

## **The Relation Between Government Ownership and Firm Performance: Evidence from Cross-Country Datasets**

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### **ABSTRACT**

Based on data from 47 countries, this study makes a significant and original contribution to understanding of the complicated corporate governance issues of government ownership. The major findings are that there is a U-shaped relation between government ownership and firm performance, and that unlike other types of ownership, controlling government ownership is not endogenous. The study on the effect of multiple blockholders when government is the largest shareholder is also the first such study in the academic literature.

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## I. INTRODUCTION: GOVERNMENT OWNERSHIP

Government ownership (or state ownership; “state” and “government” are used interchangeably in this paper) in and of corporations has existed throughout history, but has varied greatly in scale. For example, due to concerns over the market failures of the 1930s, there was a great wave of nationalization across the Western world. Another nationalization wave commenced in newly independent countries in the 1950s. Subsequently the role of government ownership began to be questioned, and starting around the early 1980s, privatization gained worldwide momentum. However, during the Global Financial Crisis, beginning with the subprime mortgage crisis in 2007, renewed concerns about market failures prompted many western governments to re-nationalize many big firms; when financial markets stabilized, these nationalized firms went through the privatization process again. Nevertheless, academic literature shows that government ownership remains common in both developed and developing countries worldwide (Liu, 2017). Furthermore, government ownership in both emerging and advanced economies has extended their global reach in recent years (The Economist, 2012).

Most previous studies of government ownership focus on comparing corporate performance before and after privatization and the economic development function of government ownership; the role of government ownership in firm performance from the viewpoint of corporate governance is rarely explored. In contrast, this study examines the relations between government ownership and firm performance (the terms “firm performance” and “firm valuation” are used interchangeably below) from the corporate governance perspective, focusing on listed firms with at least one government blockholder.

In the United States (US), the Securities and Exchange Commission requires the disclosure of “control entities” that hold 5% or more of firm equity. Many studies in the US and other countries have focused on blockholders, using the SEC 5% threshold as their measurement scheme (Boyd and Solarino, 2016). Accordingly, here a government blockholder is defined as a government owner holding at least 5% of shares. The topic of the role of government blockholders belongs to the broad field of the relations between ownership structure and firm performance. Previous studies have shown that there is a non-monotonic, reversed U-shaped relation between ownership distribution and performance (Morck, Shleifer, and Vishny, 1988; Joh, 2003; Thomsen, Pedersen and Kvist, 2006). Previous studies also find that ownership is endogenous (Loderer and Martin, 1997; Villalonga and Amit, 2006). Recent research has begun to emphasize the importance of the legal system (La Porta, Florencio, Shleifer, and Vishny, 1998; Thomsen, Pedersen, and Kvist, 2006) and voting rights (La Porta, Florencio, and Shleifer, 1999; Claessens, Djankov, Fan, and Lang, 2002) to firm performance. Some theoretical models and empirical works consider more complex ownership structures, characterized by corporations with two or more large owners (Lehman and Weigand, 2000); they generally conclude that the presence of multiple large shareholders is beneficial to minority shareholders (Maury and Pajuste, 2005; Laeven and Levine, 2008; El Ghouli, Guedhami, Lennox, and Pittman, 2012), but some authors argue that it is costly as well (Cai, Hillier, and Wang, 2015). In France, it was shown that multiple large shareholders could reduce the controlling owner’s incentive

to avoid bank monitoring, leading to greater reliance on bank debt (Boubaker, Rouatbi, and Saffar, 2017).

Other researchers have investigated the effect of government being a large shareholder. Qi, Wu, and Zhang (2000) found that firm performance is negatively related to the proportion of shares owned by the government in China. However, Qian (2003) suggested that Chinese government ownership could be beneficial to company performance and to minority shareholders. Claessens *et al.* (2002) found that government ownership is not significantly related to performance. Tian and Estrin (2008) and Yu (2013) found that the effect of government ownership on corporate valuation is non-monotonic.

This paper is organized as follows. Section II describes the data used in this paper. Section III presents methodology and empirical results of the relationship between government ownership and firm performance. Section IV concludes the paper.

## II. DATA

The primary ownership data was collected from OSIRIS, via Bureau Van Dijk. The dataset contains 35,098 listed firms with a total of 304,366 shareholders from 120 countries as of 2006. This is a larger sample of countries and firms than any previous research into international ownership such as the 691 firms from 27 countries in La Porta *et al.* (1999), and 2,980 firms from 8 countries in Claessens, Djankov, and Lang (2000). Records for 469 firms with at least one government blockholder from 75 countries were identified, cleaned and complied; they are mainly from 2004 and 2005. No previous studies have explored government ownership in such a large number of listed firms (122 in La Porta *et al.* (1999), 138 in Claessens *et al.* (2000)). La Porta *et al.* (2002) analyzed government ownership in the 10 largest banks in each of 92 countries, but their dataset included unlisted banks.

Financial information, including research and development (R&D) data, was obtained from the OSIRIS database. If the R&D information was missing in OSIRIS, it was obtained from COMPUSTAT Global Industrial/Commercial. If a firm's age was not available from these databases, it was manually collected from firms' websites and annual reports.

Since bank valuations are different from those in other industries, the 202 banks among 469 firms are excluded from the datasets employed for regressions. A few other items were also missing after combining the ownership data with financial information data. The final sample used in regression analysis consists of 244 firms, 192 with government as the largest shareholder from 47 countries. There are 517 firm-year observations in total.

## III. THE RELATIONSHIP BETWEEN GOVERNMENT OWNERSHIP AND FIRM VALUE

### A. Regression Variables

Two variables are used to proxy the impact of government ownership. *Gov Firm* is a binary variable that equals one when the firm's largest shareholder is a government

shareholder. *Government Ownership* is the cash flow rights owned by the government owner.

Empirical studies often use Tobin's Q as a measure of firm value. The numerator of Q is the year-end market value of common stock plus the book value of preferred stock and debt. The denominator is the year-end book value of the firm's total assets. This methodology was also adopted by Demsetz and Villalonga (2001).

Several control variables are introduced to control for firm characteristics. A dummy variable *R&D Dummy* is used, which equals one if the firm reports R&D expenses, to control the effect of growth opportunity. It is expected to be positive for firm valuation. Firm age and size are expected to have negative effects on firm valuation, because older or larger firms are, presumably, more mature. Firm size is proxied with the natural log of the book value of total assets – *Ln (total assets)*, and firm age is measured as the natural log of the number of years since the firm's inception – *Ln (firm age)*. The ratio of net fixed assets over total assets is expected to have a negative effect on firm valuation as firms with a high fraction of intangible assets tend to be part of the new economy. Tangibility is measured with *Fixed Assets/Total Assets*. Leverage can increase the risk of financial distress and bankruptcy, so is expected to have a negative effect on firm value, and is measured with *LT debt/total assets*. The fixed effects are dummy variables for each year of the sample, dummy variables for each two-digit SIC code and dummy variables for countries. The differences among countries are measured with the differences of legal systems. La Porta *et al.* (2002) proposed two proxy variables: – *Common Law* and *Civil Law* – that are adopted here. *Common Law* equals one if the origin of the company law or commercial code of the country is English Common Law, and zero otherwise. *Civil Law* equals one if the company law or commercial code of the country originates in Roman law, and zero otherwise. In the dataset, 10 countries – Australia, Canada, India, Israel, Malaysia, New Zealand, Pakistan, Singapore, Thailand and the United Kingdom – are common law countries. The rest are civil law countries or non-common law countries.

## B. Summary Statistics

Table 1 presents means, medians, standard deviations, and maximum and minimum values for the key variables in the 244 sample firms with at least one government shareholder holding at least 5% cash flow rights. One observation is presented per firm, using time-series averages. Specifically, observations are averaged across time for each firm and then the mean for the sample determined by averaging across firms.

Table 1 shows that the average of cash flow rights owned by the government blockholders is 37% (range 5–97%). Tobin's Q has a mean value of 1.39 (range 0.02–15.41). The average firm age is nearly 43 years, suggesting that most of the sample firms are well established rather than ventures that have recently undergone initial public offerings.

Among the 192 sample firms with government as the largest blockholder, the average size of government ownership is 39% and the mean value of Tobin's Q is 1.45 – both higher than the results presented in Table 1. A test of whether firms with government as the largest blockholder outperform firms without government as the largest blockholder is conducted next.

**Table 1**  
Summary statistics

	Mean	Median	Std Dev	Minimum	Maximum
Government Ownership	0.37	0.33	0.21	0.05	0.97
Including: Government is the Largest Owner	0.44	0.43	0.23	0.06	0.99
Tobin's Q	1.39	0.98	1.50	0.02	15.41
Log (Total Assets) (/1,000,000)	7.08	6.99	2.30	1.18	12.41
Firm Age	42.60	28.00	42.20	2.00	238.00
Fixed Assets/Total Assets	0.65	0.67	0.19	0.13	1.00
LT debt/total assets	0.29	0.28	0.23	0.00	1.96

The statistics are based on the sample firms that each has at least one government blockholder with at least 5% cash flow rights.

### C. Multivariate Analysis

The relationship between Gov Firm (a binary variable that equals one when the firm's largest shareholder is a government shareholder) and firm performance is analyzed in section III.C.1. The study of the nonlinear relationship between Government Ownership (the fraction of cash flow rights claimed by the largest government shareholder) and firm performance is conducted in Section III.C.2. The effect of multiple blockholders is examined in Section III.C.3. Section III.C.4 reports the results of robust tests.

#### 1. Comparison of firms with and without government as the largest blockholder

This section addresses the question of whether having the government as the largest blockholder (Gov Firm = 1) has a positive or negative association with corporate valuation. R&D expenses, firm size, firm age, tangibility and capital structure are controlled for in regression analysis. Year, industry and country dummies are also used to control for fixed effects. The regression equation employed takes the form:

$$\text{Tobin's } Q_{i,t} = \delta_0 + \delta_1 \text{ GovFirm}_{i,t} + \delta_2 \text{ ControlVariables}_{i,t} + \delta_3 \text{ IndustryDummyVariables}_{i,t} + \delta_4 \text{ YearDummyVariables}_{i,t} + \delta_5 \text{ CountryDummyVariables}_{i,t} + \varepsilon \quad (1)$$

Table 2 shows that the coefficient of Gov Firm is positive and significant. It shows that government firms outperform firms in which government has a stake but is not the largest shareholder. It means that the size of government ownership matters, and it is probable that only when government ownership is large enough can it have a positive influence on firm performance. This argument will be further analyzed in Section III.C.2.

**Table 2**  
Gov firm and firm value

The table reports OLS regression firm value (Tobin's Q) on Gov Firm. Gov Firm is a binary variable that equals one when the firm's largest blockholder is a government shareholder. R&D Dummy equals one if the firm reports the R&D expense, which is used to control the effect of growth opportunity. Firm size is Log (Total Assets/1,000,000), which is measured as the nature log of book value of total assets divided by 1,000,000. Firm Age is proxied by the log value of the number of years since the firm's inception. Tangibility is approximated by the fixed asset ratio – net fixed assets over total assets. Capital Structure is measured as the book value of long-term debt divided by the book value of total assets. Industry Dummy, Year Dummy and Country Dummy are also included. P-values are in parentheses.

Variable	Tobin's Q
Intercept	0.17 (<0.0001)
Gov Firm	0.36 (0.004)
R&D Dummy	0.04 (0.867)
Ln (total assets)	-0.08 (0.001)
Ln (firm age)	-0.11 (0.006)
Fixed Assets/Total Assets	0.20 (0.523)
LT debt/Total Assets	-0.98 (0.007)
Adjusted R-Squared	0.111
Observations	517

R&D expenses was not significantly associated with Tobin's Q. Firm size, firm age and capital structure are all negatively associated with valuation, consistent with the predictions in Section III.A.

## 2. The nonlinear relationship between government ownership and firm value

Previous studies (Joh, 2003; Thomsen et al. 2006; Che and Langli, 2015) found a non-linear relationship between ownership structure and firm performance. Here, the regression specification is modified by including government ownership and the square of government ownership as continuous variables. Only the largest government blockholders are included. Variable for R&D expenses, firm size, firm age, tangibility and capital structure are controlled.

The regression equation takes the following form:

$$\begin{aligned} \text{Tobin's } Q_{i,t} = & \delta_0 + \delta_1 \text{GovernmentOwnership}_{i,t} + \delta_2 \text{GovernmentOwnership}_{i,t}^{**2} \\ & + \delta_3 \text{ControlVariables}_{i,t} + \delta_4 \text{IndustryDummyVariables}_{i,t} \\ & + \delta_5 \text{YearDummyVariables}_{i,t} + \delta_6 \text{CountryDummyVariables}_{i,t} + \varepsilon \end{aligned} \quad (2)$$

Table 3 shows that the coefficient of Government Ownership is significantly negative and the coefficient on squared ownership is significantly positive. The regression reveals a nonlinear relationship between Tobin's Q and government ownership.

**Table 3**  
Nonlinear relation between government ownership and firm value

The table reports the results of regressing firm value (Tobin's Q) on Government Ownership. Government Ownership is the fraction of cash flow rights claimed by the largest government blockholder. R&D Dummy equals one if the firm reports R&D expenses, which is used to control the effect of growth opportunity. Firm size is Log (Total Assets/1,000,000), which is measured as the natural log of book value of total assets divided by 1,000,000. Firm Age is proxied by the log value of the number of years since the firm's inception. Tangibility is approximated by the fixed asset ratio – net fixed assets over total assets. Capital Structure is measured as the book value of long-term debt divided by the book value of total assets. Industry Dummy, Year Dummy and Country Dummy are also included. P-values are in parentheses.

Variable	Tobin's Q
Intercept	3.09 (0.001)
<b>Government Ownership</b>	-2.82 (0.017)
<b>(Government Ownership) **2</b>	4.10 (0.019)
R&D dummy	0.50 (0.002)
Ln (total assets)	-0.19 (<.0001)
Ln (firm age)	-0.16 (0.006)
Fixed asset/Total assets	-0.27 (0.472 )
LT debt/total assets	-0.37 (0.250 )
Adjusted R-Squared	0.141
Observations	407

The relation between Tobin's Q and Government Ownership is as follows:

$$Q = 3.09 - 2.82 * \text{GovernmentOwnership} + 4.10 * \text{GovernmentOwnership}^{**2} + \dots$$

The first order derivation of Government Ownership is:

$$Q_{\text{GovernmentOwnership}} = -2.82 + 2 * 4.10 * \text{GovernmentOwnership} = 0$$

The turning point of government ownership is 34.4% ( $= 2.82 / 2 / 4.10$ ).

This shows that government ownership is detrimental to performance at the beginning, but as the government increases its shareholding to about 34%, it begins to increase firm valuation. When the government is a small shareholder, it has neither the authority nor the incentive to provide the preferential treatment and benevolence that would outweigh the disadvantages of its political interference. If the presence of a government shareholder is to be beneficial to a firm, its shareholding stakes must be relatively large. For example, Shailer and Wang (2015) found that corporations under government control have a lower cost of debt than corporations under private control. This shows that government ownership has similar characteristics to other types of property arrangements, in that the relationship between ownership and performance is nonlinear. The difference is that this is a U-shaped rather than reversed U-shaped relationship.

A reversed U-shaped relationship between family ownership and firm performance means lower firm valuation when family ownership is too high and family is the largest shareholder. Liu (2017) finds that the average size of the largest family owner is far below the average size of the largest government owner.

Tian and Estrin (2008) concluded that a U-shaped relationship exists between government ownership and firm performance, but they examined only Chinese data. My study is based on a much broader cross-country dataset, and accordingly, the conclusion is more universally applicable. It means that the institutional differences across countries play an insignificant role in determining the relationship between government ownership and firm performance.

Section III.C.1 concludes that government firms outperform other firms in which government has a stake but is not the largest shareholder. From Table 1, we know that the average size of government ownership in this dataset is 37%, and the average size of the stake of the largest government owner is greater than 37% – higher than the turning point of 34%. It is reasonable to conclude that, since at this ownership level government shareholding influences valuation positively, government firms outperform other firms in which the government has a stake but is not the largest shareholder. Liu (2017) finds that government owners like to be the largest blockholder; and if government is the largest blockholder the size of its ownership is also quite big, “suddenly” make sense.

Equation (2) and the empirical results presented in Table 3 show that government shareholding influences Tobin’s Q in a non-monotonic way. However, the results may be influenced by reverse causality of the government shareholding, which is determined by prior Tobin’s Q (corporate performance). Moreover, since the government will also benefit from an increase in Tobin’s Q, improved corporate performance could lead to changes in government ownership. These factors suggest that government ownership may be an endogenous variable in equation (2), leading us to question the simultaneity issue. The below equation needs to be examined.

$$\begin{aligned} \text{GovernmentOwnership}_{i,t} = & \delta_0 + \delta_1 \text{Tobin'sQ}_{i,t-1} + \delta_2 \text{ControlVariables}_{i,t} \\ & + \delta_3 \text{IndustryDummyVariables}_{i,t} + \delta_4 \text{CountryDummyVariables}_{i,t} + \varepsilon \end{aligned} \quad (3)$$

Combining equation (2) with (3) gives a simultaneous equation system in which Tobin’s Q and the size of government shareholding are jointly dependent variables. Lagged Tobin’s Q, R&D/sales, firm age, tangibility, financial leverage, firm size, and



the industrial sector dummies and the common law dummy are taken as instrument variables. In the first stage regression, the coefficients on lagged Tobin's Q are always insignificant (even after changing the control variables), suggesting that Tobin's Q (as a proxy for corporate performance) is not an important determinant of government ownership.

As argued in Liu (2017), the initial motivation of government ownership is to resolve market failure problems rather than to generate revenue/profit. Government ownership in telecommunications and postal services, electric and gas utilities, and most forms of non-road transportation (especially airlines and railroads) have mainly been driven by the need to address market failure. Government ownership in certain "strategic" manufacturing industries, such as steel and defense production, is politically rather than economically driven. Song, Wang and Cavusgil (2015) found that government shareholders seek political goals over profit maximization, and that government-controlled public firms exhibit a lower degree of market orientation than privately controlled public firms in China. This explains why government ownership is not endogenous, unlike family ownership, managerial ownership or financial institutional ownership (Grier and Zychowicz, 1994). This is the first published finding of the endogeneity of government ownership supported by both theoretical arguments and empirical evidence.

### **3. The effect of multiple blockholders**

Several studies (Maury and Pajuste, 2005; Laeven and Levine, 2008) have shown that the existence of multiple blockholders is significant in explaining variation in the performance of firms. The argument is that large shareholders, such as mutual or pension funds, monitor and discipline owner-managers. As such, the controlling shareholder's voice and control in the firm may be substantially smaller in the presence of outside blockholders (Anderson and Reeb, 2003).

In this section, the effect of the existence of multiple blockholders is examined, followed by the issue of the identity of the second-largest blockholder. Table 4 presents the effect of multiple blockholders. Multiple Dummy equals 1 if there are two or more blockholders with at least 5% cash flow rights.

Table 4 shows that the existence of multiple blockholders reduces corporate valuation. The rationale is as follows. Government blockholders want to be the largest shareholder, and only when government shareholding is relatively large can government owners provide the preferential treatment and benevolence that would outweigh the disadvantages of its political interference. However, the existence of second- or third-largest blockholders means they can monitor and discipline owner-managers, meaning the controlling government shareholder's voice and control in the firm potentially diminishes. The government owners are then unwillingly or unable to provide preferential treatment and benevolence. Therefore, corporate performance is negatively associated with the existence of another blockholder or multiple blockholders.

**Table 4**  
The effect of multiple blockholders on firm performance

The table reports the results of regressing firm value (Tobin's Q) on Multiple Dummy. Multiple Dummy equals 1 if there are two or more blockholders which each hold at least 5% cash flow rights. R&D Dummy equals one if the firm reports R&D expenses, which is used to control the effect of growth opportunity. Firm size is Log (Total Assets/1,000,000), which is measured as the natural log of book value of total assets divided by 1,000,000. Firm Age is proxied by the log value of the number of years since the firm's inception. Tangibility is approximated by the fixed asset ratio –net fixed assets over total assets. Capital Structure is measured as the book value of long-term debt divided by the book value of total assets. Industry Dummy, Year Dummy and Country Dummy are also included. P-values are in parentheses.

Variable	Tobin's Q
Intercept	1.69 (0.001)
<b>Multiple Dummy</b>	<b>-0.43</b> <b>(0.012)</b>
R&D Dummy	0.39 (0.342)
Ln (total assets)	-0.07 (0.01)
Ln (firm age)	-0.14 (0.004)
Fixed Assets/Total Assets	0.63 (0.154)
LT debt/Total Assets	-1.72 (<.0007)
Adjusted R-Squared	0.180
Observations	407

However, the identity of the second blockholder is also important. Among 161 firm-year observations from firms with at least two blockholders, 90 observations have government as the second blockholder. There are reasons for this arrangement. Table 5 presents the results of further analysis. SecondGovDummy equals 1 if the second blockholder is government. SecondVR is the control rights of the second non-government blockholder. La Porta et al. (2002) define “control rights” as the fraction of the firm's voting rights, if any, owned by its controlling shareholder. To measure control, La Porta *et al.* (2002) combine a shareholder's direct (i.e., through shares registered in her name) and indirect name (i.e., through shares held by entities that, in turn, she controls) voting rights. The same strategy is adopted here.

**Table 5**  
The effect of the identity of second blockholder on firm performance

The table reports the results of regressing firm value (Tobin's Q) on (A) SecondGovDummy or (B) SecondVR. SecondGovDummy equals 1 if the second blockholder is government. SecondVR is the control rights of the second non-government blockholder. R&D Dummy equals one if the firm reports R&D expenses, which is used to control the effect of growth opportunity. Firm size is Log (Total Assets/1,000,000), which is measured as the natural log of book value of total assets divided by 1,000,000. Firm Age is proxied by the log value of the number of years since the firm's inception. Tangibility is approximated by the fixed asset ratio –net fixed assets over total assets. Capital Structure is measured as the book value of long-term debt divided by the book value of total assets. Industry Dummy, Year Dummy and Country Dummy are also included. P-values are in parentheses.

Variable	A: The effect of whether the second blockholder is government or not Tobin's Q	B: When the second blockholder is not government owner Tobin's Q
Intercept	1.96 (0.001)	1.70 (0.011)
<b>SecondGovDummy</b>	<b>0.27</b> <b>(0.061)</b>	
		<b>SecondVR</b> <b>-1.26</b> <b>(0.068)</b>
R&D Dummy	-0.30 (0.305)	-0.28 (0.339)
Ln (total assets)	-0.09 (0.001)	-0.07 (0.019)
Ln (firm age)	-0.11 (0.001)	-0.12 (0.003)
Fixed Assets/Total Assets	0.71 (0.234)	1.10 (0.122)
LT debt/Total Assets	-1.35 (0.0001)	-1.44 (0.003)
Adjusted R-Squared	0.211	0.203
Observations	261	223

Table 5 shows the coefficient on SecondGovDummy is significantly positive and the coefficient on SecondVR is significantly negative. This means that when the second blockholder is government, it improves corporate performance. When the second blockholder is not government, the voting rights of the second blockholder decrease corporate performance.

The rationale is as follows. When the second blockholder is government, the controlling government blockholder and second government blockholder have an incentive to collude. The government's voice and control over the firm becomes stronger, and then the government has more incentive to provide preferential treatment to the firms under control. When the second blockholder is non-government, this blockholder mainly presents itself as monitoring the controlling government

shareholder, weakening the government's voice and control over the firm and reducing incentive or willingness to provide preferential treatment, as outlined earlier.

This study of the effect of multiple blockholders when government is the largest shareholder is the first in the academic literature. It contributes significantly to our understanding of the complicated corporate governance issues of government ownership.

#### D. Robust Tests

In this section, a series of robust tests are conducted to strengthen the analysis and conclusions drawn from Sections III.C.1, III.C.2, and III.C.3. As stated previously, all records for banks have already been removed from the sample dataset; data for other financial service firms are removed here to test the effect. The second robust test aims to reveal whether foreign government ownership influences firm performance. The third robust test uses an alternative valuation measure – Return on Assets (ROA, calculated as the operating profit divided by total assets). In sum, the robust tests generally support the results using Tobin's Q.

**Table 6**  
Robust tests

Corresponding Tables	Corresponding Variables	Robust Test 1: Excluding finance observation	Robust Test 2: Excluding foreign gov. shareholders	Robust Test 3: Alternative valuation measure: ROA
Table 2: Gov Firm and Firm Value	Gov Firm	significant, same sign	significant, same sign	significant, same sign
Table 3: Nonlinear relation between government ownership and firm value	Government Ownership & Government Ownership**2	significant, same sign; significant, same sign	significant, same sign; significant, same sign	significant, same sign; significant, same sign
Table 4: multiple blockholders	Multiple Dummy	significant, same sign	significant, same sign	insignificant, different sign
Table 5: identity of second blockholder	SecondGovDummy & SecondVR	significant, same sign; significant, same sign	significant, same sign; insignificant, same sign	insignificant, same sign

"Significant" and "insignificant" mean within 10% confidence level

Table 6 shows that including financial service industry firms in the sample dataset does affect firm performance; including foreign government shareholders in the sample dataset makes only a slight difference. When testing the effect of the voting rights of the second blockholder on firm value, the relationship becomes insignificant, although with the same sign; the reason is that the number of observations has been reduced greatly, and accordingly, the relationship becomes insignificant. Use of the

alternative valuation measure ROA makes some difference to the effect of multiple blockholders. The issue is that the existence of multiple blockholders is not the most important factor: what matters most is the identity of the second blockholder. From this point of view, the result using ROA generally supports the use of Tobin's Q, although the parameter estimate is less significant.

#### IV. CONCLUSION

Most previous research on government ownership focused on the comparison of corporate performance before and after privatization and the economic development function of government ownership. The role of government ownership in corporate valuation from the viewpoint of corporate governance is rarely explored. This study focuses on listed firms with at least one government blockholder, and addresses some important corporate governance issues. It is based on novel research into government ownership using 469 firms, each with at least one government blockholder, from 47 countries. No previous studies have explored government ownership using such a large number of listed firms.

The empirical analysis shows that there is a U-shaped relationship between government ownership and firm performance. The reason is that when the government is a small shareholder, it has neither the authority nor the incentive to provide the preferential treatment and benevolence that would outweigh the disadvantages of its political interference. If the presence of a government shareholder is to be beneficial to a firm, its shareholding must be relatively large. This feature clearly contrasts with family ownership, which has a reverse U-shaped relationship with corporate performance, and accordingly, family shareholdings are generally smaller than government shareholdings. This is a novel finding.

Another original finding presented in this paper concerns the endogeneity of government ownership. In theory, government ownership has been motivated mostly by the desire to resolve market failure problems. Liu (2017) shows that government ownership is mostly distributed in banks, infrastructure and public utility companies, and some strategic manufacturing firms across the world. The implication is that the main objective of government ownership is not to maximize accounting profit or firm valuation; this explains why the controlling government ownership is not endogenous. This is the first finding of the exogeneity of government ownership, and contradicts with existing literatures generally claiming that ownership is endogenous.

This paper also examines the existence of multiple blockholders. When the second blockholder is government, the controlling government blockholder and second blockholder have incentive to collude. When the second blockholder is non-government, this second blockholder mainly presents itself as monitoring the controlling government shareholder, leading to a different effect on firm performance. This paper is the first to examine the issue of multiple blockholders when government is the largest shareholder.

In sum, this paper makes original and significant contributions to our understanding of government ownership in corporations. However, scope for further research in this field remains. For example, if data availability is not an issue, data sets can be expanded to firms with 100% government ownership. In addition, a comparison of the effects of government ownership, family ownership and financial institutional ownership on firm performance would be very interesting. The degree to which

government ownership is correlated with a country's political system or government's political orientation is also an important issue for future research.

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