changing status of the largest shareholder (denoted as *LOChange*), which has the value of 1 if the largest shareholder of the company is changed, 0 otherwise. Brealey, Myers, and Allen (2014) stated that poor performing firms are usually associated with poor management, thus their potential for improvement is greater than others', making them more likely to be takeover targets. Thus, it is expected that the change of the largest shareholder could result in better management as well as performance. The second variable is the controlling shareholder dummy (denoted as *CtrlDum*), i.e. 1 if the company has a controlling shareholder, 0 otherwise. Commonly, a controlling shareholder is defined as the shareholder who owns more than half of the firm shares. This owner has a strong power over corporate governance, as he/she could dominate others thanks to their significant voting rights. Therefore, similar to the case of large shareholders discussed in Section 2.2.1,

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<sup>8</sup> Article 6, the Vietnamese Securities Law 2006



the controlling shareholder could also impact firm performance through the monitoring effect and/or expropriation effect. Finally, the number of blockholders (denoted as *NoBO*) should also be considered. Because of its calculation, block ownership could be highly correlated with the number of blockholders in the companies. Meanwhile, the number of blockholders could have potential impacts on firm performance, since multiple large shareholders should be more effective in controlling and supervising one another; therefore minimizing the negative effects of the expropriation from a sole blockholder. Thus, failing to incorporate the variable *NoBO* into the models could potentially lead to the endogeneity problem.

#### *Managerial ownership*

Managerial ownership (denoted as *MO*) is computed as the percentage of shares owned by all members of the Board of Directors, Executive Board and Supervisory Board. Excluding the Supervisory Board, which is independent from other Boards, the duality commonly occurs in the sample: most members of the Executive Board are also members of the Board of Directors. Therefore, to avoid duplication, dual managers are only considered once in the calculation of managerial ownership.

#### *State ownership*

In Vietnam, the government does not directly own firm shares. Instead, state ownership in Vietnamese listed companies in general is managed by two types of owners. The first is the State Capital Investment Corporation (SCIC), which acts as an agent of the government in managing state capital investment, which focuses on companies in key sectors and essential industries. The second is other SOEs, which hold other firms' shares with the purposes of diversification or investment. Therefore, in this research, state ownership (denoted as *SO*) is calculated as the total fraction of shares owned by both SCIC and other SOEs. In addition, a modification should be made in the case that the SOE owners are not fully state-owned, i.e. if there is  $a\%$  state ownership in firm A, and firm A in turn has  $b\%$  of shares in firm B, the state ownership in firm B will be  $[(a \times b)/100]\%$ .

### **Control Variables**

To minimize potential bias caused by omitted variables, the empirical models also control for selected firm characteristics variables affecting firm performance, including firm size, leverage, growth opportunity, firm age and systematic risk.

Firm size is expected to positively affect performance as a result of the economies of scale. Large firms with their plentiful resources are able to invest in projects that small firms are excluded from (Hall & Weiss, 1967); therefore they can easily earn monopoly profit. In addition, large firms usually have lower bankruptcy risk and higher transparency, thus they are able to more easily access debt markets with bigger loans and at low cost to maximize the benefits of tax shields (Antoniou, Guney, & Paudyal,

2008). The proxy of firm size used in this study is average total assets (denoted as *Size*).  $Size_t$  is computed as the average of total assets at the beginning and the end of year  $t$ .

Leverage (denoted as *Lev*) is measured by average total debt over average total assets. According to Jensen (1986), using debt could limit free cash flows in the hands of managers, and thus could help to restrict managers' opportunities for overinvesting and exploiting companies' resources for their private use. In addition, higher leverage could also enhance outside monitoring from debtholders and financial markets over management. In addition, firms could also gain from interest tax shields by using debt (Kraus & Litzenberger, 1973). However, leveraged companies could also face financial distress costs and the loss of financial flexibility. Thus, while leverage may impact firm performance, the sign of the impact is unpredictable.

Growth opportunity is proxied by the fixed assets growth rate (denoted as *FixAGrR*). Fixed assets play a crucial role in the manufacturing industry, as they directly reflect companies' capacity to produce the final products. Firms spending more on fixed assets signal better growth opportunities to the market, therefore leading to investors' optimism on the future of the companies. As a result, *FixAGrR* should positively affect Tobin's Q. However, observations with extremely high growth rates of fixed assets, i.e. greater than 1, which could be a potential source of noise in the analysis, are excluded from the sample.

Firm age (denoted as *Age*) is the number of years companies are listed on the HOSE. Black, de Carvalho, Khanna, Kim, and Yurtoglu (2014) stated that younger firms tend to grow faster and have more intangible assets, thus resulting in higher Tobin's Q. Thus, firm age is expected to negatively affect firm performance.

According to the Capital Assets Pricing Model (CAPM), expected return of stock should be positively and linearly correlated with the firm's market risk (Lintner, 1965; Sharpe, 1964). Meanwhile, as Tobin's Q is a measure of current firm value, it should be a function of expected cash flows and expected returns (Villalonga & Amit, 2006). Therefore, market risk could be a potential factor affecting Tobin's Q. In this study, market risk (denoted as *Beta*) is proxied by the beta coefficient obtained from the CAPM-type regression of weekly excess stock returns on weekly excess market returns:

$$r_i - r_f = a_i + \beta_i(r_m - r_f) + \varepsilon_i$$

Where  $r_f$  is the risk free rate which is proxied by the weekly interbank offered rate collected from Datastream.  $r_i$  and  $r_m$  are weekly average stock returns and market returns respectively, which are calculated based on daily stock prices and the VN-Index obtained from the website <http://cophieu68.vn>. This is a leading financial website providing the most updated financial

information and analysis for investors in Vietnam. The VN-Index is employed as the market index because of the dominance of the HOSE over the HNX in terms of market capitalization and trading volume. In each beta calculation, return sequences are restricted to two years. For example, to calculate a firm's beta in 2010, only weekly returns in 2009 and 2010 are used. The restriction of returns to within two years helps to incorporate the most recent information of risks, which is more likely to affect firm performance than out-of-date information from further returns.

Furthermore, nine year dummies for years from 2007 to 2011 are included as independent variables. An important assumption of the system-GMM is no correlation across individuals in the idiosyncratic disturbances. The inclusion of time dummies makes this assumption more likely to hold (Roodman, 2009a), and thus increases the validity of the system-GMM in this study.

**Table 3.1. Variable definitions**

<b>Variables</b>	<b>Acronyms</b>	<b>Definition</b>
Average Tobin's Q	<i>AvQ</i>	AvQ of year $t$ is the average of firms' Tobin's Q at the end of year $t$ and year $t - 1$ . Tobin's Q is computed as the market value of equity plus the book value of debt, divided by the book value of total assets.
Managerial ownership	<i>MO</i>	Percentage of shares owned by the Board of Directors, Supervisory Board and Executive Board
State ownership	<i>SO</i>	Percentage of shares owned by the central government, the local government, the SCIC and other SOEs
Block ownership	<i>BO</i>	Percentage of shares owned by blockholders, i.e. who own $\geq 5\%$ of total shares. $BO = 0$ if company does not have any blockholders
Number of blockholders	<i>NoBO</i>	Number of shareholders who own at least 5% of total shares
The largest shareholder change	<i>LOChange</i>	$LOChange_t = 1$ if the largest shareholder is changed in year $t$ , 0 otherwise
Dummy for controlling shareholders	<i>CtrlDum</i>	$CtrlDum_t = 1$ if there is a controlling shareholder in the company, i.e. the shareholder owns $\geq 50\%$ total shares) in year $t$ , 0 otherwise
Firm size	<i>Size</i>	Average of total assets at the beginning and the end of the year
Leverage	<i>Lev</i>	Ratio of total debt to total assets
Growth Opportunity	<i>FixAGrR</i>	Fixed assets growth rate
Market risk	<i>Beta</i>	Beta coefficient obtained from the CAPM-type regression of weekly stock returns on market returns. Market return is proxied by the percentage change of the VN-Index
Firm Age	<i>Age</i>	Number of years the firm has been listed on the HOSE
Year dummies	<i>D2007-D2015</i>	Nine year dummies for years from 2007 to 2011

### 3.3 Empirical models

Based on the hypotheses developed in Section 2.4, three separate models (1), (2) and (3) are constructed to examine the impacts of managerial ownership, block ownership and state ownership on firm performance respectively. To control for the dynamic nature of the relationship between ownership structure and firm performance, which is documented in Gedajlovic and Shapiro (2002); Hu and Izumida (2008); Thomsen and Pedersen (2000), among others, the first lag of  $AvQ$  ( $AvQ_{it-1}$ ) is included in the right-hand-side variables. In addition, the quadratic and cubic terms of ownership structure are employed to control for the commonly observed non-monotonic relationship.

$$AvQ_{it} = \alpha + \theta AvQ_{it-1} + \beta_1 MO_{it} + \beta_2 MO_{it}^2 + \beta_3 MO_{it}^3 + \delta Z_{it} + \varphi D_{it} + \eta_i + \varepsilon_{it} \quad (1)$$

$$AvQ_{it} = \alpha + \theta AvQ_{it-1} + \beta_1 BO_{it} + \beta_2 BO_{it}^2 + \beta_3 NoBO + \beta_4 LOChange + \beta_5 CtrlDum + \delta Z_{it} + \varphi D_{it} + \eta_i + \varepsilon_{it} \quad (2)$$

$$AvQ_{it} = \alpha + \theta AvQ_{it-1} + \beta_1 SO_{it} + \beta_2 SO_{it}^2 + \delta Z_{it} + \varphi D_{it} + \eta_i + \varepsilon_{it} \quad (3)$$

Where  $Z_{it}$  represents firm characteristics control variables, including firm size ( $Size$ ), leverage ( $Lev$ ), growth opportunity ( $FixAGrR$ ), and firm's market risk ( $Beta$ ), which are treated as endogenous variables in the models.  $D_{it}$  includes firm age ( $Age$ ) and year dummies, which are treated as strictly exogenous. Such treatments are based on Wintoki, Linck, and Netter (2012).  $\eta_i$  denotes firm-level unobserved heterogeneity, which is time-invariant within a firm but varies across different firms;  $\varepsilon_{it}$  is the idiosyncratic error term.

Since block ownership and managerial ownership are two distinct measures of ownership concentration, it is worth to include both in one unified model to examine one's effects on firm performance while controlling for the other. Therefore, model (4) is constructed as a combination of models (1) and (2).

$$AvQ_{it} = \alpha + \theta AvQ_{it-1} + \beta_1 MO_{it} + \beta_2 MO_{it}^2 + \beta_3 MO_{it}^3 + \beta_4 BO_{it} + \beta_5 BO_{it}^2 + \beta_6 NoBO + \beta_7 LOChange + \beta_8 CtrlDum + \delta Z_{it} + \varphi D_{it} + \eta_i + \varepsilon_{it} \quad (4)$$

### 3.4 Endogeneity of ownership structure

Currently, it is widely agreed that endogeneity should be controlled for in examining the relationship between ownership structure and firm performance. In a statistical model, the endogeneity arises when an independent variable is correlated with the error term. Specifically, if any of the ownership

structure variables as well as other control variables correlates with the overall error term ( $\eta_i + \varepsilon_{it}$ ), the models could suffer from the endogeneity problem.

Demsetz (1983) argued that the firm's current ownership structure resulted from interactions of decisions of various owners in the value maximizing process. Allowing possible on-the-job consumption of manager positions, the shareholders' decisions to buy a certain number of shares, as well as to become managers themselves or to hire professional managers, depend on which choices could reward them with the highest utility. Supporting this view, Demsetz and Lehn (1985) stated that during the decision making process, firm owners have already been aware of possible consequences of losing control over managers, as well as associated offsetting benefits such as lower capital acquisition cost, economies of scale and managerial specialization. Thus, if shareholders choose a dispersed ownership structure, they have rationally expected the benefits to be able to offset the costs to ensure the ultimate goal of value maximization. Obviously, these arguments focus on expected firm performance, which is usually measured by Tobin's Q. But backward-looking performance (i.e. accounting profit) is a strong indicator that forms the forward-looking Tobin's Q, because investors always take into consideration past information to form their expectation on the future profitability of firms. As a result of the process, firm performance, regardless of whether it is backward-looking or forward-looking, is expected to have no systematic relationship with ownership structure (Demsetz & Villalonga, 2001).

Demsetz and Villalonga (2001) stated that a source of endogenous ownership structure could be simultaneity. While ownership structure could affect firm performance, it is likely that firm performance could also affect ownership structure, particularly managerial ownership. Information asymmetry creates divergences in firm performance expectations between insiders (i.e. managers) and outside shareholders, allowing managers to vary their holding of stocks based on their own expectations. An extreme example is leverage buyout, in which non-management shares are significantly purchased by managers who can access inside information and therefore, have distinct expectations about prospective firm performance compared to outside shareholders. On the other hand, stock option compensation for managers is another typical example in which firm performance can affect managerial ownership. Thus, firm performance and ownership structure could be jointly determined.

However, it should be noted that assumptions under these arguments include an efficient market, in which investors are well informed (or at least well signaled by the market), shares are freely traded, and the legal protection of minority shareholders and outside shareholders is effective. Thus, under less pleasant conditions of transition markets, these arguments seem to be less powerful. This implies that the endogeneity of ownership structure is less likely to be as clear as in developed countries.

Himmelberg et al. (1999) proposed that another source of endogeneity of ownership structure could be unobserved firm heterogeneities that simultaneously determine both firm performance and managerial ownership structure. They pointed out three examples of unobserved heterogeneity, including monitoring technology, intangible assets and degree of market power. Obviously, superior monitoring technology, high intangible assets and strong market power could positively affect firms' profitability. Meanwhile, firms with better monitoring technology could choose a lower level of managerial ownership while still retaining maximizing value. On the other hand, because intangible assets are harder to monitor compared to tangible assets and easy to be subjected to managerial discretion, firms with a high proportion of intangible assets would call for a higher level of managerial ownership in order to align managers' interest with that of shareholders. It is similar to the case of firms with strong market power, since such firms provide favorable conditions for managers to exploit shareholders. Himmelberg et al. (1999) stated that if these unobserved firm heterogeneities are not well controlled in empirical models, the consequences of omitting variables such as a spurious relationship could arise. Pindado and De La Torre (2004) carried out model experiments on the sample of 135 Spanish non-financial firms during 1990-1999 and stated that the main source of endogeneity is the simultaneity between ownership and firm performance, rather than time-invariant unobserved heterogeneities. Thus, they suggested that using an IV or Simultaneous Equation Model is more appropriate than Fixed Effects in tackling the endogeneity problem.

### **3.5 Estimation methods**

In the early stage, the relationship between ownership structure and firm performance was mainly estimated by the Ordinary Least Square (OLS), for example Demsetz and Lehn (1985), Morck et al. (1988), Palia and Lichtenberg (1999), among others. In the OLS, parameters are linearly estimated by minimizing the sum of squares of differences between observed and predicted values of the dependent variable. The unbiasedness and consistency of the OLS rely on four key underlying assumptions: (i) linear in parameters; (ii) random sampling; (iii) no perfect collinearity; and (iv) zero conditional mean. However, the endogenous ownership structure in the relation to firm performance violates the assumption (iv), i.e. the error term correlates with the dependent variable, therefore the OLS estimates are biased and inconsistent. Therefore, controlling for endogeneity becomes crucial in an empirical study of corporate governance in general, and ownership structure in particular. This subsection reviews some estimation methods commonly used in previous studies to deal with endogeneity, including Fixed Effects, Instrumental Variables and system-GMM.

#### **3.5.1 Fixed Effects**

Consider model (3.1), which represents the four models proposed in Section 3.3:

$$Y_{it} = \alpha + \theta Y_{it-1} + \beta X_{it} + \varphi D_{it} + e_{it} \quad (3.1)$$

Where  $X_{it}$  and  $D_{it}$  represent endogenous and exogenous variables respectively,  $e_i$  denotes error term, which includes  $\eta_i$  (firm-level unobserved heterogeneity which is time-invariant within a firm (at least in a short period) but is variant across different firms) and  $\varepsilon_{it}$  (idiosyncratic disturbance). As the correlation between  $\eta_i$  and  $X_{it}$  could be a source of endogeneity, the Fixed Effects estimator addresses the problem by eliminating the effect of  $\eta_i$ . The most common approach is Within Group, which transforms the original equation into a mean-deviation form.

The first step in Within Group is to calculate the average of the panel observations for each individual over time,

$$\begin{aligned} \bar{Y}_{it} &= \frac{1}{T} \sum_1^T Y_{it} = \bar{\alpha} + \theta \frac{1}{T-1} \sum_1^{T-1} Y_{it-1} + \beta \sum_1^T X_{it} + \varphi \sum_1^T D_{it} + \sum_1^T e_{it} \\ \bar{Y}_{it} &= \bar{\alpha} + \theta \bar{Y}_{it-1} + \beta \bar{X}_{it} + \varphi \bar{D}_{it} + \bar{u}_i + \bar{\varepsilon}_{it} \end{aligned} \quad (3.2)$$

Since  $\alpha$  is the constant,  $\alpha = \bar{\alpha}$ . In addition, the firm-level unobserved heterogeneity  $\eta_i$  is assumed to be unchanged over time (that is why it is called fixed effect), so  $\eta_i$  should be equal to  $\bar{\eta}_i$ . Thus, subtracting (3.2) from (3.1), we have:

$$Y_{it} - \bar{Y}_{it} = \theta(Y_{it-1} - \bar{Y}_{it-1}) + \beta(X_{it} - \bar{X}_i) + \varphi(D_{it} - \bar{D}_i) + (\varepsilon_{it} - \bar{\varepsilon}_{it}) \quad (3.3)$$

As time-invariant factors that correlate with independent variables have been wiped out, the error term  $(\varepsilon_{it} - \bar{\varepsilon}_{it})$  in (3.3) now satisfies the assumption (iv). Therefore, the equation (3.3) can be estimated by the OLS, which is consistent and converging to the true values as  $N \rightarrow \infty$  (Hill, Griffiths, & Lim, 2011).

Because of the dynamic nature of the relationship between corporate governance and firm performance, it is crucial to include the lagged dependent variable (i.e.  $Y_{it-1}$ ) as a regressor. However, the inclusion could result in the dynamic endogeneity problem, which could not be eliminated using Fixed Effects. Specifically, in the time-demeaning equation (3.3), the error term  $(\varepsilon_{it} - \bar{\varepsilon}_{it}) = (\varepsilon_{it} - T^{-1} \sum_{t=1}^T \varepsilon_{it})$  contains  $\varepsilon_{it-1}$  which in turns correlates positively with the term  $Y_{it-1}$  in  $(Y_{it-1} - \bar{Y}_i)$ . Consequently, at least one regressor still correlates with the error term, even if fixed effects have been driven out. Therefore, the dynamic endogeneity leads to the dynamic panel bias in the Fixed Effects (Bond, 2002; Nickell, 1981).

### 3.5.2 Two-Stage Least Square

Another approach to address the endogeneity problem is Two-Stage Least Square (2SLS), which is a generalization of the Instrumental Variables (IV) estimator. The main idea of the 2SLS and IV is using

exogenous instrumental variables to eliminate the effects of correlation between endogenous variables and the error term. For illustration, consider model (3.4), which is a modification of model (3.1) where  $Y_{it-1}$  is included in  $X_{it}$ , since they are all treated as endogenous in my models.

$$Y_{it} = \alpha + \beta X_{it} + \varphi D_{it} + e_{it} \quad (3.4)$$

Assume that there are  $k$  variables  $X_1, X_2, \dots, X_k$  that are correlated with the error term  $e$ , thus they are endogenous. The 2SLS can be conducted if we can find a set of  $l$  variables  $Z_1, Z_2, \dots, Z_l$  that (i) do not directly affect  $Y$ , and thus are not included in the right hand side of (3.4); (ii) are respectively correlated with  $X_1, X_2, \dots, X_k$ ; and (iii) uncorrelated with the error term.  $Z_1, Z_2, \dots, Z_l$  are called instrumental variables. A necessary condition for a feasible 2SLS is  $l \geq k$ . If  $l = k$ , we will have just enough instrumental variables for estimation, and the model parameters are said to be *just identified* or *exactly identified*. If  $l > k$ , then there will be more instrumental variables than necessary, and the model is called *overidentified*.

The 2SLS, as it is named, consists of two steps of estimation. In the first step, every endogenous variable  $X_1, X_2, \dots, X_k$  is regressed on the set of exogenous variables in the original equation (i.e.  $D_{it}$  in (3.1)) and the set of instrumental variables  $Z_1, Z_2, \dots, Z_l$ . The  $k$  equations are:

$$X_j = \mu_j + \omega_j D + \gamma_{1j} Z_1 + \gamma_{2j} Z_2 + \dots + \gamma_{lj} Z_l + v_j \quad (3.5)$$

where  $j = 1, 2, \dots, k$ .

Since all variables on the right hand side are exogenous, equation (3.5) can be estimated by the OLS and then the predicted values of each endogenous variable are obtained:

$$\hat{X}_j = \hat{\mu}_j + \hat{\omega}_j D + \hat{\gamma}_{1j} Z_1 + \hat{\gamma}_{2j} Z_2 + \dots + \hat{\gamma}_{lj} Z_l + \hat{v}_j$$

Where  $j = 1, 2, \dots, k$  and  $\hat{\mu}_j, \hat{\omega}_j, \hat{\gamma}_{1j}, \hat{\gamma}_{2j}, \dots, \hat{\gamma}_{lj}, \hat{v}_j$  are estimated values of  $\mu_j, \omega_j, \gamma_{1j}, \gamma_{2j}, \dots, \gamma_{lj}, v_j$  from equation (3.5).

In the second step of estimation, the OLS is once again applied to get the estimated values of  $\beta_j$ :

$$Y = \alpha + \sum \beta_j \hat{X}_j + \varphi D + e \quad j = 1, 2, \dots, k.$$

Although 2SLS and IV are usually used to mitigate the simultaneity problem, i.e. ownership structure and firm performance are antecedents of each other, they are not designed to deal with the dynamic endogeneity (Nguyen et al., 2015). Furthermore, it is noteworthy that a crucial requirement of the validity of the 2SLS and IV is that the instrumental variables must be strong, i.e. they are strongly correlated with endogenous explanatory variables. In the case of weak instruments, the estimators



can suffer from large bias and standard errors, and their large sample distribution may not be approximately normal (Hill et al., 2011). However, strong external instrumental variables for ownership structure are normally very hard to find in practice, as any variable that possibly affects ownership structure could also affect firm performance (Himmelberg et al., 1999). This leads to the use of internally-generated instrumental variables, which will be described in the subsequent section.

### **3.5.3 Generalized Method of Moments**

#### **Difference-GMM versus system-GMM**

Given the above-mentioned drawbacks of Fixed Effects and 2SLS, two other estimation techniques have been developed to better control for all possible sources of endogeneity in the dynamic firm performance – ownership structure model, including the difference-GMM proposed by Holtz-Eakin, Newey, and Rosen (1988) and Arellano and Bond (1991), and the system-GMM developed by Arellano and Bover (1995) and Blundell and Bond (1998).

The difference-GMM firstly wipes out time-invariant unobserved heterogeneity by taking the first difference of each variable; then using lags of 2 or longer of regressors as instrumental variables because they should be orthogonal to the error in the first-differenced equation (Roodman, 2009a). Therefore, the difference-GMM is able to eliminate the dynamic panel bias, which is not completely controlled in the Fixed Effects. However, the difference-GMM could suffer severely from finite sample biases under weak instruments. The problem is even more likely to occur in highly persistent series. Fortunately, these biases can be reduced significantly in the system-GMM, which is also more efficient than the difference-GMM (Blundell & Bond, 1998). Since the sample is relatively small (76 companies with 406 firm-year observations), and ownership structure only changed slightly overtime, the application of system-GMM is more appropriate. In addition to the first-differenced equation, the system-GMM employs additional moment restrictions by including the level equation with instruments as lagged differences of variables. On one hand, the system-GMM can exploit the use of internally-generated instrumental variables. Therefore, it can overcome the drawback of 2SLS and IV that require strict external instrumental variables. On the other hand, similar to the Fixed Effects, the firm level unobserved heterogeneity is eliminated in the first-differenced equation. In addition, instruments are transformed by taking differences to make them exogenous to the fixed effects in the level equation. It could improve efficiency of the estimation since the better controlling for the dynamic panel bias (Blundell & Bond, 1998).

In this study, following Wintoki et al. (2012), except for firm age and year dummies that are obviously strictly exogenous, all other independent variables are treated as endogenous. On the other hand, as the first lag of the dependent variable ( $AvQ_{it-1}$ ) is included in the dynamic models, lags of two periods or more could be used as instruments in the system-GMM. Specifically, similar to De Miguel et al.

(2004), this study employs lags of 2 to 4 of level variables as instruments in the first differenced equations, and lag 1 of differenced variables as instruments in the level equation. On the other hand, the choice between one-step and two-step system-GMM should also be considered. Arellano and Bond (1991) and Blundell and Bond (1998) stated that although the two-step is asymptotically more efficient, it tends to suffer more severely from the downward bias of standard errors. Fortunately, Windmeijer (2005) has developed a procedure that is able to greatly mitigate the problem, making two-step robust more popular recently. Therefore, the two-step robust system-GMM estimator is employed in the analysis. To conduct the estimation, this study uses *xtabond2* package on Stata written by Roodman (2009a). Implementation of the system-GMM estimation for each model is described in Appendix B.

### **Validity of system-GMM estimations**

The validity of the system-GMM strongly depends on the strength of instrumental variables. A crucial requirement is exogeneity, which ensures consistency of the estimations. The exogeneity can be assessed by the Sargan or Hansen over-identifying restrictions tests, under the null hypothesis that instruments as a group are exogenous. The test statistics follow Chi-squared distribution with degrees of freedom equaling the difference between the number of moment conditions and number of parameters. While the Hansen test is more robust than the Sargan test to heteroscedasticity and autocorrelation, it is significantly weakened by instrument proliferation. However, as can be seen from all results in the next sections, the number of instruments is well kept to be smaller than the number of groups as suggested by Roodman (2009b). Therefore, the Hansen test is reasonably employed in this study.

While the Hansen test examines the endogeneity of instruments as a group, the validity of subsets of instruments could also be examined by the Difference-in-Hansen test. Under the null hypothesis of the exogeneity of instrument subset, the test statistic follows Chi-squared distribution with degrees of freedom equaling the number of suspect instruments. In this study, instrumental variables are divided into two smaller subsets, including IV-style and GMM-style instruments.

Another condition of valid instruments is no autocorrelation in the first-differenced idiosyncratic disturbances  $\Delta\varepsilon_{it} = \varepsilon_{it} - \varepsilon_{it-1}$ . The negative first-order autocorrelation AR(1) is expected, since  $\Delta\varepsilon_{it}$  relates to  $\Delta\varepsilon_{it-1}$  via the shared term  $\varepsilon_{it-1}$ ; however the evidence is uninformative (Roodman, 2009a). Therefore, the test of second-order autocorrelation AR(2) or further should be focused on. This study employs the test proposed by Arellano and Bond (1991) with the null hypothesis of no autocorrelation, which is widely accepted as the standard in testing autocorrelation in GMM. If the  $n^{\text{th}}$ -order autocorrelation does not present, lags of  $n$  or further could be utilized as instruments. Since this study uses lags of 2 to 4, AR(2) tests must be insignificant to ensure the validity of the models.

Table 3.2 presents the rules of thumb for post-estimation specification tests of GMM. The validity of system-GMM estimation is assessed through the number of instruments, AR(2), Hansen and Difference-in-Hansen tests. The GMM estimation is considered valid if the number of instruments used is smaller than the number of group, and results of all other tests are insignificant (i.e. p-values are larger than 0.1).

**Table 3.2. Standards of post-estimation specification tests of GMM**

<b>Tests</b>	<b>Null hypothesis</b>	<b>Standards</b>
AR(2)	No second-order autocorrelation in idiosyncratic errors in differences	Insignificant (p-value > 0.1)
Hansen test	Instruments as a group are exogenous	Insignificant, (p-value > 0.1)
Difference-in-Hansen tests		
- <i>GMM instruments for levels</i>	Instrument subset is exogenous	Insignificant (p-value > 0.1)
- <i>IV</i>	Instrument subset is exogenous	Insignificant (p-value > 0.1)
The number of instruments		Smaller than the number of groups

### 3.6 Summary

This study uses a sample of 76 manufacturing companies listed on the HOSE during 2007-2015. Based on the availability of data, the unbalanced panel data with 406 firm-year observations is constructed. Tobin's Q is employed as the proxy for firm performance. Besides ownership structure variables including managerial ownership, block ownership and state ownership, firm characteristics including firm size (*Size*), leverage (*Lev*), growth opportunity (*FixAGrR*), firm's market risk (*Beta*) and firm age (*Age*) are employed as control variables.

It is argued that the endogeneity of ownership structure in the relation with firm performance could come from firm level unobserved heterogeneity, simultaneity and/or dynamic endogeneity. Since traditional OLS, Fixed Effects and 2SLS are unable to control completely for all those sources of endogeneity, the well-developed system-GMM is employed. To assess the validity of the GMM estimator, post estimation tests including the Hansen test, the Difference-in-Hansen test and the autocorrelation test should be carried out.

# Chapter 4

## Results and Discussion

This chapter discusses the empirical results of the relationship between ownership structure and firm performance on a sample of manufacturing companies listed on the HOSE. Section 4.1 provides preliminary data analyses, including descriptive statistics, frequency and correlation matrix of variables, as well as details of ownership structure. In Section 4.2, subsection 4.2.1 presents diagnostic tests of system-GMM, followed by empirical results of the models (1), (2), (3) and (4) in subsequent subsections. Finally, a summary of the chapter is provided in Section 4.3.

### 4.1 Descriptive Data

Table 4.1 and Table 4.2 describe the characteristics of the sample used in this study. Overall descriptive statistics based on the pooled sample are provided in Table 4.1. Because firms with more observations are dominant in terms of frequency in unbalanced panel data, it could be misleading to report the frequency of firm characteristics in the pooled sample. Instead, variables' average values are calculated, and their frequency is reported in Table 4.2.

As can be seen in Table 4.1, apart from dummies, most variables' skewness and kurtosis are comparable with those of the normal distribution (i.e. skewness of 0 and kurtosis of 3) except *AvQ* and *Size*. Both *AvQ* and *Size* are very positively skewed with their respective skewnesses of 3.12 and 3.62. On the other hand, their kurtoses are 15.73 and 17.79 respectively, indicating extremely leptokurtic distributions of these sequences.

Firm size (*Size*) - measured by total assets - varies significantly among companies through time with the lower bound of 76 billion VND and the upper bound of 26,624 billion VND. In addition, companies with average total assets ranging from 500 to 1,500 billion VND are modal in the samples (55 out of 76). Similar to total assets, the fluctuation of fixed asset growth rate (*FixAGrR*) is also considerable. Although the overall average of *FixAGrR* is negligible at 5%, the standard deviation is five times larger than the mean (0.25). This indicates that fixed asset growth rate varies significantly among companies, even though they all are in the manufacturing industry on the same stock exchange. Strikingly, nearly a half (31 out of 76 companies) experience negative yearly average value of *FixAGrR*. It is possibly a consequence of the recent global financial crisis as well as the domestic housing bubble crisis, indicating the reduction in investment and thus of future growth opportunities.

The overall mean of financial leverage is relatively high at 0.49, meaning that on average nearly half of total assets was funded by debt. The lowest leveraged firm only borrowed 9% of its total assets,

meanwhile the highest reached 94%. Beta coefficients - the proxy of market risk - are very small with the mean of 0.25 and the maximum of 0.86. Interestingly, the majority of the sample (73 out of 76 firms, accounting for 96.05%) witnessed annual betas of less than 0.5, of which one is negative. These statistics imply the low market risk of the manufacturing sector, which is consistent with the rationale of choosing manufacturing companies discussed in Section 3.1.

**Table 4.1. Descriptive Statistics**

<b>Variable</b>	<b>Obs.</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Skewness</b>	<b>Kurtosis</b>
<i>AvQ</i>	406	0.45	4.88	1.15	0.58	3.12	15.73
<i>MO</i>	406	0.00	0.66	0.15	0.18	1.18	3.15
<i>BO</i>	405	0.00	0.89	0.54	0.17	-0.40	3.26
<i>SO</i>	406	0.00	0.84	0.20	0.24	0.78	2.24
<i>NoBO</i>	380	0.00	8.00	2.54	1.44	0.90	3.70
<i>LOChange</i>	313	0.00	1.00	0.12	0.32	2.37	6.59
<i>CtrlDum</i>	406	0.00	1.00	0.39	0.49	0.43	1.19
<i>Size (billion VND)</i>	406	76	26,624	2,271	3,819	3.62	17.79
<i>Lev</i>	406	0.09	0.94	0.49	0.20	-0.10	2.06
<i>FixAGrR</i>	384	-0.96	0.99	0.05	0.25	0.96	5.75
<i>Beta</i>	401	-0.09	0.86	0.27	0.18	0.62	2.79
<i>Age</i>	406	2.00	15.00	5.28	2.49	0.81	3.74

The negligible mean of *LOChange* (0.12) implies high retention of the largest owner through time. For example, of 67 companies which released data of *LOChange* in 2014, only eight witnessed a change of the largest shareholder. On the other hand, the mean of *CtrlDum* is moderate at 0.39, indicating that there are slightly fewer observations with controlling shareholders than those without. The number of blockholders ranges from 0 to 8 with relatively small mean and standard deviation (2.54 and 1.44 respectively), reflecting high ownership concentration, i.e. a large portion of stocks is owned by only a few shareholders. Significantly concentrated ownership is also indicated by very high averages of managerial ownership (*MO*) and block ownership (*BO*), namely 15% and 54% respectively. However, managerial ownership varies much more than block ownership, indicating that managers could be either blockholders or minority shareholders. The level of concentration is dissimilar among companies as indicated by a wide range of block ownership and managerial ownership, 0% - 89% and 0% - 66% respectively. Regarding frequency in Table 4.2, the modal range of yearly average managerial ownership is 0%-5% (35 companies). Meanwhile only four firms have the managerial ownership of more than 50%, implying that managers are not usually companies' controlling shareholders. In contrast, 52 of 76 companies have block ownership of more than 50%, and 23 range from 20% to 50%, confirming the significantly concentrated ownership structure observed in Table 4.1.

On the other hand, although the overall average of state ownership is at a moderate level of 20%, the series varies significantly (ranging from 0% to 84% with a standard deviation of 0.24) as illustrated in

Table 4.1. This reflects the fact that once state ownership exists in a company, it is normally extremely high. For example, while state owners do not present in 36 out of 76 companies, they hold at least 20% of total shares in most of the others (28 companies). State owners are the controlling shareholders in 17 companies (22.37%), indicating a potentially significant influence of the state on companies' activities (see Table 4.2).

**Table 4.2. Frequency of variables**

Characteristics	Frequency	Percent	Characteristics	Frequency	Percent
<b>Age</b>	<b>76</b>		<b>Managerial ownership</b>	<b>76</b>	
1 - 5	30	39.47%	0%	0	0.00%
5 - 10	43	56.58%	0% - 5%	35	46.05%
10 - 15	3	3.95%	5% - 10%	7	9.21%
<b>Total Assets</b>	<b>76</b>		10% - 20%	11	14.47%
≤ 200	3	3.95%	20% - 50%	19	25.00%
200 - 500	11	14.47%	> 50%	4	5.26%
500 - 1000	25	32.89%	<b>Block ownership</b>	<b>76</b>	
1000 - 5000	30	39.47%	≤ 10%	0	0.00%
5000 - 10000	4	5.26%	10% - 20%	1	1.32%
>10000	3	3.95%	20% - 50%	23	30.26%
<b>Leverage</b>	<b>76</b>		> 50%	52	68.42%
≤ 25%	7	9.21%	<b>State ownership</b>	<b>76</b>	
25% - 50%	29	38.16%	0%	36	47.37%
50% - 75%	33	43.42%	0% - 5%	2	2.63%
> 75%	7	9.21%	5% - 10%	2	2.63%
<b>Beta</b>	<b>76</b>		10% - 20%	8	10.53%
≤ 0	1	1.32%	20% - 50%	11	14.47%
0 - 0.25	41	53.95%	> 50%	17	22.37%
0.25 - 0.5	31	40.79%	<b>Controlling shareholder</b>	<b>76</b>	100.00%
0.5 - 0.75	3	3.95%	Yes	30	39.47%
> 0.75	0	0.00%	No	46	60.53%
<b>Fixed Assets Growth Rate</b>	<b>76</b>		<b>No. of blockholders</b>	<b>69</b>	
≤ 0	31	40.79%	0	0	0.00%
0 - 5%	9	11.84%	0 - 4	63	91.30%
5% - 10%	11	14.47%	4 - 8	6	8.70%
10% - 20%	14	18.42%	<b>The largest owner change</b>	<b>67</b>	
20% - 50%	9	11.84%	Yes	8	11.94%
> 50%	2	2.63%	No	59	88.06%
<b>Tobin's Q</b>	<b>76</b>				
≤ 0.5	0	0.00%			
0.5 - 0.75	7	9.21%			
0.75 - 1.0	32	42.11%			
1.0 - 1.5	29	38.16%			
1.5 - 2.0	5	6.58%			
> 2	3	3.95%			

Yearly average characteristics are calculated as the arithmetic average from the starting year to 2015. The starting year depends on the availability of the data of each firm. Because *Controlling shareholder* and *The largest owner change* are dummy variables, and *Age* increases by 1 every year, the frequency in 2014 is reported for illustration instead of taking the average. Year 2014 is chosen as the data of 76 companies is fully available only in this year. "a - b" denotes "larger than a, and smaller than or equal to b".

Regarding firm performance, the overall mean of Tobin's Q of 1.15 indicates that manufacturing stocks were slightly overvalued during the research period. In particular, 61 out of 76 companies (80.26%) have the annual average Tobin's Q from 0.75 to 1.5. Only three firms experienced extremely high average Tobin's Q of more than 2, whilst none observed the low level of Tobin's Q of smaller than 0.5.

The correlation matrix of variables used in the four empirical models is presented in Table 4.3. In general, all correlation coefficients among independent variables are well under the rule-of-thumb value of 0.8 (Gujarati, 2008), indicating a low possibility of the multicollinearity problem<sup>9</sup>. The largest positive correlation coefficient of 0.47 is observed between *BO* and *CtrlDum* and is significant at 1%, indicating the fact that the presence of the controlling shareholder in a firm significantly increases block ownership. In contrast, state ownership (*SO*) and managerial ownership (*MO*) present the largest negative correlation of -0.51 with the significance level of 1%. It reasonably reflects the fact that representatives of state ownership in the management team (mostly in the Board of Directors) of SOEs own smaller shares than managers in private companies. Consistent with the entrenchment hypothesis, it is likely that since these agents have already represented a large proportion of state shares, they do not need to own many private shares but still can entrench their positions, as well as maximize private benefits by exploiting firms' resources. In addition, managerial ownership shows strong correlation with the number of blockholders (the coefficient of 0.47 with the significance level of 1%). The reason could be that in Vietnamese companies, it is likely that managerial positions, especially members of the Board of Directors, are held by blockholders.

Firm size (*Size*) is positively correlated with Tobin's Q at the significance level of 1%. It is reasonable because larger firms have many competitive advantages compared to smaller firms, such as financial resources, business networks or political connections; therefore they are able to invest in projects that small firms are excluded from (Hall & Weiss, 1967). In addition, stocks issued by the larger companies are usually considered a safer haven for investors, especially during crises. Therefore, the market may assign larger firms higher value than smaller firms. The significant positive correlation between *Size* and *SO* indicates that larger companies are more likely to be owned by the government. This reflects the leading role of SOEs in the Vietnamese market, which is consistent with the Vietnamese Constitution. *Size* and *SO*, as well as *BO*, are also negatively associated with the possibility of the largest shareholder change (*LOChange*). Meanwhile, as a result of significant fraction of state shares, state ownership is negatively associated with the number of block owners (*NoBO*), and positively related to the presence of the controlling shareholder (*CtrlDum*).

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<sup>9</sup> The multicollinearity is also checked using variance inflation factors (VIF). The largest VIF is 2.043, which is far smaller than 10 – the rule of thumb at which the multicollinearity should be considered a problem (Neter, Wasserman, & Kutner, 1989). The VIF results are presented in Appendix C.

Table 4.3. Correlation matrix of variables used in the models

	<i>AvQ</i>	<i>MO</i>	<i>BO</i>	<i>SO</i>	<i>NoBO</i>	<i>LOChange</i>	<i>CtrlDum</i>	<i>Size</i>	<i>Lev</i>	<i>FixAGrR</i>	<i>Beta</i>	<i>Age</i>
<i>AvQ</i>	1											
<i>MO</i>	-0.25***	1										
<i>BO</i>	0.06	0.09*	1									
<i>SO</i>	0.29***	-0.51***	0.24***	1								
<i>NoBO</i>	-0.07	0.42***	0.17***	-0.34***	1							
<i>LOChange</i>	-0.09	0.01	-0.24***	-0.25***	0.09*	1						
<i>CtrlDum</i>	-0.04	-0.09*	0.47***	0.34***	-0.30***	-0.13**	1					
<i>Size</i>	0.41***	0.02	0.05	0.11**	-0.07	-0.11*	-0.03	1				
<i>Lev</i>	-0.29***	0.15***	0.09*	-0.04	-0.03	0.03	0.24***	0.02	1			
<i>FixAGrR</i>	0.19***	-0.01	0.02	0.07	0.12**	-0.04	-0.10*	0.10*	0.07	1		
<i>Beta</i>	0.38***	-0.21***	-0.23***	0.15***	-0.10**	0.11*	-0.06	0.28***	-0.22***	0.13**	1	
<i>Age</i>	0.01	-0.25***	0.16***	0.01	0.01	-0.07	0.06	0.09*	-0.11**	-0.06	-0.22***	1

\*, \*\*, \*\*\* indicate significance levels of 10%, 5% and 1% respectively



Intensive details of block ownership are shown in Table 4.4. The percentages of shares owned by the first, the second and the third largest blockholders are relatively stable over time in terms of mean, median and standard deviation. On average, the largest shareholder owns around 40% of total shares. While there is not much difference between shares owned by the 2<sup>nd</sup> and the 3<sup>rd</sup> blockholders, the gap between the largest ownership and the second is considerable, i.e. nearly three times higher. Thus, it is possible that the largest shareholder has superior power in the company, which dominates that of other owners. In addition, the average number of blockholders is around 2.5 in all years. These statistics indicate that ownership of manufacturing companies on the HOSE is highly concentrated, and the majority of shares is in the hands of very few shareholders. Therefore, a significant influence of block ownership on firm performance is expected.

**Table 4.4. Breakdown of block ownership**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Pool
Block ownership	0.43 (0.35) [0.26]	0.46 (0.44) [0.21]	0.48 (0.50) [0.16]	0.47 (0.46) [0.16]	0.51 (0.51) [0.15]	0.55 (0.55) [0.14]	0.57 (0.56) [0.15]	0.55 (0.56) [0.19]	0.56 (0.57) [0.19]	0.54 (0.55) [0.17]
The largest ownership	0.21 (0.09) [0.26]	0.34 (0.42) [0.19]	0.35 (0.39) [0.17]	0.35 (0.38) [0.17]	0.36 (0.38) [0.16]	0.39 (0.40) [0.16]	0.40 (0.43) [0.16]	0.40 (0.43) [0.19]	0.42 (0.45) [0.19]	0.38 (0.40) [0.18]
The 2 <sup>nd</sup> largest ownership	0.10 (0.07) [0.07]	0.12 (0.10) [0.08]	0.11 (0.10) [0.05]	0.10 (0.09) [0.04]	0.12 (0.11) [0.06]	0.13 (0.12) [0.06]	0.14 (0.14) [0.07]	0.13 (0.11) [0.07]	0.14 (0.11) [0.08]	0.13 (0.11) [0.07]
The 3 <sup>rd</sup> largest ownership	0.06 (0.06) 0.01	0.07 (0.07) 0.01	0.07 (0.07) 0.02	0.08 (0.08) 0.03	0.09 (0.09) 0.02	0.09 (0.08) 0.03	0.09 (0.09) 0.03	0.10 (0.08) 0.04	0.09 (0.08) 0.03	0.09 (0.08) 0.03
Number of blockholders	4.00 (3.5) [2.16]	2.17 (2) [1.03]	2.38 (2) [1.30]	2.41 (2) [1.05]	2.48 (2) [1.38]	2.68 (3) [1.47]	2.70 (3) [1.53]	2.55 (2) [1.53]	2.39 (2) [1.50]	2.54 (2) [1.44]

Managerial ownership is further broken down into BOD, Supervisory Board and Executive Board ownerships, which are presented in Table 4.5. All three components of managerial ownership vary very slightly during the research period with the means of around 14%, 0.2% and 8% respectively. This stability could be attributable to at least two reasons. First, in my data, members of management teams in most companies are not significantly changed over time. It is likely that managers (especially members of the BOD) usually hold a significant number of shares (around 14% on average), which allows them to entrench their positions in the companies regardless of their performance. In addition, an inactive managerial labor market in the emerging market of Vietnam limits the possibility of finding alternatives for current managers. It strengthens the opportunity of entrenchment, leading to the high frequency of preservation and reappointment of managerial positions. Second, managers possibly do

not engage actively in trading in the stock market. It is likely that they are not professional investors who seek profit by buying and selling in the stock market. Instead, they might hold stocks possibly for other reasons, for example position entrenchment, companies' future dividends or private benefit of control. The thin trading stock market of Vietnam, which is still very young and immature, could be a facilitating condition for managers' inactive trading.

**Table 4.5. Breakdown of managerial ownership**

	<i>Mean (median) [standard deviation]</i>									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	Pool
Managerial ownership	0.08 (0.09) [0.05]	0.04 (0.02) [0.03]	0.11 (0.02) [0.17]	0.14 (0.04) [0.18]	0.17 (0.05) [0.20]	0.17 (0.07) [0.19]	0.16 (0.07) [0.18]	0.13 (0.04) [0.17]	0.14 (0.05) [0.18]	0.15 (0.04) [0.18]
Board of Directors ownership	0.08 (0.09) [0.05]	0.03 (0.01) [0.03]	0.11 (0.02) [0.17]	0.14 (0.03) [0.18]	0.16 (0.05) [0.19]	0.16 (0.06) [0.19]	0.15 (0.05) [0.18]	0.13 (0.04) [0.17]	0.14 (0.04) [0.17]	0.14 (0.04) [0.17]
Supervisory Board ownership	0.08 (0.03) [0.13]	0.14 (0.15) [0.12]	0.21 (0.09) [0.40]	0.16 (0.09) [0.26]	0.18 (0.09) [0.29]	0.23 (0.08) [0.69]	0.20 (0.05) [0.63]	0.19 (0.05) [0.54]	0.22 (0.02) [0.70]	0.20 (0.06) [0.56]
Executive Board ownership	0.04 (0.02) [0.06]	0.02 (0.01) [0.03]	0.06 (0.01) [0.13]	0.08 (0.02) [0.13]	0.10 (0.02) [0.15]	0.10 (0.02) [0.15]	0.08 (0.02) [0.13]	0.08 (0.02) [0.13]	0.08 (0.02) [0.13]	0.08 (0.02) [0.13]
Pure Executive Manager's ownership	0.05 (0.04) [0.06]	0.43 (0.12) [0.64]	0.29 (0.03) [0.69]	0.27 (0.07) [0.52]	0.29 (0.12) [0.53]	0.72 (0.10) [2.93]	0.53 (0.09) [1.93]	0.33 (0.06) [0.79]	0.39 (0.06) [0.93]	0.43 (0.07) [1.58]

Values of Supervisory Board Ownership, Pure Executive Manager's Ownership are multiplied by 10<sup>2</sup>.

I also computed the ownership of "pure" executive managers (i.e. Executive Board members who are not on the Board of Directors) by subtracting the ownership of Supervisory Board and BOD from the managerial ownership. The results in Table 4.5 indicate that the proportion of shares owned by "pure" executive managers is very small (around 0.3 – 0.7%), indicating a significantly high level of duality in corporate governance structure in Vietnam, i.e. most executive managers are members of the BOD. In contrast to the BOD ownership that accounts for an extremely large proportion of total managerial ownership, the Supervisory Board ownership is negligible with an average of around 0.2%. Although theoretically, the independence of the Supervisory Board allows higher efficiency in supervising the activities of the two other Boards, extremely inferior ownership could practically lower its voice in the management team in which other members hold powerful dual positions in BOD and Executive Boards. In addition, small ownership could also trigger a severe agency problem. These facts raise questions about the roles of the Supervisory Board in corporate governance in the context of Vietnam. However, because this problem is beyond the scope of this thesis, I leave it to further research.

## 4.2 Empirical Results

### 4.2.1 Pre-estimation diagnostic tests

As the system-GMM is designed to deal with endogeneity, one of the largest challenges in corporate governance empirical study, this subsection is to check the presence of endogenous variables in the models. In addition, as under heteroscedasticity and autocorrelation, the GMM estimator is more efficient than the Fixed Effects (Wooldridge, 2001), tests of these problems are also conducted.

The Durbin-Wu-Hausman test is carried out to test the endogeneity under the null hypothesis that the endogenous regressors can be actually treated as exogenous. The test statistic follows Chi-squared ( $\chi^2$ ) distribution with the degrees of freedom equaling the number of suspected endogenous variables. Following Wintoki et al. (2012), in this study all independent variables in four models (1), (2), (3) and (4), except firm age and year dummies, are treated as endogenous in the tests. One-year lagged differences of endogenous variables are employed as instruments. The results in Table 4.6 reject the null hypothesis in all four models with the significance levels of 5% and 10%. This indicates that these regressors as a group should be treated as endogenous. Therefore, the system-GMM should be used because of its superiority in terms of consistency compared to the OLS and Fixed Effects.

Furthermore, Breusch and Pagan's (1979) test for heteroscedasticity and Wooldridge's (2002, pp. 282-283) test for autocorrelation in panel data are conducted. While the Breusch-Pagan test statistic follows Chi-squared distribution, the Wooldridge test statistic follows F distribution with the null hypotheses of constant variance and no autocorrelation respectively. As can be seen in Table 4.6, all test statistics reject the null hypotheses at the 1% level, showing strong evidence for the existence of both heteroscedasticity and serial correlation in the sample. This result reinforces the use of system-GMM as it is more efficient than Fixed Effects under these problems.

**Table 4.6. Pre-estimation diagnostic tests**

	<b>Model (1)</b>	<b>Model (2)</b>	<b>Model (3)</b>	<b>Model (4)</b>
<i>Durbin-Wu-Hausman test, null hypothesis: regressors as a group are exogenous</i>				
Chi-squared	$\chi^2(8) = 16.76$	$\chi^2(10) = 18.25$	$\chi^2(8) = 14.61$	$\chi^2(13) = 22.84$
p-value	0.0330	0.05083	0.06718	0.04359
<i>Breusch-Pagan test, null hypothesis: homoscedasticity</i>				
Chi-squared	$\chi^2(16) = 377.12$	$\chi^2(18) = 378.21$	$\chi^2(16) = 352.27$	$\chi^2(21) = 367.8$
p-value	0.0000	0.0000	0.0000	0.0000
<i>Wooldridge test, null hypothesis: no autocorrelation</i>				
F statistic	$F(1, 59) = 96.485$	$F(1, 56) = 80.946$	$F(1, 59) = 86.835$	$F(1, 56) = 89.983$
p-value	0.0000	0.0000	0.0000	0.0000

#### 4.2.2 Ownership concentration and firm performance

In order to examine the effects of ownership concentration on firm performance, the models (1), (2) and (4) are run using the two-step robust system-GMM, which is well-developed to better control for the endogeneity problem. However, as OLS and Fixed Effects are usually employed in empirical investigations on the ownership structure – performance relationship, results from those two estimations are also reported to facilitate the comparison between this study and previous ones.

To verify the validity of the system-GMM in models (1), (2) and (4), post-estimation tests are conducted and reported in Table 4.7. AR(1) tests' z-statistics are negative in all three models, indicating the possible presence of the negative first-order autocorrelation among idiosyncratic disturbances in differences. The negative first-order autocorrelation is statistically significant as expected in model (1) and (4), but insignificant in model (2). However, the results of AR(1) test are not used to test the validity of system-GMM (Roodman, 2009a). Meanwhile, all z-statistics of the AR(2) tests in three models (1), (2) and (4) are insignificant (p-values are 0.223, 0.152 and 0.190 respectively). Therefore it is not possible to reject the null hypothesis of no second-order serial correlation of idiosyncratic disturbance in differences, indicating the nonexistence of the first-order autocorrelation in their levels. Thus, lags from two periods in levels could be employed as instruments in the differenced equation (Roodman, 2009a). In other words, the results support the choice of lags from 2 to 4 as instruments in this study.

**Table 4.7. Post-estimation specification tests of system-GMM in ownership concentration models**

	<b>Model (1)</b>	<b>Model (2)</b>	<b>Model (4)</b>
AR(1) in first differences (p-value)	-2.18** (0.029)	-1.38 (0.166)	-2.07* (0.097)
AR(2) in first differences (p-value)	-1.22 (0.223)	-1.43 (0.152)	-1.54 (0.190)
Number of instruments	41	49	61
Number of groups	76	69	69
Hansen test of over-identifying restrictions	$\chi^2(22) = 24.63$ Prob > $\chi^2 = 0.315$	$\chi^2(28) = 35.6$ Prob > $\chi^2 = 0.153$	$\chi^2(37) = 37.17$ Prob > $\chi^2 = 0.461$
Difference-in-Hansen tests (p-value)			
- GMM instruments for levels	0.314	0.654	0.465
- IV	0.692	0.748	0.966

\*, \*\*, \*\*\* indicate significance levels of 10%, 5% and 1% respectively. p-values are in parentheses.

On the other hand, the Hansen tests of over-identification reveal the J-statistics of 24.63 (p-value = 0.315), 35.6 (p-value = 0.153) and 37.17 (p-value = 0.461) in models (1), (2) and (4) respectively. The larger-than-0.1 p-values indicate that the null hypothesis of the exogeneity of all instruments as a group can be accepted. Furthermore, to test the exogeneity of instrument subsets, i.e. GMM-style instruments for levels and IV-style instruments, the Difference-in-Hansen tests are conducted. All p-values of the Difference-in-Hansen test statistics in three models are insignificant, therefore there is

no evidence to reject the null hypothesis of exogeneity. So, the results of both the Hansen test and the Difference-in-Hansen test support the exogeneity of instrumental variables used in the three models. Such exogeneity is a crucial characteristic of good instruments. In addition, the number of instruments is kept smaller than the number of groups as recommended by Roodman (2009a). Therefore, possible consequences of too many instruments are more likely to be avoided. In sum, all post-estimation specification tests strongly support the validity of the system-GMM models. Therefore, I will mainly focus on system-GMM results in subsequent discussions.

Table 4.8 reports the results of model (1) on the sample of 76 manufacturing companies during the period of 2007-2015, using the OLS, Fixed Effects and system-GMM. All F-statistics of those estimations are highly significant at the 1% level. Thus, the joint null hypothesis that all estimated coefficients (except the constant) are jointly equal to zero is rejected. In other words, at least one of parameters in each model is non-zero, indicating the overall significance of the models (Hill et al., 2011). In addition, high values of  $R^2$  (90.14% in the OLS, 73.34% in the Fixed Effects) indicate strong explaining power of regressors on dependent variables.  $R^2$  is not applicable in the case of the system-GMM.

**Table 4.8. The effect of managerial ownership on firm performance**

	<b>OLS</b>	<b>Fixed Effects</b>	<b>System-GMM</b>
<i>AvQ<sub>it-1</sub></i>	0.9213* (35.91)	0.4662*** (8.86)	0.9430*** (5.30)
<i>MO</i>	0.8569* (1.68)	0.5433 (0.49)	4.6452* (1.95)
<i>MO<sup>2</sup></i>	-4.4830* (-1.90)	-3.2653 (-0.69)	-23.3558* (-1.93)
<i>MO<sup>3</sup></i>	5.2157* (1.89)	5.2872 (0.96)	27.2801* (1.85)
<i>Size</i>	0.0113*** (3.32)	0.0583*** (6.9)	0.0180 (0.65)
<i>Lev</i>	-0.0508 (-0.89)	-0.2005 (-1.44)	-0.3108 (-0.85)
<i>FixAGrR</i>	0.0544 (1.27)	0.1140** (2.49)	-0.3381** (-2.2)
<i>Beta</i>	-0.1213 (-1.11)	-0.1597 (-1.18)	0.2108 (0.77)
<i>Age</i>	0.0107** (1.99)	0.0188 (1.09)	-0.0039 (-0.37)
$R^2$	90.14%	73.34%	
F-statistic	F( 16, 298) = 170.30 Prob > F = 0.0000	F(15, 224) = 24.47 Prob > F = 0.0000	F(18, 75) = 200.38 Prob > F = 0.000
Number of observations	315	315	315

\*, \*\*, \*\*\* indicate significance levels of 10%, 5% and 1% respectively. t-statistics are in parentheses. Year dummies and constants are included but unreported.

Regression coefficients of  $AvQ_{it-1}$  are significant at the 1% level in all three estimations. In addition, the magnitude of coefficients in the OLS and system-GMM is considerably high, namely 0.92 and 0.94 respectively. This indicates a strong impact of past performance on current performance, and thus the robustness of the dynamic models against traditional static models.

The results from the OLS show the cubic relationship between managerial ownership and firm performance, i.e.  $\beta_1$  and  $\beta_3$  are positive, while  $\beta_2$  is negative. With t-statistics of 1.68, -1.90 and 1.89 respectively, these three coefficients are fairly significant at the 10% level. After wiping out unobserved heterogeneity in Fixed Effects estimations, coefficients' signs are the same, but they become insignificant. When endogeneity is controlled better in the system-GMM estimator, signs remain unchanged, however there are slight improvements in t-statistics compared to those of OLS, namely 1.95, -1.93 and 1.85. Therefore, the hypothesis H1 is accepted. The observed cubic relationship can be explained by both convergence-of-interest and entrenchment hypotheses, and is consistent with the findings of Morck et al. (1988) in the U.S., Short and Keasey (1999) in the UK and De Miguel et al. (2004) in Spain.

By taking the partial derivative of model (1) with respect to  $MO$ , I calculate two turning points of the cubic relationship using the following formula:

$$\begin{aligned}
 & - \text{The first turning point (local minimum): } MO_1 = \left( -2\beta_2 - \sqrt{4\beta_2^2 - 12\beta_1\beta_3} \right) / 6\beta_3 \\
 & - \text{The second turning point (local maximum): } MO_2 = \left( -2\beta_2 + \sqrt{4\beta_2^2 - 12\beta_1\beta_3} \right) / 6\beta_3.
 \end{aligned} \tag{4.1}$$

After substituting estimated values of  $\beta_1$ ,  $\beta_2$  and  $\beta_3$ , results from both OLS and system-GMM estimations show the turning points of around 12% and 45%. This indicates that if managerial ownership ranges from 0% to 12% or is larger than 45%, any increase in managerial ownership will lead to higher firm performance, *ceteris paribus*. At a low level of ownership, it is likely that managers have little power to entrench their positions, therefore their future in the company strongly depends on how well the company performs. Therefore, the entrenchment effect could be negligible at this level of managerial ownership. As a result, managers have more incentives to operate the company more effectively. At the 12% - 45% range, it seems that their power is large enough to ignore any monitoring mechanism and to gain private benefit of control. Thus, instead of maximizing firm value, managers have incentives to exploit other owners for their own self-benefits. When ownership reaches 45%, although managers even have higher ability to entrench their positions, their benefit becomes asymptotically identical to that of the company as a whole, making the exploitation of firm resources less attractive. Therefore, the increase in ownership will translate into higher incentives to maximize the firm value.

Interestingly, managers in manufacturing companies on the HOSE become entrenched at similar levels of ownership as those of UK companies, which witness the turning points of 15% and 42% (Short & Keasey, 1999). Because it is naive to jump to the conclusion that the corporate governance effectiveness in Vietnam and in the UK is similar, I propose that while there are some typical conditions in Vietnam reducing the level of ownership at which managers get entrenched, there are others favoring it. It is likely that a considerably high level of ownership concentration with powerful influence in the hands of only a few blockholders allows them to dismiss managerial positions easily; thus if managers want to protect their positions, they must acquire a high level of ownership. Another possible favoring condition is that in Vietnam, the General Meeting of Shareholders usually prefers to appoint large shareholders to be managers, especially BOD members. Regarding hindering conditions, the inactive managerial labor market in Vietnam is a barrier for the General Meeting of Shareholders to dismissing current managers and appointing others. This lowers the required level of managerial ownership for entrenchment. Another hindering condition could be poor monitoring and failure to respond to bad management from outside shareholders, which are usually observed in emerging markets with the dominance of uninformed investors (Jackson & Hoepner, 2001). As a result, managers have more freedom to act in their own interests without holding significant shares.

To examine the relationship between block ownership and firm performance, model (2) is run using the OLS, Fixed Effects and system-GMM. Results are reported in Table 4.9. Similar to model (1), very small p-values of F-tests reveal the strong overall significance of all OLS, Fixed Effects and system-GMM estimations. Variations of Tobin's Q can be explained strongly by independent variables in both OLS and Fixed Effects (90.78% and 73.07% respectively). In addition, the impact of past performance on current performance is very significant at the 1% level. However, with the regression coefficient of 0.78, the magnitude of the effect in the system-GMM slightly decreases compared to the result of 0.94 from model (1).

**Table 4.9. The effect of block ownership on firm performance**

	<b>OLS</b>	<b>Fixed Effects</b>	<b>System-GMM</b>
<i>L.AvQ</i>	0.9218*** (35.56)	0.4698*** (9.01)	0.7779*** (4.56)
<i>BO</i>	0.0328 (0.11)	-0.4956 (-1.24)	0.0806 (0.10)
<i>BO</i> <sup>2</sup>	-0.0471 (-0.18)	0.6979* (1.85)	-0.1481 (-0.20)
<i>NoBO</i>	0.0017 (0.17)	0.0188 (1.03)	0.0132 (0.24)
<i>LOChange</i>	0.0200 (0.20)	-0.0003 (-0.01)	-0.0003 (0.00)
<i>CtrlDum</i>	0.0080 (0.26)	0.0743 (1.08)	0.0528 (0.42)
<i>Size</i>	0.0093*** (2.80)	0.0616*** (7.44)	0.0254 (0.75)
<i>Lev</i>	-0.0846 (-1.36)	-0.2285 (-1.63)	-0.2038 (-0.69)
<i>FixAGrR</i>	0.0689 (1.52)	0.1313*** (2.90)	-0.1001 (-0.69)
<i>Beta</i>	-0.0710 (-0.64)	-0.0453 (-0.32)	0.1243 (0.44)
<i>Age</i>	0.0093* (1.82)	-0.0169 (-0.90)	0.0072 (0.70)
<i>R</i> <sup>2</sup>	90.78%	73.07%	
F-statistic	F( 18, 277) = 151.61 Prob > F = 0.0000	F(17,210) = 24.48 Prob > F = 0.0000	F(20, 68) = 20.39 Prob > F = 0.000
Number of observations	296	296	296

\*, \*\*, \*\*\* indicate significance levels of 10%, 5% and 1% respectively. t-statistics are in parentheses. Year dummies and constants are included but unreported.

The positive sign of  $\beta_1$  and the negative sign of  $\beta_2$  are observed in both OLS and system-GMM, indicating that block ownership could impact positively on firm performance at low levels (due to the monitoring effect), and negatively at higher levels (due to the expropriation effect). This is contrary to the result in Fixed Effects that indicates a U-shaped relationship between the fraction of shares owned by blockholders and Tobin's Q. However, very small t-statistics of  $\beta_1$  and  $\beta_2$  corresponding with high p-values in all OLS, Fixed Effects and system-GMM estimations do not allow the rejection of the null hypotheses of zero coefficients. Thus, from the models there is no supporting evidence for the expected hump-shaped relationship between block ownership and firm performance. Therefore, the hypothesis H2 is rejected. This finding is in line with McConnell and Servaes (1990) and Demsetz and Villalonga (2001) in the U.S., Welch (2003) in Australia, Shah and Hussain (2012) in Pakistan. Similarly, coefficients of other firm characteristics related to block ownership, including *NoBO*, *LOChange* and *CtrlDum*, are insignificant in terms of both magnitude and t-statistic.



Model (4) examines the effects of either block ownership or managerial ownership on Tobin's Q while controlling for the other. The results are reported in Table 4.10. Similar to the results in nested models (1) and (2), the significance levels of F-statistics in all three estimations are smaller than 1%, implying the overall significance of model (4).  $R^2$  is also comparable to that of models (1) and (2), namely 90.99% in OLS and 70.07% in Fixed Effects.

**Table 4.10. The effect of block ownership and managerial ownership on firm performance**

	OLS	Fixed Effects	System GMM
<i>L.AvQ</i>	0.9186*** (33.4)	0.4714*** (8.99)	0.8618*** (5.42)
<i>MO</i>	0.9978* (1.76)	0.5057 (0.39)	3.1031** (2.09)
<i>MO</i> <sup>2</sup>	-5.4581** (-2.16)	-2.0028 (-0.39)	-17.1888** (-2.27)
<i>MO</i> <sup>3</sup>	6.4254** (2.19)	3.1586 (0.54)	20.8641** (2.17)
<i>BO</i>	0.0619 (0.22)	-0.6932 (-1.39)	0.5375 (0.82)
<i>BO</i> <sup>2</sup>	-0.0638 (-0.23)	0.8566* (1.88)	-0.5321 (-0.92)
<i>NoBO</i>	0.0076 (0.76)	0.0191 (1.02)	-0.0107 (-0.24)
<i>LOChange</i>	0.0026 (0.07)	0.0065 (0.17)	0.0077 (0.10)
<i>CtrlDum</i>	0.0057 (0.19)	0.0459 (0.61)	-0.0309 (-0.28)
<i>Size</i>	0.0120*** (3.37)	0.0609 (0.31)	0.0213 (0.93)
<i>Lev</i>	-0.0749 (-1.22)	-0.2426* (-1.72)	-0.2430 (-0.91)
<i>FixAGrR</i>	0.0567 (1.25)	0.1243*** (2.67)	-0.1717 (-1.29)
<i>Beta</i>	-0.1257 (-1.07)	-0.0590 (-0.41)	-0.0777 (-0.23)
<i>Age</i>	0.0077 (1.34)	-0.0143 (-0.76)	-0.0024 (-0.31)
$R^2$	90.99%	70.07%	
F-statistic	F( 21, 274) = 131.84 Prob > F = 0.0000	F(20, 207) = 20.81 Prob > F = 0.0000	F(23, 68) = 20.68 Prob > F = 0.000
Number of observations	296	296	296

\*, \*\*, \*\*\* indicate significance levels of 10%, 5% and 1% respectively. t-statistics are in parentheses. Year dummies and constants are included but unreported.

In general, the signs and significance levels of estimated parameters in Table 4.10 are similar to those in Table 4.8 and Table 4.9. Interestingly, after controlling for block ownership, the significance levels of managerial ownership variables (*MO*, *MO*<sup>2</sup> and *MO*<sup>3</sup>) are all improved to 5%, compared to mostly

10% in model (1). Meanwhile, the turning points of the minimum and maximum impacts of managerial ownership are unchanged at 12% and 45% respectively. In other words, controlling for possible impacts of blockholders on managers does not affect the relationship between insider ownership and firm performance. On the other hand, after controlling for managerial ownership, most signs of regression coefficients of all block-ownership-related variables are unchanged and remain insignificant. The results reinforce the acceptance of the hypothesis H1 and the rejection of the hypothesis H2. The findings on one hand imply the trivial role of blockholders in corporate governance; on the other hand they indicate the importance of incentive alignment between managers and outside shareholders in firm performance improvement.

In an attempt to explain the insignificant relationship between block ownership and firm performance, Demsetz and Villalonga (2001) proposed that given the ultimate goal of maximizing firm value, interactions among investors as well as their responses to market for corporate control facets such as hostile takeovers, acquisition or management buyouts, will create a suitable ownership structure for firms. Therefore, both firm value and ownership structure are results of the value maximizing process of investors, thus they are not expected to impact each other. However, the explanation is possibly not applicable to Vietnam, because unlike the matured market of the U.S., the Vietnamese stock market is still far from an efficient market even in a weak form (Loc, Lanjouw, & Lensink, 2010), and the crucial aspects of the market for corporate control are still underdeveloped. Therefore, in the context of Vietnam, I suggest that the insignificant role of blockholders in firm performance improvement could be explained by some common characteristics of an emerging market, including a high level of information asymmetry, weak legal protection of outside shareholders against insiders, and an inactive managerial labor market. First, information asymmetry strongly decreases the efficiency of monitoring activities as it could hinder the collection of inside information (Myers & Majluf, 1984). Of course, once rational investors realize the problem, they could respond by investing in other financial instruments that are more transparent. However, it is likely that the immature and thin trading financial market in Vietnam is a significant barrier preventing this flight-to-quality. This makes the information asymmetry problem less likely to be resolved. Second, weak legal protection decreases large shareholders' incentives to monitor; thus monitoring become less effective (Burkart & Panunzi, 2006). Third, in an inactive managerial labor market, it is difficult to find alternatives for current inefficient managers (Fama, 1980). Therefore, the influence of blockholders on firm management through their voting rights could be decreased significantly. Compounding the issue, as revealed in the annual reports of companies in the sample, the majority of blockholders are institutions that take part in monitoring via their representatives on the Board of Directors. However, the paradox is that once these representatives occupy positions in the management team, their incentives become more similar to other managers' rather than outside shareholders'. Therefore, it is likely that they will

take advantage of their powerful positions in the management team to exploit their principals (outside blockholders) for private benefits rather than conducting activities that benefit the company as a whole. This agency problem also weakens the monitoring mechanisms of blockholders, leading to the insignificant role of blockholders in improving firm performance.

### 4.2.3 State ownership and firm performance

The columns 2, 3, 4 of Table 4.12 shows the estimated results of model (3), while the results of the post-estimation tests of the system-GMM are reported in the column 2 of Table 4.11. AR(2) test p-value of 0.093 does not allow the rejection of the null hypothesis of no second-order autocorrelation among error terms in differences, indicating the validity of the use of lags from two periods as instruments. The number of instruments is kept well under the number of groups (37 versus 76). Furthermore, results of the Hansen test and the Difference-in-Hansen test indicate the exogeneity of instruments as a whole group and subgroups. Thus, the post-estimation test results meet the requirements of a valid system-GMM model as specified in Table 3.2.

**Table 4.11. Post-estimation specification tests of system-GMM in the state ownership models**

	<b>Model (3)</b>	<b>Model (3')</b>
AR(1) (p-value)	0.0129	0.038
AR(2) (p-value)	0.093	0.124
Number of instruments	37	41
Number of groups	76	76
Hansen test	$\chi^2(19) = 21.44$ Prob > $\chi^2 = 0.313$	$\chi^2(22) = 21.80$ Prob > $\chi^2 = 0.472$
Difference-in-Hansen tests (p-value)		
- GMM instruments for levels	0.122	0.261
- IV	0.724	0.393

Consistent with the models (1), (2) and (4), coefficients of  $AvQ_{it-1}$  are positive with a high significance level of 1%, implying the validity of the dynamic model. Regarding state ownership variables, the results are mixed among OLS, Fixed Effects and system-GMM. In the OLS, the coefficient of  $SO$  is positive and that of  $SO^2$  is negative. Both are significant at the 1% level, supporting the inverted U-shaped relationship between state ownership and firm performance. However, after controlling for endogeneity, the significance is not sustainable in either Fixed Effects or system-GMM. Therefore, the expected hump-shaped relationship possibly does not exist in the sample.

Interestingly, when model (3) is modified by adding the cubic term of  $SO$  (i.e.  $SO^3$ ) to come up with model (3'), the regression coefficients of all  $SO$ ,  $SO^2$  and  $SO^3$  become strongly significant in both Fixed Effects and system-GMM. The results are presented in the columns 5, 6, 7 of Table 4.12.

$$AvQ_{it} = \alpha + \theta AvQ_{it-1} + \beta_1 SO_{it} + \beta_2 SO_{it}^2 + \beta_3 SO_{it}^3 + \delta Z_{it} + \varphi D_{it} + \eta_i + \varepsilon_{it} \quad (3')$$

**Table 4.12. The relationship between state ownership and firm performance in the full sample**

	Model (3)			Model (3')		
	OLS	Fixed Effects	System-GMM	OLS	Fixed Effects	System-GMM
<i>L.AvQ</i>	0.8851*** (31.93)	0.4723*** (9.02)	0.7692*** (4.7)	0.8856*** (31.44)	0.4735*** (9.11)	0.8114*** (4.62)
<i>SO</i>	0.4982*** (2.90)	-0.1742 (-0.37)	2.0370 (1.33)	0.5187 (1.50)	2.1246* (1.80)	4.8685** (2.40)
<i>SO</i> <sup>2</sup>	-0.7809*** (-2.81)	-0.5476 (-0.59)	-3.6895 (-1.53)	-0.8990 (-0.73)	-11.2325** (-2.19)	-14.460*** (-2.8)
<i>SO</i> <sup>3</sup>				0.1070 (0.10)	8.6420** (2.12)	9.8967** (2.58)
<i>Size</i>	0.0132*** (3.75)	0.0585*** (6.92)	0.0467* (1.72)	0.0132*** (3.74)	0.0562*** (6.63)	0.0337* (1.78)
<i>Lev</i>	-0.0624 (-1.11)	-0.1441 (-1.01)	-0.3227 (-0.88)	-0.0620 (-1.10)	-0.1286 (-0.91)	-0.5424 (-1.42)
<i>FixAGrR</i>	0.0642 (1.51)	0.1170*** (2.61)	-0.2174 (-0.78)	0.0633 (1.46)	0.1136** (2.55)	-0.3509 (-1.32)
<i>Beta</i>	-0.0803 (-0.76)	-0.1536 (-1.14)	-0.0938 (-0.31)	-0.0790 (-0.74)	-0.1588 (-1.18)	0.2781 (1.41)
<i>Age</i>	0.0080 (1.52)	0.0188 (1.09)	-0.0143 (-0.82)	0.0079 (1.49)	0.0190 (1.10)	-0.0260 (-1.39)
F-test						
<i>F-statistic</i>	F( 15, 299) = 184.82	F(14, 225) = 26.11	F(17, 75) = 13.55	F( 16, 298) = 172.70	F(15, 224) = 25.04	F(18, 75) = 10.52
<i>p-value</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>R</i> <sup>2</sup>	90.26%	69.06%		90.27%	37.67%	
No. of obs.	315	315	315	315	315	315

\*, \*\*, \*\*\* indicate significance levels of 10%, 5% and 1% respectively. t-statistics are in parentheses. Year dummies and constants are included but unreported.

When model (3') is employed, all OLS, Fix Effects and system-GMM estimations result in the same signs of regression coefficients of *SO* ( $\beta_1$ ), as well as of its square ( $\beta_2$ ) and cube ( $\beta_3$ ), i.e. positive  $\beta_1$  and  $\beta_3$ , negative  $\beta_2$ . However these coefficients are insignificant in the OLS even at the 10% level. After wiping out time-constant unobserved heterogeneity in the Fixed Effects, all  $\beta_1$ ,  $\beta_2$  and  $\beta_3$  become significant, mostly at the 5% level. In the system-GMM, when both unobserved heterogeneity and simultaneity are taken into consideration, significance levels even become higher with corresponding t-statistics of  $\beta_1$ ,  $\beta_2$  and  $\beta_3$  are 2.4, -2.8 and 2.58 respectively, compared to 1.90, -2.19 and 2.12 in the Fixed Effects. In sum, these results indicate the cubic relationship between state ownership and firm performance.

However, the puzzle is that if the positive relationship exists at a very high level of state ownership, why has the Vietnamese government strongly encouraged privatization during recent years? To answer this question, the turning points of the relationship are calculated by taking a partial derivative of model (3') with respect to *SO*, using the formula (4.1). The results show that the second turning

point is around 76% in both Fixed Effects and system-GMM estimations. Digging more deeply into the sample, there are only 10 observations of 3 companies which reach the state ownership of 76%. Those small numbers imply that these observations could be outliers in the sample and possibly are not good representatives for companies with extremely high state ownership. When these 10 observations are excluded from the sample and model (3) is re-estimated using this outlier-deleted subsample, coefficients of  $SO$  and  $SO^2$  in all OLS, Fixed Effects and system-GMM become consistently significant. The results are reported in Table 4.13.

**Table 4.13. The relationship between state ownership and firm performance in the outlier-deleted subsample**

	OLS	Fixed Effects	System GMM
<i>L.AvQ</i>	0.8845*** (31.61)	0.4754*** (9.18)	0.7860*** (5.10)
<i>SO</i>	0.6421*** (2.88)	1.9366** (2.16)	2.9176* (1.95)
<i>SO<sup>2</sup></i>	-1.0879*** (-2.66)	-7.9269*** (-2.82)	-5.6867** (-2.34)
<i>Size</i>	0.0136*** (3.72)	0.0537*** (6.26)	0.0378 (1.41)
<i>Lev</i>	-0.0551 (-0.96)	-0.0957 (-0.68)	-0.6462 (-1.55)
<i>FixAGrR</i>	0.0581 (1.30)	0.1127** (2.54)	-0.1534 (-0.68)
<i>Beta</i>	-0.0583 (-0.54)	-0.1449 (-1.07)	0.3187 (1.03)
<i>Age</i>	0.0075 (0.589)	0.0198 (1.15)	-0.0188 (-1.1)
$R^2$	90.32%	16.61%	
F-statistic	F( 15, 292) = 181.69 Prob > F = 0.000	F(14,220) = 27.3 Prob > F = 0.000	F(17, 73) = 11.99 Prob > F = 0.000
No. of observations	308	308	308
<b>Post-estimation specification tests of system GMM</b>			
Arellano-Bond test for AR(1) in first differences (p-value)			0.095
Arellano-Bond test for AR(2) in first differences (p-value)			0.063
Number of instruments			37
Number of groups			74
Hansen test			$\chi^2(19) = 20.33$ Prob > $\chi^2 = 0.375$
Difference-in-Hansen tests (p-value)			
- GMM instruments for levels			0.249
- IV			0.543

\*, \*\*, \*\*\* indicate significance levels of 10%, 5% and 1% respectively. t-statistics are in parentheses. Year dummies and constants are included but unreported.

As illustrated in the lower part of Table 4.13, all post-estimation specification tests satisfy the criteria specified in Table 3.2, thus qualifying the validity of the system-GMM estimator. Regression coefficients of  $SO$  and  $SO^2$  in the OLS and Fixed Effects are very significant, mostly at the 1% level. In the system-GMM, t-statistics and corresponding significance levels slightly decrease. In addition, signs of these coefficients are consistent, i.e. positive as for  $SO$  and negative in respect of  $SO^2$ . Interestingly, by taking the partial derivative of model (3) with respect to  $SO$ , results from the system-GMM in both the full sample and the outlier-deleted subsample reveal the local maximum of Tobin's Q at around 22%. Thus, the outcomes strongly support the presence of the inverted U-shaped relationship between state ownership and firm performance, thus confirming the hypothesis H3.

The positive impact of state ownership on firm performance at low levels implies that the presence of a state stockholder could facilitate firm operations. For example, state ownership allows firms to have closer relations with the government and politicians, thus facilitating them to get subsidized interest rates, government sponsored bailouts or preferential transactions with other SOEs or government agencies. Especially in the context of the Vietnamese economy where there is a lack of transparency (Smith, Binh, Colvin, & Rab, 2014) and the state business sector is constituted to play the leading role<sup>10</sup>, these advantages become more significant. However, when state ownership exceeds 22% - the estimated turning point in the system-GMM - its relationship with firm performance becomes negative. It is likely that at higher levels of state ownership, the dual agency problem arising between the state and its representatives in companies becomes more severe, since the latter has stronger power in the company thanks to the larger state ownership they represent. Therefore, it could be easier for them to take advantage of that power to exploit their principals as well as other minority owners. Such exploitation may harm the value of the firm as a whole. Compounding the problem, the above-mentioned priorities of SOEs now could become facilitating conditions for expropriation, as they create favorable exploiting opportunities for the agents.

The inverted U-shaped relationship between state ownership and Tobin's Q implies that partial privatization is an effective way to improve the firm performance of SOEs. Privatization reduces shares owned by the state in the company, therefore it may mitigate the severity of the agency problem, as well as increase managers' incentives through their private shares. In addition, as a part of the shares is owned by private investors, privatization attracts monitoring and supervision from the market, which could lead to higher efficiency. On the other hand, although the empirical results show that state ownership at low levels possibly has a positive impact on firm performance, it does not imply that increasing state shares is good for the economy as a whole. State ownership in a particular company may assist its own efficiency, but possibly harms that of others as a result of unfair distribution of public

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<sup>10</sup> Article 51, the Vietnamese Constitution 2013.

resources. Furthermore, if every company has a state shareholder, and thus is able to get access to a “helping hand” from the government, there will no longer be competitive advantages due to the saturation of accessibility to limited favorable resources. Thus, although the results of this study support the inverted-U shaped relationship between state ownership and firm performance, we should be careful in interpreting the “optimal” level of state ownership at which firms have the highest performance. Essentially, it is a comparison among companies with various contemporary levels of state ownership, but not a suggestion of an optimal level that every company should attain.

#### 4.2.4 Impacts of control variables on firm performance

Table 4.14 summarizes the estimated impacts of control variables, including firm size (*Size*), leverage (*Lev*), growth opportunity (*FixAGrR*), market risk (*Beta*) and firm age (*Age*), on firm performance (*Tobin’s Q*) in four models (1), (2), (3) and (3’). I do not re-present the results of the model (4) because they are very similar to those of the nested models (1) and (2). The Fixed Effects and system-GMM estimations are mainly focused on, as they are more powerful than the OLS in controlling for the endogeneity problem.

**Table 4.14. The effects of control variables on firm performance**

	Model (1)		Model (2)		Model (3)		Model (3’)	
	Fixed Effects	System-GMM	Fixed Effects	System-GMM	Fixed Effects	System-GMM	Fixed Effects	System-GMM
<i>Size</i>	0.0583*** (6.9)	0.0180 (0.65)	0.0616*** (7.44)	0.0254 (0.75)	0.0585*** (6.92)	0.0467* (1.72)	0.0562*** (6.63)	0.0337* (1.78)
<i>Lev</i>	-0.2005 (-1.44)	-0.3108 (-0.85)	-0.2285 (-1.63)	-0.2038 (-0.69)	-0.1441 (-1.01)	-0.3227 (-0.88)	-0.1286 (-0.91)	-0.5424 (-1.42)
<i>FixAGrR</i>	0.1140** (2.49)	-0.3381** (-2.2)	0.1313*** (2.9)	-0.1001 (-0.69)	0.1170*** (2.61)	-0.2174 (-0.78)	0.1136** (2.55)	-0.3509 (-1.32)
<i>Beta</i>	-0.1597 (-1.18)	0.2108 (0.77)	-0.0453 (-0.32)	0.1243 (0.44)	-0.1536 (-1.14)	-0.0938 (-0.31)	-0.1588 (-1.18)	0.2781 (1.41)
<i>Age</i>	0.0188 (1.09)	-0.0039 (-0.37)	-0.0169 (-0.9)	0.0072 (0.70)	0.0188 (1.09)	-0.0143 (-0.82)	0.0190 (1.1)	-0.0260 (-1.39)

\*, \*\*, \*\*\* indicate significance levels of 10%, 5% and 1% respectively. t-statistics are in parentheses.

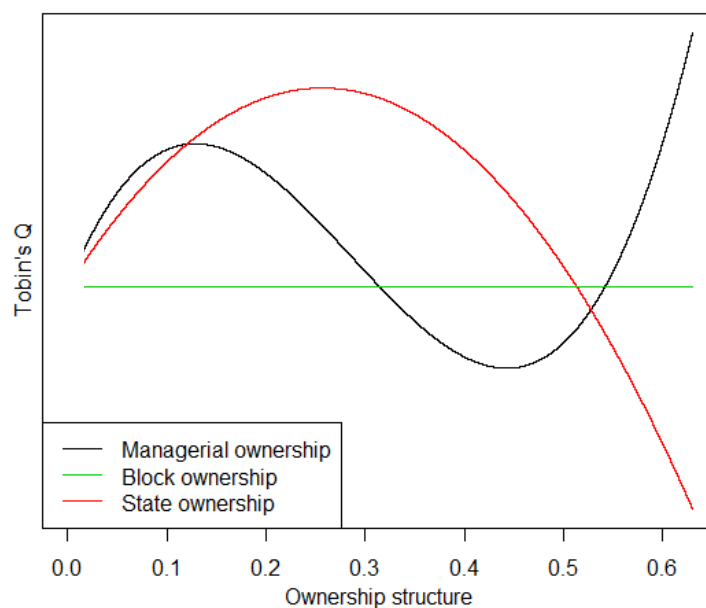
The estimated coefficients of *Lev* are consistently negative in both Fixed Effects and system-GMM in all four models, indicating the possible negative impact of debt on firm performance. This implies that among manufacturing companies listed on the HOSE, costs associated with financial distress and financial flexibility loss probably dominate benefits from the interest tax shield and agency cost reduction. However, small t-statistics do not allow the rejection of the null hypothesis of zero coefficients. Therefore, the effect of leverage on Tobin’s Q in the sample is not supported. Similarly, effects of firm age and market risk are not found in the sample using both Fixed Effects and system-GMM estimators.

Firm size (*Size*) and growth opportunities (*FixAGrR*), which are proxied by average total assets and fixed assets growth rate respectively, positively affect firm performance in all Fixed Effects estimations at highly significance levels (mostly 1%). Although the effect of *FixAGrR* vanishes in the system-GMM, estimated coefficients of *Size* remain significant at the 10% level in model (3) and model (3'). Therefore, the results generally support the positive impact of firm size on performance, which is possibly an effect of monopoly power (Hall & Weiss, 1967) and economies of scale (Antoniou et al., 2008).

### 4.3 Summary

Chapter 4 provides a detailed picture of the ownership structure of Vietnamese manufacturing companies listed on the HOSE, as well its impacts on firm performance. In these companies, ownership structure is very concentrated as a large proportion of shares is in the hands of only a few shareholders and managers. In addition, empirical evidence shows a cubic relationship between managerial ownership and firm performance, which is measured by Tobin's Q. The cubic relationship found is consistent with both convergence-of-interest and entrenchment hypotheses. Strikingly, block ownership has no impact on firm performance, even after controlling for managerial ownership. The results imply the more important role of building internal incentives compared to external monitoring mechanisms in corporate governance. On the other hand, state ownership is also significantly high and has an inverted U-shaped relationship with firm performance. This indicates possible contributions of partial privatization to firm performance improvement in the context of Vietnam. The empirical results are visualized in Figure 4.1.

**Figure 4.1. Summary of the relationships between ownership structure and firm performance**





## Chapter 5

### Conclusions

The summary of the study is presented in this chapter. Section 5.1 summarizes the main findings. Implications from the results are discussed in Section 5.2, followed by limitations and some recommendations for further research in Section 5.3.

#### 5.1 Major findings

This study examines the impacts of ownership concentration as well as state ownership on firm performance in the Vietnamese stock market in a dynamic framework. The sample includes 76 manufacturing companies listed on the HOSE during 2007-2015, with 406 firm-year observations. Instead of the traditional OLS and Fixed Effects, the system-GMM estimator is employed, promising greater power in controlling for the widely-accepted endogeneity of ownership structure. To the best of my knowledge, no prior study has applied the system-GMM in investigating the effect of state ownership on firm performance in Vietnamese companies. Furthermore, this is also the first study comprehensively examining firm ownership concentration and its relationship with firm performance in the context of Vietnam.

The descriptive data shows that the ownership structure of the manufacturing companies listed on the HOSE is significantly concentrated with an average number of blockholders of 2.5. Average block ownership is considerably high at 54%. The largest owner on average holds 40% of total shares, which is nearly three times higher than that of the second blockholder; while the gap between the ownerships of the second and the third blockholders is small. Meanwhile, managers in general own around 15% of firm shares, of which the majority belongs to the Board of Directors. The Supervisory Board's ownership is negligible at about 0.2%. Meanwhile, state ownership varies significantly among companies, ranging from 0% to 84%, with the mean of 20%.



The main empirical findings of this study are summarized in Table 5.1. The outcomes confirm the cubic relationship between managerial ownership and firm performance, which is consistent with both entrenchment and convergence-of-interest hypotheses. At low and high levels of managerial ownership, the convergence-of-interest effect is dominant over the entrenchment effect, thus any increase in insider ownership will translate into higher incentives for managers to operate companies more effectively. In contrast, at the middle level, private "selfish" benefits from managerial positions dominate benefits from the increase of firm value. As a result, outside shareholders are more likely to be exploited as managerial ownership increases.


While the impacts of managerial ownership structure on firm performance still persist after controlling for block ownership, the relationship between the latter and firm performance is insignificant even after controlling for the former. The results imply the trivial role of blockholders in corporate governance, even when they actually own a significant proportion of shares. This fact could be attributable to the agency problem between institutional blockholders and their representatives in management teams, as well as some typical characteristics of an emerging economy like Vietnam, including a high level of information asymmetry, weak legal protection of outside shareholders against insiders, and an inactive managerial labor market.

On the other hand, the relationship between state ownership and firm performance is found to be in the hump shape. The engagement of the state as a small owner can contribute to firm value, possibly because of the “helping hand” from the government. The presence of state shareholders may allow firms to easily access advantageous resources such as subsidized interest rates, preferential state capital investment or government sponsored bailouts. However, higher state ownership could lead to a more severe dual agency problem in SOEs, so it possibly negatively affects firm performance. Thus, the results support partial privatization, as it could assist in shifting firm performance toward its peak.

The empirical models also find a positive impact of firm size on firm performance, although the evidence is relatively weak using the system-GMM estimator. It implies that firms possibly gain from their monopoly power and economies of scale. Other control variables, including leverage, growth opportunities, market risk and firm age generally have insignificant impacts on firm performance, especially after controlling for possible sources of endogeneity in the system-GMM.

**Table 5.1. Major findings of the study**

Characteristics	Relationship with Tobin’s Q
Managerial ownership	
Block ownership	X
State ownership	
Firm size	+

$\wedge$  inverted U-shaped, + positive linear,  cubic (positive, negative, positive), X no relationship

## 5.2 Implications

The findings of this study have several implications in dealing with the agency problem – one of central issues in corporate governance. First, the significant relationship between managerial ownership and firm performance implies the important role of aligning the internal incentives of managers to those of outside shareholders. For example, companies should consider performance-based compensations for managers instead of predetermined salaries and benefits. In addition, managers possibly could be chosen from shareholders who accumulatively hold either a significant part or around 10 – 15% of total

shares, given low possibility of conflict of interest. Since at low and high levels, managerial ownership has positive impacts on firm performance, the alignment of interest through ownership could be applicable at least in the short term, when the managerial labor market in Vietnam is still underdeveloped and monitoring mechanisms from outside shareholders are still ineffective.

Second, since block ownership has no impact on firm performance, instead of increasing equity ownership with the hope of obtaining higher influence over the company, shareholders in general and blockholders in particular should be involved actively in and monitor closely day-to-day firm operations, or in some cases they should engage directly in corporate governance by undertaking positions in the management team. Through those, blockholders will be able to reduce the information gap between themselves and inside managers, thus mitigating the consequences of information asymmetry. However, the threat of expropriation of minority shareholders, the disadvantages of non-professional management and the effects of managerial ownership should be taken into consideration if blockholders are appointed to managerial positions.

Third, the inverted U-shaped relationship between state ownership and firm performance implies that partial privatization could improve the firm value of Vietnamese SOEs. Companies can benefit from the transfer of state ownership to private ownership, as such transfer allows closer monitoring and supervision from other investors and the market, as well as decreasing the exploitation opportunities of state ownership representatives. In addition, public resources that are freed from selling state shares could be reinvested and redistributed in more effective ways.

Finally, some supporting policies should be conducted to improve corporate governance efficiency. Market transparency needs to be improved to alleviate the information asymmetry and the agency problems. Through this, monitoring mechanisms from outside stakeholders could be enhanced. In addition, the managerial labor market should be developed, so companies could benefit from professional managers as well as other benefits of the modern corporation model (e.g. limited liability, unlimited lifetime, opportunities to raise additional capital (Brealey et al., 2014)). Furthermore, given the significant impacts of managerial ownership on firm performance, leveraged buyout (especially management buyout) ought to be motivated and monitored by further legislative frameworks. They could encourage and facilitate managers to acquire and take control of undervalued companies, then boosting their performance afterwards.

### **5.3 Limitations and further research**

The first limitation of this study rises from the sample used. As only manufacturing companies listed on the HOSE are employed in the analysis, the results may be applicable only to the manufacturing sector. Thus, any generalization should be interpreted with caution. In addition, as the release of

ownership structure is non-compulsory in the Vietnamese stock market, the data possibly suffers from selection bias, i.e. companies that had chosen to publish information might be more transparent and better managed, and therefore more efficient. Future research can overcome this limitation by expanding the sample to all companies in the Vietnamese stock market, as well as adding data of upcoming years.

Second, this study does not separate managers who are representatives of institutional shareholders from those who are not, due to data unavailability. Given equal private shares, larger represented shares possibly give the former more power and influence in the company than the latter. Future research should take this issue into consideration to provide a more insightful understanding of the effects of managerial ownership on firm performance when the data are available.

Finally, firm performance may be not completely measured by Tobin's Q (especially in the case of SOEs), leading to the measurement error problem. By its definition, Tobin's Q is only able to measure company financial performance, but not the social benefits of SOEs. It is possible that while acting as instruments of the government in curing market failures and providing social welfare, some SOEs must sacrifice their own profitability. Therefore, failing to incorporate the social effects of SOEs could lead to an underestimation of the impacts of state ownership on firm performance. This problem could be addressed by considering the additional social performance of companies, which is normally proxied by some reported corporate social responsibility indices. Unfortunately, it is an enormous challenge as this information is currently unavailable in the Vietnamese stock market.

## Appendix A

### List of listed manufacturing companies on the HOSE

No.	Sticker	Full name
<b><i>Manufacture of food products</i></b>		
1	AAM	Mekong Fisheries Joint Stock Company
2	ABT	BenTre Aquaproduct Import and Export Joint Stock Company
3	ACL	Cuulong Fish Joint Stock Company
4	AGF	An Giang Fisheries Import & Export Joint Stock Company
5	ANV	Nam Viet Corporation
6	ATA	Ntaco Corporation
7	BBC	Anvifish Joint Stock Company
8	BHS	Bibica Corporation
9	CMX	Ca Mau Frozen Seafood Processing Import Export Corporation
10	FMC	Sao Ta Foods Joint Stock Company
11	HVG	Hung Vuong Corporation
12	ICF	Investment Commerce Fisheries Corporation
13	IDI	International Development & Investment Corporation
14	KDC	Kinh Do Corporation
15	LAF	Long An Food Processing Export Joint Stock Company
16	LSS	Lam Son Sugar Joint Stock Corporation
17	NHS	Ninh Hoa Sugar Joint Stock Company
18	SBT	Thanh Thanh Cong Tay Ninh Joint Stock Company
19	SEC	Gia Lai Cane Sugar Thermoelectricity Joint Stock Company
20	TAC	Tuong An Vegetable Oil Joint Stock Company
21	TS4	Seafood Joint Stock Company No4
22	VCF	Vinacafé Biên Hoa Joint Stock Company
23	VHC	Vinh Hoan Corporation
24	VLF	Vinh Long Cereal And Food Import Export Company
25	VNH	Viet Nhat Seafood Corporation
26	VNM	Viet Nam Dairy Products Joint Stock Company
27	VTF	Viet Thang Feed Joint Stock Company
<b><i>Manufacture of beverages</i></b>		
28	SCD	Chuong Duong Beverages Joint Stock Company
<b><i>Manufacture of textiles</i></b>		
29	EVE	Everpia VietNam Joint Stock Company
30	KMR	Mirae Joint Stock Company
31	TCM	Thanh Cong Textile Garment Investment Trading Joint Stock Company
<b><i>Manufacture of wearing apparel</i></b>		
32	GMC	Sai Gon Garment Manufacturing Trade Joint Stock Company
<b><i>Manufacture of wood and products of woods and cork (except furniture); manufacture of articles of straw and plaiting materials</i></b>		
33	GDT	Duc Thanh Wood Processing Joint Stock Company
<b><i>Paper and paper products</i></b>		

34	DHC	Dong Hai Joint Stock Company of Bentre
35	HAP	Hapaco Group Joint Stock Company
36	SVI	Bien Hoa Packaging Company
37	VPK	Vegetable Oil Packing Joint Stock Company
<b><i>Printing and reproduction of recorded media</i></b>		
38	CLC	Cat Loi Joint Stock Company
<b><i>Manufacture of chemicals and chemical products</i></b>		
39	CSV	South Basic Chemicals Joint Stock Company
40	DCM	Petro Viet Nam Ca Mau Fertilizer Joint Stock Company
41	DPM	PetroVietnam Fertilizer and Chemicals Corporation
42	HAI	H.A.I Joint Stock Company
43	LIX	Lix Detergent Joint Stock Company
44	RDP	RangDong Plastic Joint Stock Company
45	SFG	The Southern Fertilizer Joint Stock Company
46	VFG	Viet Nam Fumigation Joint Stock Company
47	VAF	Van Dien Fused Magnesium Phosphate Fertilizer Joint Stock Company
<b><i>Manufacture of pharmaceuticals, medicinal chemical and botanical products</i></b>		
48	DCL	Cuu Long Pharmaceutical Joint Stock Corporation
49	DHG	DHG Pharmaceutical Joint Stock Company
50	DMC	Domesco Medical Import Export Joint Stock Corporation
51	IMP	Imexpharm Pharmaceutical Joint Stock Company
52	OPC	OPC Pharmaceutical Joint Stock Company
53	SPM	S.P.M Corporation
54	TRA	Traphaco Joint Stock Company
<b><i>Manufacture of rubber and plastics products</i></b>		
55	BMP	Binh Minh Plastics Joint Stock Company
56	BRC	Ben Thanh Rubber Joint Stock Company
57	CSM	The Southern Rubber Industry Joint Stock Company
58	DAG	Dong A Plastic Group Joint Stock Company
59	DRC	Da Nang Rubber Joint Stock Company
60	DTT	Do Thanh Technology Corporation
61	SRC	Sao Vang Rubber Joint Stock Company
62	TPC	Tan Dai Hung Plastic Joint Stock Company
63	TTP	Tan Tien Plastic Packaging Joint Stock Company
<b><i>Manufacture of other non-metallic mineral products</i></b>		
64	CYC	Chang Yih Ceramic Joint Stock Company
65	FCM	FECON Mining Joint Stock Company
66	HT1	Ha Tien 1 Cement Joint Stock Company
67	HVX	Vicem Hai Van Cement Joint Stock Company
68	LBM	Lam Dong Mineral and Building Material Joint Stock Company
69	TRC	Taicera Enterprise Company
<b><i>Manufacture of basic metals</i></b>		
70	HPG	Hoa Phat Group Joint Stock Company
71	NKG	Nam Kim Steel Joint Stock Company
72	POM	Pomina Steel Corporation
73	VIS	Viet Nam – Italy Steel Joint Stock Company

<b><i>Manufacture of fabricated metal products (except machinery and equipment)</i></b>		
74	DTL	Dai Thien Loc Corporation
75	HSG	Huu Lien Asia Corporation
76	MCP	My Chau Printing & Packaging Holding Company
77	NAV	Nam Viet Joint Stock Company
78	SHI	Son Ha International Corporation
<b><i>Manufacture of computers, electronic and optical products</i></b>		
79	VTB	Viettronics Tan Binh Joint Stock Company
<b><i>Manufacture of electrical equipment</i></b>		
80	CAV	Vietnam Electric Cable Corporation
81	DQC	Dien Quang Joint Stock Company
82	EMC	Thu Duc Electro Mechanical Joint Stock Company
83	PAC	Dry Cell and Storage Battery Joint Stock Company
84	RAL	Rangdong Light Source and Vacuum Flask Joint Stock Company
85	SAM	Sacom development and investment corporation
86	TYA	Taya (Vietnam) Electric Wire And Cable Joint Stock Company
87	VHG	Viet - Han Corporation
<b><i>Manufacture of motor vehicles, trailers and semi-trailers</i></b>		
88	TMT	TMT Motor Joint Stock Company
<b><i>Manufacture of furniture</i></b>		
89	DLG	Duc Long Gia Lai Group Joint Stock Company
90	GTA	Thuan An Wood Processing Joint Stock Company
91	TTF	Truong Thanh Furniture Corporation
<b><i>Other Manufacturing</i></b>		
92	JVC	Japan Vietnam Medical Instrument Joint Stock Company
93	TLG	Thien Long Group Corporation
<b><i>Repair and installation of machinery and equipment</i></b>		
94	L10	Lilama 10 Joint Stock Company
95	LM8	Lilama 18 Joint Stock Company

Source: <http://www.hsx.vn/>

## Appendix B

### Implementation of dynamic system-GMM estimation

In this study, system-GMM estimation is conducted in Stata (Version 13.1) using the package `xtabond2` written by and explained in Roodman (2009a). The results of models (1), (2), (3) and (4) that are presented in Section 4.2 are obtained using following codes:

#### **Model (1)**

```
xtabond2 AvQ L.AvQ MO sqMO cubMO Size Lev FixAGrR Beta Age D2007-D2015, gmm(AvQ MO2  
sqMO2 cubMO2 Size Lev FixAGrR Beta, lag(2 4)collapse) iv(Age D2007-D2015) small  
twostep robust
```

#### **Model (2)**

```
xtabond2 AvQ L.AvQ BO sqBO NoBO LOChange CtrlDum Size Lev FixAGrR Beta Age D2007-  
D2015, gmm(AvQ BO sqBO NoBO LOChange CtrlDum Size Lev FixAGrR Beta, lag(2 4)collapse)  
iv(Age D2007-D2015) small twostep robust
```

#### **Model (3)**

```
xtabond2 AvQ L.AvQ SO sqSO Size Lev FixAGrR Beta Age D2007-D2015, gmm(AvQ SO sqSO  
Size Lev FixAGrR Beta, lag(2 4)collapse) iv(Age D2007-D2015) small twostep robust
```

#### **Model (3')**

```
xtabond2 AvQ L.AvQ SO sqSO cubSO Size Lev FixAGrR Beta Age D2007-D2015, gmm(AvQ SO  
sqSO cubSO Size Lev FixAGrR Beta, lag(2 4)collapse) iv(Age D2007-D2015) small twostep  
robust
```

#### **Model (4)**

```
xtabond2 AvQ L.AvQ MO sqMO cubMO BO sqBO NoBO LOChange CtrlDum Size Lev FixAGrR Beta  
Age D2007-D2015, gmm(AvQ MO2 sqMO2 cubMO2 BO sqBO NoBO LOChange CtrlDum Size Lev  
FixAGrR Beta, lag(2 4)collapse) iv(Age D2007-D2015) small twostep robust
```

`L.AvQ` is the lagged dependent variable, which is identical to  $AvQ_{it-1}$ . As firm age and year dummies are assumed to be strictly exogenous, they are included in `iv()` option to construct `ivstyle` instruments. Meanwhile, other variables are treated as endogenous and incorporated into `gmm()` command to create `gmmstyle` instruments. `lag(2 4)` invokes instruments from  $t-2$  to  $t-4$ . The `collapse` option is used to prevent instrument proliferation. As my sample is relatively small with 406 firm-year observations, `small` is specified to get corrections for the covariance matrix estimate. `robust` requests corrections for the downward bias of standard errors in `twostep` estimation.



## Appendix C

### Multicollinearity test using the variance inflation factor (VIF)

	Standardized Coefficients	t-statistics	Significance level	Collinearity Statistics	
				Tolerance	VIF
<i>Constant</i>		6.018	0.000		
<i>MO</i>	-0.134	-2.162	0.031	0.489	2.043
<i>BO</i>	0.089	1.547	0.123	0.558	1.792
<i>SO</i>	0.162	2.738	0.007	0.536	1.865
<i>NoBO</i>	0.040	0.726	0.469	0.623	1.604
<i>LOChange</i>	-0.004	-0.090	0.928	0.861	1.162
<i>CtrlDum</i>	-0.073	-1.265	0.207	0.553	1.807
<i>Size</i>	0.403	8.181	0.000	0.769	1.301
<i>Lev</i>	-0.222	-4.675	0.000	0.829	1.207
<i>FixAGrR</i>	0.112	2.489	0.013	0.917	1.091
<i>Beta</i>	0.174	3.358	0.001	0.692	1.445
<i>Age</i>	0.009	0.178	0.859	0.723	1.384

*Dependent variable: AvQ*

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