The Effect of Private Benefits of Control on Minority Shareholders: A Theoretical Model and Empirical Evidence from State Ownership

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ARTICLE INFO	ABSTRACT
	Purpose: The purpose of this paper is to examine the effect of private benefits of control on minority shareholders. **Design/methodology/approach**: A theoretical model is established. The empirical analysis includes hand-collected data from a wide range of data sources. OLS and 2SLS regression analysis are applied with Huber-White standard errors. **Findings**: The theoretical model shows that, while private benefits are generally harmful to minority shareholders, the overall effect depends on the size of large shareholder ownership. The empirical evidence from government ownership is consistent with theoretical analysis. **Research limitations/implications**: The empirical evidence is based on a small number of hand-collected data sets of government ownership. Further studies can be expanded to other types of ownership, such as family ownership and financial institutional ownership **Originality/value**: This study is the first to theoretically analyse and empirically test the effect of private benefits. In general, this study significantly contributes to the understanding of the effect of large shareholder and corporate governance.

1. Introduction

Equity ownership provides shareholders with certain rights to the firm's cash flow. While large shareholders have both the incentive to monitor management and (we assume) enough control to influence management so that cash flow is increased, all shareholders of the firm benefit. These are the shared benefits of control. However, there are also potential private benefits of control, which are available only to those shareholders having a certain degree of control over the firm.

The theoretical literature often identifies private benefits of control as the "psychic" value some shareholders attribute simply to being in control (Aghion and Bolton, 1992). Another traditional source of private benefits of control is the perquisites enjoyed by top executives (Jensen and Meckling, 1976). The use of a company's money to pay for perquisites is the most visible, but not the most important way in which corporate resources can be used to the sole (or main) advantage of the controlling party. Another important method is "tunnelling", defined by Johnson et al. (2000). Tunnelling comes in two forms. First, a controlling

shareholder can simply transfer resources from the firm for his own benefit through self-dealing transactions. Such transactions include outright theft or fraud, which is illegal everywhere, but also includes transfer of assets from a firm to the controlling shareholder at non-market prices loan guarantees using the firm's assets as collateral, excessive executive compensation, expropriation of corporate opportunities, etc. It can also take the form opposed to the above real transactions, such as dilution of minorities. It can be claimed that much of the tunnelling is legal (i.e. consistent with both the statutes and the basic principles followed by judges). Although some tunnelling (especially in emerging markets) constitutes theft or fraud, legal tunnelling taking place in developed countries is also substantial.

One main focus of the literature on investor protection (La Porta, Lopez-de-Salines, and Shleifer 2000) is on the amount of private benefits that controlling shareholders extract from companies they run. Two methods have been used in attempting to quantify them. The first one, pioneered by Barclay and Holderness (1989), focused on privately negotiated transfers of controlling blocks in publicly traded companies. The price per share an acquirer pays for the

controlling block reflects the cash flow benefits from his fractional ownership, and the private benefits stemming from his controlling position in the firm. By contrast, the market price of a share after the change in control is announced reflects only the cash flow benefits non-controlling shareholders expect to receive under new management. Hence, as Barclay and Holderness have argued, the difference between the price per share paid by the acquiring party and the price per share prevailing on the market reflects the differential payoff accruing to the controlling shareholder. In fact, after an adjustment, this difference can be used as a minimal measure of the private benefits of control accruing to the controlling shareholder. Dyck and Zingales (2004) used the Barclay and Holderness (1989) method to infer the value of private benefits of control in a large (39) cross section of countries. Based on 393 control transactions between 1990 and 2000 they found that on average, corporate control is worth 14 percent of the equity value of a firm, ranging from a -4% in Japan to a +65%in Brazil. The second method relies on the existence of companies with multiple classes of stock with differential voting rights. In this case, one can easily compute the market value of a vote. Based on a similar approach, Albuquerque and Schroth (2010) also discussed why many negotiated block trades occur at a discount. The second method relies on the existence of companies with multiple classes of stock with differential voting rights (Ehrhardt and Nowak, 2015).

As to the effect of private benefits on minority shareholders, almost all previous research simply assumes that private benefits are harmful. However, as well as the shared benefit, private benefit also provides extra incentive to the manager/owner to work harder. Holderness (2003) said "it must be cautioned, however, that private benefits need not reduce the wealth of minority shareholders. This is an assumption of some analyses, but it is wrong. For example, neither the non-pecuniary pride that some individuals feel in controlling a public corporation nor the synergies in production that can result if a corporation is the blockholder (a common situation) will reduce the wealth of minority shareholders. Indeed, both of these private benefits could redound to the benefit of minority shareholders; both types of private benefits of control could, in other words, produce shared benefits of control." Albuquerque and Schroth (2010) stated that "the presence of private benefits of control does not mean that dispersed shareholders have nothing to gain from having a controlling shareholder".

Rather than simply assuming that private benefits of control are harmful, this study is the first to quantitatively analyse the effect of private benefits on small shareholders. Following a simple theoretical model, some empirical evidence from government controlling ownership is also provided.

2. A Simple Model

To be simple, the traditional agency problem, i.e. the conflict between shareholders and managers, is ignored. It is simply assumed there is only one large shareholder and it is also the manager. Holderness (2010) also found that even in the US, large shareholders are typically managers, not monitors. This assumption is thus consistent with the evidence.

Notations:

f A proportion of the firm's total products which are produced by purchasing raw materials through related parties, or which are sold to a related party

Δ The cash flow stakes (shared benefit) held by the large shareholder

$C(f)$ *The* cost of production, which is a function of f

$C_f > 0$ The cost increases as the fraction of related transactions f increase

$P(f)$ Selling pricing of product, which is a function of f

$P_f < 0$ The price of products decreases with the increase of f

$P_{ff} < 0$ The marginal effect of related transactions on price is decreasing

s Private benefit of control

Q Tobin's Q, which is the corporate value and also reflects the minority shareholder's interest

Suppose:

Cost of production function: $C(f) = a \cdot (1-f) + b \cdot f$
$b \succ a \succ 0$

Then $C_f = b - a \succ 0$, which means that cost of production is an increasing function of f

Revenue function:
$$P(f) = (1 - c \cdot f - d \cdot f^2) \qquad 0 \prec c \prec 1 \quad 0 \prec d \prec 1$$

Then
$$P_f = -(c + 2 \cdot d \cdot f) \succ 0$$
$$P_{ff} = -2 \cdot d \prec 0$$

(A) No private benefit.

Large shareholder will then maximize the following objective function:

$$Max_f \qquad v = P(f) - C(f) =$$
$$(1 - cf - df^2) - a(1-f) - bf \qquad\qquad f^* = 0$$

$Q = 1 - a$ Tobin's Q for f=0 is

(B) There are private benefits

Under these conditions, the large shareholder will maximize the following objective function:

$$\begin{aligned}\underset{f}{Max}\\v = f \cdot (b-a) + \Delta\left[P(f) - C(f)\right] =\\= f \cdot (b-a) + \Delta \cdot \left[\left(1 - c \cdot f - d \cdot f^2\right) - a \cdot (1-f) - b \cdot f\right]\end{aligned} \quad (1)$$

After doing the First Order Condition, the optimal f is:

$$f^* = \frac{(b-a) \cdot (1-\Delta) - \Delta c}{2 \cdot \Delta \cdot d} \quad (2)$$

Now considering the large shareholder to choose Δ to maximize the following function:

$$\begin{aligned}\underset{\Delta}{Max} \qquad\qquad \underset{f}{Max}\\v = f \cdot (b-a) +\\\Delta \cdot \left[b \cdot \left(1 - c \cdot f - d \cdot f^2\right) - a \cdot (1-f) - b \cdot f\right]\end{aligned} \quad (3)$$

Differentiating (2) to Δ, then we can get:

$$\frac{\partial f^*}{\partial \Delta} = - \cdot \frac{(b-a)}{2\Delta^2 \cdot d} \prec 0 \quad (4)$$

The price to buy Δ of the company is:

$$\begin{aligned}v_1 = f \cdot (b-a) +\\\Delta \cdot \left[\left(1 - c \cdot f - d \cdot f^2\right) - a \cdot (1-f) - b \cdot f\right]\end{aligned} \quad (5)$$

Price per share for the controlling shareholder then is:

$$\begin{aligned}P_1 = \frac{v_1}{\Delta} = \frac{f \cdot (b-a)}{\Delta} +\\+\left[\left(1 - c \cdot f - d \cdot f^2 - a \cdot (1-f) - b \cdot f\right)\right]\end{aligned} \quad (6)$$

The price to buy $(1-\Delta)$ of the company is:

$$v_2 = (1-\Delta) \cdot \left[\left(1 - c \cdot f - d \cdot f^2\right) - a \cdot (1-f) - b \cdot f\right] \quad (7)$$

Price per share for minority shareholders is:

$$P_2 = \frac{v_2}{1-\Delta} = \left[\left(1 - c \cdot f - d \cdot f^2\right) - a \cdot (1-f) - b \cdot f\right] \quad (8)$$

The private benefit of control s, which is defined as $\left(\frac{P_1}{P_2} - 1\right) \cdot \Delta$, is as follows:

$$s = \frac{f \cdot (b-a)}{\left(1 - c \cdot f - d \cdot f^2\right) - a \cdot (1-f) - b \cdot f} \quad (9)$$

The Tobin's Q, which is defined as

$$\begin{aligned}q = \left(1 - c f - d f^2\right) - a(1-f) - bf =\\= (1-a) - \left[(c-a+b)f + d f^2\right]_{f=f^*} \prec 1-a\end{aligned}$$

$$\left(\frac{market \cdot value \cdot based \cdot on \cdot minority \cdot shareholders' \cdot interest}{accounting \cdot valuation}\right)$$

is as follows: (10)

Differentiating (10) to Δ, then we can get:

$$\frac{\partial q}{\partial \Delta} = -\left(c + b - a + 2d f^*\right)\frac{\partial f^*}{\partial \Delta} \succ 0 \quad (11)$$

From this part, two basic hypotheses are concluded:

Hypothesis 1: (from equation 10) private benefit enjoyed only by the large shareholder is harmful to minority shareholders.

Equation 11 shows that the higher cash flow ownership by the controlling shareholder is associated with higher valuation. Combining this point and Hypothesis 1, the second hypothesis is drawn as follows:

Hypothesis 2: The negative effect of the private benefits on valuation (Tobin's Q) is higher when the large shareholder holds a small fraction of cash flow rights (the large shareholder enjoys the private benefit but only bears a small fraction of the cost).

3. Data

The primary source of ownership data sets is OSIRIS, and is provided by Bureau Van Dijk (BvD); OSIRIS is a database containing financial information on globally-listed public companies. As to the shareholder information, it consists of data on 35,098 firms with a total of 304,366 shareholders. In this section, only state ownership data items are identified, analysed and collected.

3.1 State Owner Identification

Because BvD never computes weighted averaged percentage of indirect ownership between a shareholder and a subsidiary, double checking and calculation of the ultimate ownership value is necessary. The alternative data provider is Lexix/Nexis (through which, we can access WorldScope, the Major Companies Database and Thompson Financials Extel Cards/ Holderness (2006) used Lexis-Nexis, and Claessens et al. (2000) and La Porta et al. (1999) used WorldScope. They claimed that the differences between the results with different data vendors are not significant.). All these three vendors only provide direct ownership information; however, one can trace the direct shareholders upward and finally find the ultimate owners. Besides annual reports, the official websites are also very useful in finding share information in some countries. However, if the ownership information in OSIRIS is very suspicious, such as the overall ownership size is greater than 100% or the date of multiple ownership is greatly different and no other options are available, these observations are deleted. The result of state owner identification is presented in Table 1.

Table 1: Identification of State Owner

Institution Name	Country	Original Identity	New Identity	No of Firms	No of Obs
Public Investment Commission*	South Africa	State, Public authority	Mutual & Pension fund/Trust/Nominee	16	68
Social Security System**	Philippine	State, Public authority	Mutual & Pension fund/Trust/Nominee	6	21
General Organization for Social Insurance GOSI***	Saudi Arabia	State, Public authority	Mutual & Pension fund/Trust/Nominee	3	9
Public Pension Institution	Saudi Arabia	State, Public authority	Mutual & Pension fund/Trust/Nominee	1	2
National Insurance Board (NIB)	Trinidad and Tobago	State, Public authority	Mutual & Pension fund/Trust/Nominee	1	2
National Social Security Authority	Zimbabwe	State, Public authority	Mutual & Pension fund/Trust/Nominee	1	3
National Council for Social Security	China	State, Public authority	Mutual & Pension fund/Trust/Nominee	1	2
Public authority for Social Insurance	Oman	State, Public authority	Mutual & Pension fund/Trust/Nominee	3	15
State Board of administration of Florida Retirement System	USA	State, Public authority	Mutual & Pension fund/Trust/Nominee	1	9
Treasury Stock	Japan	State, Public authority	Owed by Itself	1	1
Treasury Stock	Korea	State, Public authority	Owed by Itself	1	5
Bureau of Crown property****	Thailand	State, Public authority	Individual(s) or family(ies)	2	3

Institution Name is the largest shareholder name which appears in OSIRIS. Country is the origin of institution. Original Identity is the type of shareholder classified by OSIRIS. New Identity is its new classification of shareholder after double-checking. No of Firms is the number of firms that the institution invests in as blockholder(s). No of Obs is the total number of shareholders of all the firms invested in by this institution.

`Public Investment Commissions (PIC) (south Africa) are a non-banking financial intermediary responsible for the investment of social security and trust funds, but more particularly for the investment of public sector pension and provident funds placed with it. Source: http://www.pic.gov.za.

`'``The Social Security System (SSS) Philippine administers social security protection to workers in the private sector. The SSS administers two programs namely: (1). The Social Security Program; and (2) The Employees' Compensation (EC) Program. Social security provides replacement income for workers in times of death, disability, sickness, maternity and old age. Source: http://www.sss.gov.ph

`'```General Organization for Social Insurance. Source: www.gosi.gov.sa

```'Bureau of the Crown Property or Crown Property Bureau (Thai:) is a Thai non-government agency responsible for managing the personal assets of the King of Thailand and his immediate family. According to Section 8 of the Royal Assets Structuring Act of 1936, the CPB is exempt from taxes. Source: http://en.wikipedia.org/wiki/Bureau_of_the_Crown_Property

From Table 1, we can see that the state organizations which operate private capital (social security capital) are excluded from being state shareholders. They are reclassified as pension funds. Treasury stocks are also excluded, being state shares. Another "fake state agency" is the "Bureau of Crown Property", which is reclassified.

Because the stock markets in West Asia, Africa and former USSA regions are immature, the data from countries such as United Arab Emirates, East Caribbean Terri, Ghana, Kenya, Kuwait, Morocco, Nigeria, Oman, Saudi Arabia, Serbia and Montenegro, Moldova and Suriname are excluded. As to Singapore, since all state ownership data is not available, sample firms from Singapore are also excluded. Firms from financial industry (3-digit SIC codes ranging from 600 to 700) are also excluded.

Finally, the data sample includes a total of 75 firms with 381 observations from 16 counties spanning from 2007-2008.

3.2 Independent Variables

As far as the interest of minority shareholders is concerned, Tobin's Q is used as a proxy variable. Q measures the valuation of the firm from the perspective of minority shareholders that do not receive any private benefits. It is defined as the ratio of market value of stock, preferred stock (current stock price times the number of outstanding shares) and debt to book value of assets, which is the same algorithm as Davies et al. (2005).

As to private benefits, the basic idea is that private benefits provide extra incentive to the manager/owner to work harder. Table 2 presents the country-level average private benefits, which are from Dyck and Zingales (2004).

The block premium is computed as the difference between the price per share paid for the control block and the price on the Exchange two days after the announcement of the control transaction, divided by the price on the Exchange after the announcement and multiplied by the proportion of cash flow rights represented in the controlling block.

Table 2. Private Benefits of Control by Country

Country	Mean value of block premium as percent of firm equity
Australia	0.02
Israel	0.27
Malaysia	0.07
New Zealand	0.03
Thailand	0.12

United Kingdom	0.01
Brazil	0.65
France	0.02
Italy	0.37
Germany	0.1
Japan	–0.04
South Korea	0.16
Switzerland	0.16
Taiwan	0
Finland	0.02
Norway	0.01

State Ownership is the fractional equity owned by the state/government. Previous research suggests that relation between equity ownership and Tobin's Q maybe nonlinear (Villalonga and Amit, 2006). The regression specification id developed by including state ownership and the square of state ownership as continuous variables.

In addition, the legal system has a significant effect on corporate valuation (minority stakeholder's interest). Dyck and Zingales (2004) said that "since LLSV's (1998) seminal paper, the origin of country's legal system has played an important role in all the institutional explanations of cross-country differences" and they found that legal mechanisms are dominant explanation variables. La Porta et al. (2002) claimed that the legal system can have two proxy variables which are "Common Law' and "Civil Law". "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. The below Table 3 presents the classifications of legal system.

Table 3.Common Law or Civil Law around the World

Country	Common Law	Civil Law
English-Origin		
Australia	y	
India	y	
Israel	y	
Malaysia	y	
New Zealand	y	
Pakistan	y	
Thailand	y	

United Kingdom	y	
French-Origin		
Belgium		y
Brazil		y
France		y
Greece		y
Italy		y
Jordan		y
Germany-Origin		
China		y
Germany		y
Japan		y
South Korea		y
Switzerland		y
Taiwan		y
Scandinavian-Origin		
Finland		y
Norway		y

Corporate valuation is controlled, in line with the relevant finance literature; large firms may have scale economies and better access to bank credits, which could improve corporate profitability (Chhibber and Majumdar, 1999). Here one can proxy Firm Size with the natural log of the book value of total assets.

Asset structure or Tangibility is also argued to influence corporate valuation. Tangibility is approximated by the fixed asset ratio: the net fixed assets over total assets. It is expected that the fixed asset ratio has a negative impact on corporate value, as firms with a high proportion of intangible assets tend to belong to the new economy.

Jensen's (1986) free cash flow theory predicted that corporate performance increases as the debt/equity ratio increases because the managers of indebted firms are less able to invest in projects with negative net present values.

Capital Structure: total long-term liabilities over total asset, is also controlled.

Furthermore, significant literature argues that, given the enterprise life cycle, the age of a firm is related to corporate profitability and market value. It is measured .

as the natural log of the number of years since the firm's inception.

R&D/Sales is used to proxy for growth opportunity. Year Dummies are also used to capture rapid institutional change and macroeconomic shocks in different years. Industry Dummies are also controlled.

4. Regression Results

The regressions models and results are presented in table 4.

Model 1 only considers the relations between Tobin's Q and Private Benefits, non-linear state ownership, common law dummy as proxy for investor protection and other control variables. Model 2 furthermore considers the interaction term of Common Law*Ownership. Model 3 adds the interaction term of Common Law*PrivateBenefit. Model 4 additionally consider the interaction term of PrivateBenefit*Ownership. Model 5 adds two other variables: Common Law*Ownership and Common Law*PRVBenefit. Model 6 considers other two of PRVBenefit*Ownership and Common Law*Ownership. Model 7 adds two interaction terms related with "Private Benefit" as Common Law*PRVBenefit and PRVBenefit*Ownership. Model 8 adds all these three interaction terms.

The table 4 reports of regressing Tobin's Q on private benefits. Private Benefit is the privately shared benefit by large shareholders, which is proxied with the premium of block transactions. State Ownership is the fraction of stake held by government or public authority. Common Law is a dummy variable that equals 1 if the origin of the company law or commercial code of the country is English Common Law, and 0 otherwise. R&D/Total Sales is research and development expenses divided by net sales. Capital Structure is measured as the book value of long-term debt divided by the book value of total assets. Firm size is Log Total Assets (/1,000, 000), which we measure as the nature log of book value of total assets divided by 1,000,000. Tangible is approximated by the fixed asset ratio: the net fixed assets over total assets. We proxy Firm Age using the Log value of the number of years since the firm's inception. P-values are in parentheses (with white standard errors).

Table 4 Tobin's Q and Private Benefits: The Case of State Ownership

	1	2	3	4	5	6	7	8
Intercept	2.329	2.594	2.349	2.592	2.642	2.775	2.609	2.816
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Private Benefit	-0.028	-0.413	0.104	-3.384	-0.259	-3.272	-3.241	-3.065
	(0.927)	(0.207)	(0.751)	(0.002)	(0.447)	(0.002)	(0.003)	(0.004)
State Ownership	-2.631	-3.503	-2.477	-3.286	-3.358	-3.916	-3.136	-3.773

	(0.010)	(0.001)	(0.015)	(0.001)	(0.001)	(0.000)	(0.002)	(0.000)
State Ownership*State Ownership	2.104	3.381	1.890	2.227	3.183	3.255	2.022	3.076
	(0.035)	(0.002)	(0.063)	(0.021)	(0.003)	(0.002)	(0.040)	(0.004)
Common Law	0.535	1.315	0.635	0.552	1.519	1.187	0.647	1.378
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Common Law*PRVBenefit			-0.799		-1.125		-0.760	-1.036
			(0.283)		(0.125)		(0.291)	(0.148)
Common Law*Ownership		-1.544			-1.670	-1.263		-1.386
		(0.006)			(0.003)	(0.022)		(0.013)
PRVBenefit*Ownership				6.647		5.800	6.612	5.669
				(0.001)		(0.005)	(0.001)	(0.006)
R&D/Total Sales	12.361	13.329	12.649	5.947	13.813	7.556	6.256	8.133
	(0.003)	(0.001)	(0.003)	(0.180)	(0.001)	(0.088)	(0.160)	(0.067)
Ln(Total Assets)	-0.024	-0.034	-0.022	0.003	-0.033	-0.009	0.004	-0.008
	(0.231)	(0.084)	(0.262)	(0.886)	(0.094)	(0.671)	(0.839)	(0.689)
Ln(Firm Age)	-0.032	-0.025	-0.043	-0.021	-0.040	-0.017	-0.032	-0.031
	(0.432)	(0.531)	(0.308)	(0.596)	(0.331)	(0.670)	(0.442)	(0.448)
Tangible	0.491	0.347	0.475	0.258	0.313	0.170	0.244	0.142
	(0.115)	(0.260)	(0.128)	(0.403)	(0.309)	(0.578)	(0.430)	(0.641)
Capital Structure	-0.752	-0.931	-0.713	-0.740	-0.891	-0.888	-0.703	-0.852
	(0.001)	(<.0001)	(0.002)	(0.001)	(0.000)	(<.0001)	(0.001)	(0.000)
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	yes	yes	yes	yes	yes	yes	Yes
Adjusted R-Square	0.454	0.485	0.459	0.495	0.494	0.514	0.499	0.522

All of the eight coefficients of private benefit are negative, indicating that private benefits do harm minority shareholder's interest. This finding confirms Hypothesis 1. However, whether it is significant (within 1% confidence level) or not depends on the interaction term of PRVBenefit*Ownership. This finding confirms Hypothesis 2. For model 4, 6, 7 and 8, which include this interaction term, the coefficients of "Private Benefit" are significantly negative. When "Private Benefit" increases 1%, the Tobin's Q will decrease from 3.07% (model 8) to 3.38% (model 4). However, after considering the interaction terms of "Private Benefit" and "State Ownership", the harmful effect is different. For model 4, 6, 7, and 8, the coefficients of the interaction terms are significantly positive, showing that the private benefits are not necessary harmful to minority shareholders. It will depend on the size of large shareholder ownership, in this case, government (state). For model 4, if private benefits of control increase 1% and the ownership is 10%, then the change of Tobin's Q will be 1%*(-3.384)+1%*10%*6.647=-2.7%. This means that that an increase of 1% in private benefits will cause a loss of 2.7% of Tobin's Q, i.e., minority shareholder's interest is hurt. However, if the ownership is 60%, the Tobin's Q will change 1%*(-3.384)+1%*60%*6.647=0.6%. This means that although there is an increase of private benefits, the Tobin's Q will finally increase 0.6%, and the minority shareholder will be better off from this increase of private benefits. Here the value of turning point of state ownership, at 50.9%, is also obtained. This means when state ownership is below 50.9%, private benefits, which are only enjoyed by the large shareholder, here, government, will be harmful to minority shareholder. However, when the size of ownership increases to greater than 50.9%, private benefits will benefit the minority shareholders. Similarly, the value of turning point of state ownership is found to be 56.4% for model 6. As to model 7 and 8, the value of turning point also depends on the variable "common law". The turning point size of state ownership is 60.5% and 72.3% separately in common law countries and 49% and 54% separately in civil law countries. The rationale is as follows: private benefits provide an extra incentive to managers (large shareholders). When the large shareholder owns a small fraction of equity, even if it gets many private benefits, the total incentive from private benefits and shared benefit is not enough to motivate the managers to work harder. However, if the large shareholder owns a large fraction of the firm's equity, the total incentive will encourage the large shareholder to work harder, improving corporate performance, and at the same time benefiting the minority shareholder.

When considering the effect from the interaction term of "Common Law" and "Private Benefit" (model 3, 5, 7 and 8), it shows that the coefficients of the interaction term are all negative (not significant). This indicates that private benefits are more harmful (if harmful) and less beneficial (if beneficial) to minority shareholders in common law countries (which represent stricter investor protection), although this relation is not significant.

As to the performance of state ownership, the coefficients on state ownership are significantly positive and the coefficients on squared ownership are significantly negative in all 8 models. It shows that there is a u-shaped relation between Tobin's Q and state ownership. The economic explanation lies within the utility function of the government, which contains both financial and political goals. When 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 large. At the same time, minority shareholders also benefit from that.

However, the u-shaped relation may be influenced by reverse causality of the government shareholding, which is determined by Tobin's Q (corporate performance). Moreover, since the government will also benefit from increase of Tobin's Q (the shared benefit for both large and minority shareholder), the improvement of corporate performance may lead to changes in state ownership. This suggest that state ownership may be an endogenous variable. The simultaneity issue needs to be addressed with the 2SLS model. In this simultaneous equation system, Tobin's Q and the size of government shareholding are jointly dependent variables. Lagged Tobin's Q, R&D/Sales, Private Benefit, Firm Age, Tangible, financial leverage, firm size, and the industrial sector dummies and Common Law Dummy are taken as instruments. In the first stage regression, the coefficients on lagged Tobin's Q are always insignificant (even after changing the control variables), which suggests Tobin's Q (as proxy for corporate performance) was not actually an important determinant of state ownership. Gugler and Weigand (2003) also found that the largest shareholder affects performance exogenously in the US and German, the endogeneity of state ownership is not found in their study.

As far as these control variables are concerned, the coefficients of R&D/total sales are all positive (although not significant in model 4 and 7). This is consistent with previous analysis. Firm size is not significant. Firm age is negatively related with Tobin's Q although the relation is insignificant. Both of these two conclusions are consistent with the analysis presented in Section 3.2.1. Variable "Tangible" has a positive, but not significant relation to Tobin's Q. Capital Structure is negatively related with Tobin's Q. This indicates that the use of debt as external financing sources is harmful to minority shareholder's interest when state is the large shareholder.

5. Conclusions

This study finds that while private benefits are generally harmful to minority shareholders, the overall effect depends on the size of ownership. Almost all of previous research simply assumes that private benefits are harmful. This study is the first to theoretically analyse and empirically test the effect of private benefits. Empirical evidence from government ownership also confirms my theoretical analysis. This study significantly contributes to the understanding of the effect of ownership structure and broad corporate governance issues

Further empirical studies can be expanded to other types of ownership such as family ownership and financial institutional ownership.

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