The Cost of Multiple Large Shareholders

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ABSTRACT

Previous research argues that large non-controlling shareholders enhance firm value because they deter expropriation by the controlling shareholder. We propose that the conflicting incentives faced by large shareholders may induce a nonlinear relationship between the relative size of large shareholdings and firm value. Consistent with this prediction, we present evidence that there are costs of having a second (and third) largest shareholder, especially when the largest shareholdings are similar in size. Our results are robust to various relative size proxies, firm performance measures, model specifications, and potential endogeneity issues.

JEL classification: G32; G34.

Keywords: Multiple large shareholders, firm value, Tobin's Q, Non-controlling large shareholders, monitoring, collusion.

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1. Introduction

Large non-controlling shareholders are important guardians of minority shareholder interests and can enhance firm value through their monitoring activity (Pagano and Röell, 1998, Bennedsen and Wolfenzon, 2000, Maury and Pajuste, 2005, Laeven and Levine, 2008, Attig et al., 2009a). We show that these shareholders may, instead, choose to collude with the controlling shareholder if it is in their mutual interests. Further, the choice of whether to monitor or collude will depend upon the ratio of the controlling shareholder investment to that of other large non-controlling shareholders. We refer to this as the *Ownership Wedge (OW)*.[1]

Large non-controlling shareholders have the potential to play two roles. They have the incentive and voting power to constrain the objectives of the controlling shareholder (Gomes and Navaes, 2006)[2], but they may also join the controlling shareholder in expropriating wealth from smaller shareholders.

We propose a simple model that captures the contrasting incentives of the second largest shareholder. When the controlling shareholder's investment is much bigger than that of the second largest shareholder (that is, when *OW* is large), any increase in the second largest shareholder's investment will lead to an increase in firm value. However, as the relative shareholdings converge in size (when *OW* approaches 1), firm value will fall as a result of collusion. This is because the private benefits from monitoring and collusion vary with the ownership wedge, *OW*.

We contribute to the literature by testing the proposition that firm value is affected by a

[1]Other terms have been used to represent this concept. Maury and Pajuste (2005) use "control contestability" and "distribution of voting rights among large shareholders" to represent the large shareholder ownership differential. Laeven and Levine (2008) use "distribution of cash-flow rights among large shareholders".

[2] Gomes and Novaes (2006) and Bennedsen and Wolfenzon (2000) both argue that multiple large shareholders reduce the level of minority expropriation. Whereas Bennedsen and Wolfenzon (2000) focus on the formation process of the controlling group, Gomes and Novaes (2006) concentrate on the ex-post bargaining games among a controlling coalition.

trade-off between the monitoring and collusion incentives of non-controlling large shareholders. Using a number of different relative shareholder size metrics, we show that the relationship between the Ownership Wedge (*OW*) and firm value (both Tobin's Q and Market-to-Book Value) is concave. In particular, firm value is at its greatest when the second largest shareholder's holding is about forty per cent of the controlling shareholder's holding.

Using a comprehensive sample of Chinese firms between 2003 and 2011, we present clear evidence of a non-linear relationship between the Ownership Wedge and firm value. Turning points in this relationship are directly related to board quorum and majority voting thresholds, suggesting that large shareholders take advantage of corporate governance regulations when exercising their power to influence management behaviour. Our results hold true irrespective of the way in which large shareholders and shareholder identities are defined, and are robust to endogeneity, model specification, variable proxies, and regulatory changes.

We focus specifically on Chinese listed companies for two reasons. First, multiple large shareholders are a common phenomenon in Chinese markets. More than 49 per cent (30 per cent) of listed companies have at least two large shareholders when using a 5 per cent (10 per cent) ownership threshold. Second, minority shareholder expropriation is pervasive, and occurs through mechanisms such as related party transactions (Cheung et al., 2009), inter-corporate loans (Jiang et al., 2010), extraordinary dividends (Lee and Xiao, 2004, Chen et al., 2009a), and related party loan guarantees (Berkman et al., 2009), all frequently used by controlling owners.

By focusing on Chinese listed companies, we expand the research on the association between large shareholders and firm performance in a non-Western context. Previous literature investigates this issue for Europe (Laeven and Levine, 2008, Jara-Bertin et al., 2008, Attig et al., 2008), East Asia (Attig et al., 2008, Attig et al., 2009a), Finland (Maury and Pajuste, 2005), Italy (Gianfrate, 2007), Columbia (Gutiérrez and Pombo, 2009), Spain (Gutierrez and Tribo, 2003), Switzerland (Isakov and Weisskopf, 2009), and France (Belot, 2008). To the best of our knowledge, no attention has been paid to Chinese listed companies, which operate in an environment where tunnelling and other forms of expropriation are common.

The rest of the paper is structured as follows. In Section 2, we present a brief literature review, which leads to the development of our core propositions. Section 3 describes the data and methodology. Section 4 presents our core empirical results and robustness checks. Finally, Section 5 concludes the paper.

2. Literature Review and Hypotheses

In recent years, the literature on multiple large shareholders has grown substantially. By their very nature, multiple large shareholders have an influence on all dimensions of corporate strategy, which is reflected in the breadth of topics that have been investigated in the literature. For example, Bolton and Thadden (1998) examine their influence on market liquidity; Maury and Pajuste (2005) analyze profit diversion when a firm has several large shareholders; Dhillon and Rossetto (2009) explore how large shareholders affect firm-level investment policy; and Edmans and Manso (2011) investigate their role in enforcing managerial discipline. Other papers have considered control contestability (Bloch and Hege, 2003), business decision approvals (Gomes and Navaes, 2006), monitoring of the controlling shareholder (Winton, 1993, Pagano and Röell, 1998, Bolton and Thadden, 1998), and private benefits of control (Bennedsen and Wolfenzon, 2000, Zwiebel, 1995, Gomes and Navaes, 2006, Pagano and Röell, 1998). Finally, the literature has also examined the indirect effect of multiple large shareholders, including their influence on operating performance (e.g., Gutiérrez and Pombo, 2009, Gutierrez and Tribo, 2003, Isakov and Weisskopf, 2009, Lehmann and Weigand, 2000), expropriation (e.g., Gianfrate, 2007), equity costs (e.g., Attig et al., 2008), cash holdings (e.g., Attig et al., 2009b), dividend policy (e.g., Mancinelli and Ozkan, 2006, Faccio et al., 2001), and managerial turnover (e.g., Volpin, 2002).

The papers that are most closely connected to this paper are those that analyse how multiple large shareholders affect firm value. Maury and Pajuste (2005) and Attig et al. (2009a) examine the effect of voting rights on Finnish and East Asian firms respectively, while Laeven and Levine (2008) look at the influence of large shareholder cash-flow rights on European firm value. All three studies highlight the positive impact of multiple large shareholders.

One way that large shareholders can affect firm behaviour is by engaging with the controlling owner. Because their investment is substantial, large non-controlling shareholders will suffer a greater loss from expropriation than smaller shareholders. Consequently, large shareholders have an incentive to monitor and constrain any activity that harms shareholder wealth. The ability to monitor its effectiveness increases with the size of their investment in the firm, therefore the existence of several large shareholders may result in lower agency costs and an increase in firm performance.

At the same time, it may be more profitable for large shareholders to collude and extract private rents that maximise their personal wealth collectively at the expense of other shareholders. Collusion can manifest itself through tunnelling, expropriation, related party transactions and the appointment of sympathetic executives. When large shareholders collude, firm value will be lower compared to when large shareholders act as monitors.[3]

To give some context, an anecdotal example of collusion in the Chinese environment is Miangao (Stock Code: 600139), a listed company on the Shanghai Stock Exchange. Miangao has two large shareholders: Gaoxing Investment (holding 28.94%) and Sichuan Dingtian Group (holding 23.27%). According to the firm's 2003 financial reports, approximately one quarter of

[3] An alternative explanation is that large shareholders of similar size may compete for private benefits. A special case has been studied in the context of second generation family firms by Bertrand et al. (2008).

Miangao's total assets (84 million RMB) were recorded as 'Other Debtor'. Examination of this figure reveals it consisted of loans to the two largest shareholders and their affiliations. Over 61 million RMB was later written off by the firm in the form of bad loans, and this preceded a 75 per cent decline in the stock price within 4 years. Although there is no direct evidence of collusion, the extent of resource diversion provides little support for the notion that the controlling owner's behavior was constrained by other large shareholders.

In Appendix A, we propose a simple model to quantify the effect of competing behavior (monitoring and collusion) which provides the theoretical foundation for investigating the relationship between large shareholders and their effect on firm value. Given the discussions above and Proposition A.1 in the appendix, we hypothesize that firm value is a non-linear and concave function of the ownership wedge.

3. Data and Methodology

The sample period runs from 2003 to 2011 and the data is drawn from the CSMAR database provided by Shenzhen GTA Information Technology Company, a major Chinese data provider. Information not available on the CSMAR database is collected manually from annual reports. Our main variable is the relative size of shareholdings between the first and second largest shareholder (*Ownership Wedge*).

The initial sample includes every listed firm on the Shanghai and Shenzhen Stock Exchanges. After excluding financial firms and those with missing values, the final number of firm year observations is 11,241, which represents 94.04% of the total possible firm years available. All variables are subsequently winsorized at the 1st and 99th percentiles to alleviate the influence of extreme outliers. A full list and definition of variables are provided in Appendix B.

Table I gives a summary of the ownership structure of Chinese listed companies during the sample period. The two panels represent different voting right thresholds (five and ten per cent) to identify a large shareholder. It is clear that a high proportion of Chinese firms have multiple large shareholders. For example, more than 49 per cent (30 per cent) of firms have at least two large shareholders with voting rights above 5 per cent (10 per cent).

3.1 Methodology

A major issue facing panel data research is unobserved heterogeneity. Accordingly, we follow Gormley and Matsa (2014) and use an OLS regression with industry and year fixed effects as the main model specification. For robustness, we also carry out an OLS regression with firm and year fixed effects.[4] The main model specification is as follows:

$$Tobin's\ Q = \beta_0 + \beta_1 OW_{it} + \beta_2 OW_{it}^2 + \sum_{k=3}^{n} \beta_k CONTROL_{itk} + f_s + \delta_t + \varepsilon_{it} \qquad (1)$$

where the dependent variable is unadjusted (raw) Tobin's Q and the independent variables include a linear and quadratic Ownership Wedge variable, together with various firm characteristics as control variables. The term f_s represents industry fixed effects, δ_t represents year fixed effects, and ε_{it} is the stochastic error term.

3.1.1 Dependent Variables

We use Tobin's Q as a market-based proxy of relative firm value (Demsetz and Villalonga, 2001). It is defined as the market value of total assets divided by the replacement cost of total assets. However, since data on the replacement cost of assets and market value of debt is not available, we substitute the book value of debt for its market value (Coles et al., 2008). This also avoids the use of *ad hoc* assumptions about depreciation and inflation rates, which the original formula requires. Chung and Pruitt (1994) find that this approximation accounts for more than 95 per

[4] We thank the referee for their suggestion in dealing with this issue.

cent of the variation of the original Tobin's Q.

An important characteristic of the Chinese stock markets is that there are two types of shares: tradable and non-tradable. Non-tradable shares, on average, account for around 40 per cent of total equity during the sample period, although this decreases over time due to the split share structure reforms introduced at the end of 2005. Chen and Xiong (2001) find that non-tradable stock is between 78 and 85 per cent of the value of tradable stock. Following Bai et al. (2004), we discount the market value of non-tradable shares by 70 and 80 per cent of the tradable stock price to create two Tobin's Q measures respectively[5] and adjust equity value by weighting each share class by the number of shares outstanding.

3.1.2 Ownership Structure Variables

Previous research on ownership concentration has used a number of measures to proxy for shareholder power (Maury and Pajuste, 2005; Laeven and Levine, 2008). To capture our idea of an Ownership Wedge, we construct four proxies:

$$OW_1 = Votes_2 / Votes_1 \quad (2)$$

$$OW_2 = Votes_2 / (Votes_1 + Votes_2) \quad (3)$$

$$OW_3 = (Votes_2 + Votes_3) / Votes_1 \quad (4)$$

$$OW_4 = (Votes_2 + Votes_3) / (Votes_1 + Votes_2 + Votes_3) \quad (5)$$

Where $Votes_i$ is the percentage voting right for the i^{th} largest shareholder. OW_1 and OW_2 measure the Ownership Wedge between the first and second largest shareholder, while OW_3 and OW_4 include the third largest shareholder.

3.1.3 Control Variables

We choose control variables on the basis of their importance in explaining relative firm value in

[5]To calculate the value of non-tradable shares, we multiply the discounted price per share by the total number of non-tradable shares. This adjustment is robust to the effect of the split share structure reforms at the end of 2005. Since then, the total number of non-tradable shareholders for each company has decreased gradually and, as a result, the proportion of shares on which the discount is applied also decreases.

previous research (Porta et al., 2002, Claessens et al., 2002, Faccio et al., 2001, Laeven and Levine, 2008). Firm size, FIRMSIZE, is defined as the natural logarithm of total sales at the end of the year. Leverage, LEVERAGE, is the book value of all long-term liabilities divided by the book value of total assets. Sales growth, GROWTH, is the percentage change in sales year-on-year. The investment ratio, CAPEX, is the ratio of capital expenditures to total assets. Finally, tangibility, TANGIBILITY, is the ratio of fixed assets to total assets.

4. Empirical Results

4.1 Descriptive Statistics

From Table II, the largest shareholder owns, on average, 37.79 per cent of total equity, followed by the second largest shareholder with a 7.68 per cent ownership stake. There is, however, a large variation in ownership for both the largest and second largest shareholder, which results in a full array of possible Ownership Wedge values. On average, the holding of the second largest shareholder is 27.94 per cent that of the controlling owner's holdings (OW_1 = 0.2794). Furthermore, the Ownership Wedge (OW_1) ranges from 0.0027 to 0.9826, which spans the domain of all possible values. The average combined ownership stake of both the second and third largest shareholders (OW_3) is about 40 per cent of the controlling shareholder's investment, with a similar broad range in values.

The mean Tobin's Q (Tobin's Q_1 = 1.6897 and Tobin's Q_2 = 1.7535) is notably lower than previous studies (Bai et al., 2004; Wei et al., 2005).[6] This is primarily because of different sample periods and the correction we impose on the Tobin's Q numerator to incorporate the pervasive non-tradable discount in Chinese equities.

Most firms in the sample have very little external debt financing, which is consistent with prior research on Chinese firms (Wei et al., 2005). The average sales growth rate is around 25

[6] The average Tobin's Q in Wei et al (2005) is 2.92 and in Bai et al (2004) is 2.99.

per cent each year, and is higher than western countries where sales growth has been approximately 13 per cent each year (Laeven and Levine, 2008). The average annual investment ratio is 6 per cent and the average ratio of fixed assets to total assets is similar to previous studies at 29 per cent (Maury and Pajuste, 2005).

Because of the Chinese business environment, majority of our sample (62.47%) has a large state shareholder. In addition, 40 per cent of our sample firms have similar large shareholder type (that is, large shareholders come from the same investor type of state-owned-enterprises, financial institutions, corporate owners, or individual investors). There are, on average, nine or ten directors in a firm, 35 per cent of whom are independent. The vast majority of firms split the role of chairman and chief executive, with only 12 per cent having one person covering both responsibilities. 65 per cent of firms have all four board committees (audit, nomination, strategy, and remuneration) and 9.94 per cent have more than one class of shares. Most firms hire local accountants as their auditors, with only 7.16 per cent of the sample having Big 4 auditors (Deloitte, KPMG, PricewaterhouseCoopers, and Ernst & Young).

Pairwise correlations between the main independent variables are less than 0.4, which suggests that multicollinearity is not a severe issue. We also calculate the variance inflation factor in each regression model, all of which are less than ten, reassuring us that multicollinearity does not affect our analysis in a significant way.

4.2 Multivariate Analysis

In this section, we extend the univariate analysis to further investigate the relationship between a firm's Ownership Wedge and Tobin's Q[7]. Table III presents the results of an OLS regression with industry and year fixed effects for Tobin's Q. The results show a very clear non-linear and concave relationship between the Ownership Wedge and firm value. In every model, the linear

[7] For the purposes of brevity, we only report the results for Tobin's Q_1 and drop the subscript. Full results are available on request.

OW coefficient is positive and statistically significant, whereas the quadratic OW coefficient is statistically significant and negative. This is as predicted in Appendix A.1 and provides convincing support for our main hypothesis.

In Table III (bottom row), we present the turning points at which the relative holdings of the largest investors (OW) have an optimal impact on firm value. Assuming that the optimal ownership range lies between those predicted by OW_1 and OW_2, firm value is maximised when OW is between 24.29% and 42.81%. The average proportionate holdings of the controlling shareholder are 37.79% in our sample, so the turning points represent an actual optimal ownership range for the second largest shareholder of between 16.18% (=42.81% x 37.79%) for OW_1 and 12.12% (=24.29%/(1-24.29%) x 37.79%) for OW_2.

These turning points are consistent with the quorum requirements and majority voting regulations as stipulated in the Chinese Corporate Law. These laws require that only individuals or groups having more than a combined 10 per cent shareholding can call an extraordinary general meeting (EGM). It is perhaps coincidence that the optimal ownership level for the second largest shareholder is slightly above the 10 per cent EGM threshold, but it does offer an insight into when and how large shareholders exert power over boards to increase firm value.

Further insight into the costs of large ownership can be gained from another Chinese regulation that requires more than 50 per cent of attending shareholders' votes in order to pass a general resolution, such as new share issues and changes of directors. Additionally, for special motions that involve changes in registered capital, mergers and acquisitions, or other corporate restructuring, more than two-thirds of votes at the general meeting must be in support of the motion.[8] Since the average controlling shareholding is 37.79%, the controlling owner would require an additional minimum of 12.21% (=50% – 37.79%) and 28.88% (=66.67% – 37.79%)

[8]Chinese Corporate Law 2004 and 2006

votes from other shareholders to pass a general and special motion respectively if every investor is in attendance. From Table III (bottom row) the optimal Ownership Wedge is when the combined second and third largest shareholders' investment is (for OW_3) 70.92% and (for OW_4) 33.30%. Again, with an average controlling shareholding of 37.79% and assuming that the optimal ownership range lies between those predicted by OW_3 and OW_4, this corresponds to a combined optimal ownership level of between 26.80% (=70.92% x 37.79%) and 18.87% (=33.30%/(1-33.30%) x 37.79%). Aggregating all optimal holdings in the top three investors takes total ownership to between 56.66% (=37.79% + 18.87%) and 64.59% (=37.79% + 26.80%), which passes the thresholds to control general meeting decisions as discussed above. Further, these calculations assume that all shareholders cast their votes at a general meeting. When fewer votes are cast, the percentage ownership required for obtaining effective control will be lower.

Looking at other variables, most have the expected signs. The dummy variable for state ownership is significantly negative in all regressions, suggesting that government ownership destroys shareholder value. This is also evidenced in related work by Megginson and Netter (2001) and Wei et al., (2005). Larger firms and those with lower sales growth have a smaller Tobin's Q, reflecting poor growth opportunities (e.g., La Porta et al., 2002). The only surprise is the tangibility variable (i.e. the ratio of fixed assets to total assets), which is significantly positive. Firms with high levels of intangibles are normally associated with growth opportunities and higher Tobin's Q. However, in emerging market environments such as China, more weight may be placed on actual physical resources because of the difficulty in estimating intangible assets or in realizing their value.

4.3 Further analysis

We now consider the impact of large shareholders from several perspectives. First, we consider the threshold for classifying the second largest shareholder. Second, we look at the effect of shareholder identity (i.e. institution, corporation, family, or state). Finally, we study a potential underlying collusion mechanism by examining related party transactions involving the largest shareholders.

4.3.1 The Definition of Second Largest Shareholder

There is very little agreement in the literature on what defines a large shareholder. For example, a 10 per cent blockholding is used by Maury and Pajuste (2005), Laeven and Levine (2008), and Faccio and Lang (2002). Alternatively, Dlugosz, Fahlenbrach, Gompers, and Metrick (2006), and Holderness (2009) use 5 per cent. Our tests in the previous section suggest that the second largest shareholder's impact on firm value is non-monotonic, and therefore the choice of cut-off point has important implications on the findings. We, therefore, demonstrate the value impact of the second largest shareholder for a number of different ownership thresholds with the following regression:

$$Tobin's\_Q = \beta_0 + \beta_1 DUM\_LS\_N + \sum_{k=2}^{n} \beta_k CONTROL_{itk} + \eta_i + \delta_t + \varepsilon_{it} \qquad (6)$$

where the dependent variable is Tobin's Q and the control variables are as before. What is new in equation (6) is the dummy variable, DUM_LS_N, which is equal to one if the second largest shareholder has an ownership stake greater than a specific threshold (i.e., 0.5, 1, 2, 3, 5, 10, 15, or 20 per cent), and zero otherwise.

Table IV presents the results. The main insight is that there are different effects of a non-controlling large shareholder on Tobin's Q. When the large shareholding threshold is 2 per cent or lower (Models [1] – [3]), the DUM_LS variable is positive and significant in our regressions. However, for ownership threshold of 5 per cent and higher (Models [5] – [8]), the DUM_LS variable is significantly negative. The coefficient flip from positive to negative for the

DUM_LS variable provides further support for the humped relationship between the Ownership Wedge and Tobin's Q. The signs of all other control variable coefficients are as expected.

4.3.2 Shareholder Identities

Although our hypothesis makes no distinction between shareholder types, prior studies note that shareholder type is important for understanding corporate behavior (e.g., Holderness and Sheehan, 1988, Volpin, 2002). Maury and Pajuste (2005) and Jara-Bertin et al. (2008) argue that shareholder coalitions are less likely among heterogeneous shareholder groups. For example, it is difficult for family shareholders and institutional investors to collude because regulatory supervision and the opportunity costs of engaging in expropriation are significantly higher for financial institutions. In contrast, similar large shareholder groups are more likely to work together because they share common interests (Bennedsen and Wolfenzon, 2000, Laeven and Levine, 2008).

If similar shareholder groups are more likely to collude, we would expect to see a lower Tobin's Q in those firms where large shareholders have the same objectives. To test this hypothesis, we add one new dummy variable, IDSAME, to the empirical model.

$$Tobin's\ Q = \beta_0 + \beta_1 OW_{it} + \beta_2 OW_{it}^2 + \beta_3 IDSAME_{it} + \sum_{k=4}^{n} \beta_k CONTROL_{itk} + f_s + \delta_t + \varepsilon_{it} \quad (7)$$

The dependent variable is Tobin's Q and the independent variables are as before. The new variable, IDSAME, equals one if the type of the first largest shareholder is the same as that of the second largest shareholder, and zero otherwise. The four shareholder types are private investors (including families), corporate owners, financial institutions, and the state. This dummy variable captures differences in the mean Tobin's Q if the two largest shareholders are of the same investor type.

Table V reports the regression results for equation (7). All IDSAME coefficients are significantly negative, consistent with the proposition that rent-seeking collusion is more likely among similar large shareholders (Maury and Pajuste, 2005). Importantly, Table V also shows that the OW and OW^2 coefficients are unchanged in sign and statistical significance.

4.3.3 Related Party Transactions

Related party transactions are an effective avenue through which large shareholders can expropriate wealth from minority shareholders (see, e.g., Peng et al., (2011), Jiang et al., (2010) Cheung et al., (2009), Dahya et al., (2008)). We, therefore, collect the related party transactions of the largest shareholder (and its affiliates) to ascertain the likelihood of expropriation at different levels of relative large shareholdings.

We would expect related party transactions to be minimal when the power of monitoring is at its greatest and higher when collusion is more likely. If our model is appropriate, the relationship between the Ownership Wedge and the likelihood of expropriation will be convex. Table VI reports the results of Probit model estimations, where the dependent variable is a dummy that takes the value of 1 if related party transactions occur between a listed company and its largest shareholder (or its affiliates), and zero otherwise. The regression results strongly support the above argument, and the linear coefficient of the Ownership Wedge is negative while that of the quadratic term is positive.

4.4 Robustness Tests

In this section, we address a number of econometric issues that may affect the robustness of our results. Specifically, we consider (1) endogeneity of the main variables; (2) the appropriateness of our model specification; (3) alternative performance measures; (4) alternative relative size measurements; and (5) the effect of the split share structure reform.[9]

4.4.1 Endogeneity

We use a number of approaches to address whether endogeneity is an issue in our analysis. First, we follow Hermalin and Weisbach (1991) and Maury and Pajuste (2005) in using lagged ownership variables of up to three years as instruments within a 2SLS empirical design. Second, we consider a number of possible omitted variables, including dual class shares (Bai et al., 2004); board size (Yermack, 1996, Eisenberg et al., 1998, Mak and Kusnadi, 2005); the proportion of independent directors on the board (Dahya et al., 2008); whether a firm has the full suite of board sub-committees (audit, nomination, strategy, and remuneration committees); whether a firm has a Big Four auditor (Fan and Wong 2005); and whether the firm splits the role of chairman and CEO (Dey et al., 2011). Our main results are unchanged.

We also investigate whether ownership structure is a function of the past expropriation behavior of controlling shareholders through using a dynamic panel estimation methodology, i.e., system GMM. To justify how many firm value lags are sufficient to ensure dynamic completeness, we follow Wintoki et al. (2012) and run a regression of current firm value on five lags of past firm value, controlling for other firm-specific characteristics. System GMM estimation of the core model is presented in Table VII. Similar to earlier results, the coefficients for the OW and OW^2 across most models are statistically significant at the 5 per cent level with the expected signs. This supports our main results.

4.4.2 Model Specification

Several alternative model specifications are considered. We use OLS regressions with firm and year fixed effects; and pooled ordinary least squares (Pooled OLS) controlling for within-cluster (i.e., within-firm) correlation (Maury and Pajuste, 2005, Chen et al., 2009b). Robust standard

[9] Selected results are presented in this section. Detailed results are available upon request.

errors are calculated to reflect correlations between observations due to common firm characteristics. We also run ordinary least squares regressions year-by-year with robust-heterogeneity standard errors to circumvent the issue of serial correlation. In each of the alternative models, the OW and OW^2 variables have the expected signs but weaker statistical significance in certain cases.

4.4.3 Firm Value Measures

Instead of Tobin's Q, we consider the market to book ratio as an alternative measure of firm value. Market value of equity is defined as the sum of the outstanding tradable and non-tradable share values. In the same way as we adjusted Tobin's Q, we discount non-tradable shares by 80 per cent and 70 per cent to represent their illiquidity discount. We replicated the core tests with Market to Book substituting for Tobin's Q with the same general results.

4.4.4 Alternative Ownership Wedge Proxies

It is possible that the way we measure Ownership Wedge influenced our main findings. To test the robustness of our results, we follow Laeven and Levine (2008) and construct a "cash-flow ratio" and "dispersion ratio" by using voting rights rather than cash flow rights to proxy for OW. The results are presented in Table VIII. Similar to using OW, the coefficients for cash flow and dispersion ratio are significantly positive in the linear term and significantly negative in the quadratic term.

4.4.5 Effect of the Split Share Structure Reform

A large number of Chinese firms have tradable and non-tradable shares. Non-tradable shares are not freely traded and can only be transferred with regulatory approval. Most non-tradable shares are held by the state or state-owned enterprises (SOE). Shareholders of non-tradable shares are entitled to exactly the same voting and cash flow rights as shareholders of tradable shares. However, shareholders of non-tradable shares cannot benefit from price appreciation because selling is not permitted. Before 2005, around two-thirds of listed shares were non-tradable.

There could be severe conflicts of interest between tradable and non-tradable shareholders and share price maximisation may not be pursued to the full extent as tradable shareholders would like. In addition, when the proportion of tradable shares is small in relation to total outstanding stock, share prices can be easily manipulated by traders (Li et al. 2011). To address these issues, the China Securities Regulatory Commission (CSRC) launched a share structure reform at the end of year 2005 with the intention of converting non-tradable shares into tradable shares. Most companies have now completed the reform, with the exception of those firms that had multi-year lock-up periods for non-tradable shares.

The split share structure reform may have important implications in our setting. Specifically, the presence of non-tradable shares exacerbates expropriation and collusion in two ways. First, the largest shareholder with non-tradable shares will not be able to benefit from any capital gain in the secondary market. Therefore, the incentive to extract private benefits at the cost of the company is higher for non-tradable controlling shareholders. Second, other large shareholders who hold non-tradable shares will have little incentive to monitor and more likely to collude given they will not benefit from a rise in firm value. Therefore, it is expected that reducing the proportion of non-tradable shares in a company would weaken incentives for collusion and enhance monitoring activity. In other words, a weaker nonlinear relationship is expected.

To examine the potential effect of the split share structure reform, we split the sample into pre- and post-periods and re-run our tests. Table IX reports the results. In both periods, there is still evidence of collusion when the ownership wedge is higher. However, the strength of the relationship is weaker in the latter period. It appears that the reforms made some progress towards reducing the extent of expropriation by large shareholders.

5. Conclusions

In this paper, we study the impact of multiple large shareholders on firm value. We hypothesize that, instead of monitoring, large shareholders may collude to maximise their own wealth at the expense of firm value. The tendency to monitor or collude depends upon the relative shareholdings among the largest shareholders (the Ownership Wedge).

Consistent with our model's predictions, we show that there is strong evidence of a concave relationship between the Ownership Wedge and firm value in Chinese listed companies. When the controlling shareholder's holding is much larger than that of other shareholders, firm value is an increasing function of the relative holdings between the two largest shareholders (i.e., the ratio of the second largest shareholder voting rights to the largest shareholder's voting rights). However, as the Ownership Wedge narrows, firm value falls.

Prior research has found that multiple large shareholders are able to increase firm value via monitoring. Our finding that large shareholders may actually collude with each other has implications for minority shareholders and board members who are seeking new financing. We find that ownership structures with large shareholders who are not too similar in the size of holdings appear to be optimal.

References

ATTIG, N., EL GHOUL, S. & GUEDHAMI, O. 2009a. Do multiple large shareholders play a corporate governance role? Evidence from East Asia. *Journal of Financial Research,* 32**,** 395-422.

ATTIG, N., EL, G. S., OMRANE, G. & SORIN, R. 2009b. Multiple Large Shareholders and The Value of Cash Holdings. *Working Paper*.

ATTIG, N., GUEDHAMI, O. & MISHRA, D. 2008. Multiple large shareholders, control contests, and implied cost of equity. *Journal of Corporate Finance,* 14**,** 721-737.

BAI, C.-E., LIU, Q., LU, J., SONG, F. M. & ZHANG, J. 2004. Corporate governance and market valuation in China. *Journal of Comparative Economics,* 32**,** 599-616.

BELOT, F. 2008. Shareholder Agreements and Firm Value_Evidence from French Listed Firms. *Working Paper*.

BENNEDSEN, M. & WOLFENZON, D. 2000. The balance of power in closely held corporations. *Journal of Financial Economics,* 58**,** 113-139.

BERKMAN, H., COLE, R. A. & FU, L. J. 2009. Expropriation through loan guarantees to related parties: Evidence from China. *Journal of Banking & Finance,* 33**,** 141-156.

BERTRAND, M., JOHNSON, S., SAMPHANTHARAK, K. & SCHOAR, A. 2008. Mixing family with business: A study of Thai business groups and the families behind them. *Journal of Financial Economics,* 88**,** 466-498.

BLOCH, F. & HEGE, U. 2003. Multiple shareholders and control contests. *Unpublished Working Paper*.

BOLTON, P. & THADDEN, V. 1998. Blocks, liquidity, and corporate control. *The Journal of Finance,* 53**,** 1-25.

BURKART, M., GROMB, D. & PANUNZI, F. 1997. Large Shareholders, Monitoring, and the Value of the Firm. *The Quarterly Journal of Economics,* 112**,** 693-728.

CHEN, D., JIAN, M. & XU, M. 2009a. Dividends for tunneling in a regulated economy: The case of China. *Pacific-Basin Finance Journal,* 17**,** 209-223.

CHEN, G., FIRTH, M. & XU, L. 2009b. Does the type of ownership control matter? Evidence from China's listed companies. *Journal of Banking & Finance,* 33**,** 171-181.

CHEN, Z. & XIONG, P. 2001. Discounts on Illiquid Stocks:Evidence from China. *Working Paper*.

CHEUNG, Y. L., JING, L. H., LU, T., RAU, P. R. & STOURAITIS, A. 2009. Tunneling and propping up: An analysis of related party transactions by Chinese listed companies.

Pacific-Basin Finance Journal, 17**,** 372-393.

CHUNG, K. H. & PRUITT, S. W. 1994. A Simple Approximation of Tobin's q. *Financial Management,* 23**,** 70-74.

CLAESSENS, S., DJANKOV, S., FAN, J. P. & LANG, L. H. 2002. Disentangling the incentive and entrenchment effects of large shareholdings. *The Journal of Finance,* 57**,** 2741-2771.

COLES, J. L., DANIEL, N. D. & NAVEEN, L. 2008. Boards: Does one size fit all? *Journal of Financial Economics,* 87**,** 329-356.

DAHYA, J., DIMITROV, O. & MCCONNELL, J. J. 2008. Dominant shareholders, corporate boards, and corporate value: A cross-country analysis. *Journal of Financial Economics,* 87**,** 73-100.

DEMSETZ, H. & VILLALONGA, B. 2001. Ownership structure and corporate performance. *Journal of Corporate Finance,* 7**,** 209-233.

DEY, A., ENGEL, E. & LIU, X. 2011. CEO and board chair roles: To split or not to split? *Journal of Corporate Finance,* 17**,** 1595-1618.

DHILLON, A. & ROSSETTO, S. 2009. Corporate control and multiple large shareholders. *Available at SSRN 1363771*.

DLUGOSZ, J., FAHLENBRACH, R., GOMPERS, P. & METRICK, A. 2006. Large blocks of stock: Prevalence, size, and measurement. *Journal of Corporate Finance,* 12**,** 594-618.

EDMANS, A. & MANSO, G. 2011. Governance through trading and intervention: A theory of multiple blockholders. *Review of Financial Studies,* 24**,** 2395-2428.

EISENBERG, T., SUNDGREN, S. & WELLS, M. T. 1998. Larger board size and decreasing firm value in small firms. *Journal of Financial Economics,* 48**,** 35-54.

FACCIO, M. & LANG, L. H. 2002. The ultimate ownership of Western European corporations. *Journal of Financial Economics,* 65**,** 365-395.

FACCIO, M., LANG, L. H. & YOUNG, L. 2001. Dividends and expropriation. *American*

Economic Review, 54-78.

FAN, J.P. and WONG, T.J., 2005. Do external auditors perform a corporate governance role in emerging markets? Evidence from East Asia. *Journal of accounting research,* **43**(1), pp. 35-72.

GIANFRATE, G. 2007. What Do Shareholders' Coalitions Really Want? Evidence from Italian voting trusts. *Corporate Governance: An International Review,* 15**,** 122-132.

GOMES, A. & NAVAES, W. 2006. Sharing of Control versus Monitoring as Corporate Governance Mechanisms. *Unpublished Working Paper.*

GORMLEY, T.A. and MATSA, D.A., 2014. Common errors: How to (and not to) control for unobserved heterogeneity. *Review of Financial Studies,* **27**(2), pp. 617-661.

GUTIÉRREZ, L. H. & POMBO, C. 2009. Corporate ownership and control contestability in emerging markets: The case of Colombia. *Journal of Economics and Business,* 61**,** 112-139.

GUTIERREZ, M. & TRIBO, J. A. 2003. Multiple Large Shareholders in Corporate Control: Evidence for Spain. *Working Paper.*

HERMALIN, B. E. & WEISBACH, M. S. 1991. The Effects of Board Composition and Direct Incentives on Firm Performance. *Financial Management,* 20**,** 101-112.

HOLDERNESS, C. G. 2009. The Myth of Diffuse Ownership in the United States. *Review of Financial Studies,* 22**,** 1377-1408.

HOLDERNESS, C. G. & SHEEHAN, D. P. 1988. The role of majority shareholders in publicly held corporations: An exploratory analysis. *Journal of Financial Economics,* 20**,** 317-346.

ISAKOV, D. & WEISSKOPF, J.-P. 2009. Family Ownership, Multiple Blockholders and Firm Performance. *Working Paper.*

JARA-BERTIN, M., LÓPEZ-ITURRIAGA, F. J. & LÓPEZ-DE-FORONDA, Ó. 2008. The Contest to the Control in European Family Firms: How Other Shareholders Affect Firm Value. *Corporate Governance: An International Review,* 16**,** 146-159.

JIANG, G., LEE, C. M. C. & YUE, H. 2010. Tunneling through intercorporate loans: The China experience. *Journal of Financial Economics,* 98**,** 1-20.

LA PORTA, R., LOPEZ-DE-SILANES, F., SHLEIFER, A. & VISHNY, R. 2002. Investor Protection and Corporate Valuation. *Journal of Finance,* 57**,** 1147-1170.

LAEVEN, L. & LEVINE, R. 2008. Complex ownership structures and corporate valuations. *Review of Financial Studies,* 21**,** 579-604.

LEE, C.-W. J. & XIAO, X. 2004. Tunneling Dividends. *Unpublished Working Paper.*

LEHMANN, E. & WEIGAND, J. 2000. Does the Governed Corporation Perform Better? Governance Structures and Corporate Performance in Germany. *European Finance Review,* 4**,** 157-195.

LI, K., WANG, T., CHEUNG, Y. and JIANG, P., 2011. Privatization and risk sharing: Evidence from the split share structure reform in China. *Review of Financial Studies, 24*, 2499-2525.

MAK, Y. T. & KUSNADI, Y. 2005. Size really matters: Further evidence on the negative relationship between board size and firm value. *Pacific-Basin Finance Journal,* 13**,** 301-318.

MANCINELLI, L. & OZKAN, A. 2006. Ownership structure and dividend policy: Evidence from Italian firms. *European Journal of Finance,* 12**,** 265-282.

MAURY, B. & PAJUSTE, A. 2005. Multiple large shareholders and firm value. *Journal of Banking & Finance,* 29**,** 1813-1834.

Megginson, W. L., and J. Netter. 2001. From state to market: A survey of empirical studies on privatization.*Journal of Economic Literature,* 39, 321–389

PAGANO, M. & RÖELL, A. 1998. The choice of stock ownership structure: agency costs, monitoring, and the decision to go public. *The Quarterly Journal of Economics,* 113**,** 187-225.

PENG, W. Q., WEI, K. C. J. & YANG, Z. 2011. Tunneling or propping: Evidence from connected transactions in China. *Journal of Corporate Finance,* 17**,** 306-325.

PORTA, R., LOPEZ‐DE‐SILANES, F., SHLEIFER, A. & VISHNY, R. 2002. Investor protection and corporate valuation. *The Journal of Finance,* 57**,** 1147-1170.

VOLPIN, P. F. 2002. Governance with poor investor protection: evidence from top executive turnover in Italy. *Journal of Financial Economics,* 64**,** 61-90.

WEI, Z., XIE, F. & ZHANG, S. 2005. Ownership structure and firm value in China's privatized firms: 1991–2001. *Journal of financial and quantitative analysis,* 40**,** 87-108.

WINTOKI, M. B., LINCK, J. S. & NETTER, J. M. 2012. Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics,* 105**,** 581-606.

WINTON, A. 1993. Limitation of Liability and the Ownership Structure of the Firm. *The Journal of Finance,* 48**,** 487-512.

YERMACK, D. 1996. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics,* 40**,** 185-211.

ZWIEBEL, J. 1995. Block Investment and Partial Benefits of Corporate Control. *The Review of Economic Studies,* 62**,** 161-185.

Appendices

Appendix A. Theoretical Analysis

A.1 Model Setup

We propose a simple model to reflect the competing scenarios described in the main text and this allows us to examine the relationship between large shareholders and their effect on firm value. The model has foundations in Burkart et al. (1997), and we extend it to a more general setting. Specifically, there are two large shareholders: S_{1st} and S_{2nd} who hold a fraction, α and β respectively, of the firm's equity. All other shareholders hold the remaining equity, $(1-\alpha-\beta)$. The firm has four potential projects (A, B, C, and Zero) with payoffs given below.

Projects / Shareholders	A	B	C	Zero
S_{1st}	b_1	$b_1 - b_2$	$\alpha\Pi$	0
S_{2nd}	0	b_2	$\beta\Pi$	0

S_{other}	0	0	$\Pi - \alpha\Pi - \beta\Pi$	0
S_{All}	b_1	b_1	Π	0

Project A pays a private benefit, b_1, to the controlling shareholder (S_{1st}), and zero cash flow to everyone else. Project B pays private benefits to the first and second largest shareholders, and zero cash flow to all others. Project C pays no private benefits and the payoff is proportional to the fractional investment in the firm. Project Zero has a zero cash flow and is known to all parties.

Projects A, B and C cannot be distinguished *a priori*. The largest shareholder can distinguish between A, B and C with probability e by incurring a non-verifiable cost, $e^2/2$. We assume there are no agency issues between the largest shareholder and the manager given their controlling power. Similar to Burkart et al (1997), we assume the following monitoring strategy of the second largest shareholder. If the largest shareholder observes projects A, B, and C, the second largest shareholder can also do so with probability f by incurring a non-verifiable monitoring cost, $f^2/2$. If the largest shareholder remains uninformed, so does the second largest shareholder by default. The choice of project can be illustrated in a decision tree, as shown in Figure 1.

Figure A.1 demonstrates the choice of project as follows. First, if the controlling shareholder is uninformed, so is the second largest shareholder. They agree and choose Project Zero. Second, if the controlling shareholder is informed and the second largest shareholder is uninformed, the controlling shareholder would choose Project A, which will provide a private benefit to the controlling shareholder only. Third, if both controlling and second largest shareholders are informed, the second largest shareholder has two options. It can either choose to monitor the largest shareholder and ensure project C is chosen to maximise value for all shareholders. Alternatively, the two largest shareholders may collude and opt for shared private benefits, project B.

A.2 Model Solution

We now solve the maximization problem for the first and second largest shareholders. Given the second largest shareholder's expected effort, f, and the probability of collusion, c, between the two largest shareholders, the largest shareholder payoff is solved as:

$$\max_e[(1-e)0 + e\,\{(1-f)b_1 + f[(1-c)\alpha\Pi + c\,(b_1 - b_2)]\} - e^2/2] \qquad \text{(A.1)}$$

The first order condition is given by:

$$e = b_1 - b_1 f + f(b_1 - b_2)c + \alpha f \Pi(1-c) \qquad \text{(A.2)}$$

Given the anticipated level of the first largest shareholder's effort, e, and the probability of collusion c, the payoff for the second shareholder is solved as:

$$\max_f (1-e)0 + e\,\{(1-f)0 + f[(1-c)\beta\Pi + c\,b_2]\} - f^2/2 \qquad \text{(A.3)}$$

The first order condition is given by:

$$f = e(b_2 c + \beta\Pi - c\beta\Pi). \qquad \text{(A.4)}$$

Use Equations 2 and 4 we solve for e and f:

$$e = b_1 - \frac{b_1(b_1 - b_1 c + b_2 c - \alpha\Pi + c\alpha\Pi)(b_2 c + (1-c)\beta\Pi)}{1-(-b_1+(b_1-b_2)c+(1-c)\alpha\Pi)(b_2 c+(1-c)\beta\Pi)}, \qquad \text{(A.5)}$$

$$\mathrm{f} = \frac{b_1(b_2 c + (1-c)\beta\Pi)}{1-(-b_1+(b_1-b_2)c+(1-c)\alpha\Pi)(b_2 c+(1-c)\beta\Pi)} \qquad \text{(A.6)}$$

To value the equity of the firm, we consider the expected public payoff to shareholders, which is equal to the probability of project C being chosen multiplied by its payoff. This is because projects A, B, and Zero provide no public value. Therefore, the equity value is given by:

$$V = ef(1-c)\Pi \quad \text{(A.7)}$$

In order to analyze the effect of large shareholder collusion on equity value, we make the following assumptions:

Assumption 1:

$$r = \beta/\alpha \quad \text{(A.8)}$$

The variable, r, which is bounded below by zero and above by one, is the probability of collusion. In the context of this research, we assume that larger shareholdings equate to more bargaining power. Therefore, the probability of collusion is determined by the relative size of shareholding between the second (β) and the first largest shareholder (α). We believe that r is a good proxy for collusion because, as the second largest shareholder's investment grows, their incentive and power to extract private rents via collusion increases. From the largest shareholder's perspective, it is better to collude with another powerful large shareholder to extract private benefits than to have them acting as monitor[10].

Assumption 2:

$$b_2 = \frac{\beta}{\alpha+\beta} b_1 \quad \text{(A.9)}$$

The variable, b_2 is the private benefit received by the second largest shareholder when they choose to collude with the controlling owner. To ensure parsimony and to proxy for relative bargaining power, we make a further assumption that the first and second largest shareholders share the private benefit, b_1, between them according to their relative shareholding size.

With these two assumptions, we are able to assess the impact of the Ownership Wedge

[10] The importance of the relative size of key players in determining whether they collude has been studied in other economic contexts. For example, industrial organization theory shows that the relationship between market power and firm size inequality follows a U shape pattern. When firm size inequality is low (i.e., symmetric size among the key players), tacit collusion is more likely to happen and is stable to sustain (see, for example, Barla, 2000).

on firm value. To facilitate the analysis we express β in terms of α, and use r to measure the Ownership Wedge.

$$\beta = r\alpha \tag{A.10}$$

Substituting equations (5), (6), (8), (9), and (10) into equation (7), we have our final solution for firm value, which is expressed in terms of the Ownership Wedge, r, the controlling owner's holding, α, the private benefit, b_1, and cashflow to the company, Π, in the event when no private benefits are extracted.

$$V = \frac{(1-r)\Pi b_1^2((1-r)r\alpha\Pi + \frac{r^2\alpha b_1}{\alpha + r\alpha})}{(1-((1-r)r\alpha\Pi + \frac{r^2\alpha b_1}{\alpha + r\alpha})((1-r)\alpha\Pi - b_1 + r(b_1 - \frac{r\alpha b_1}{\alpha + r\alpha})))^2} \tag{A.11}$$

Our interest lies in finding the relationship between the Ownership Wedge and firm value. We state this in the following proposition:

Proposition A.1. From assumptions 1 and 2, firm value is a concave function of the Ownership Wedge ($\partial^2{}_{rr}V < 0$).

Given the complexity of Equation (11), we use numerical methods to arrive at a solution for V.[11] Figure A.2 plots firm value V against the Ownership Wedge, *r*. To illustrate, we use the following values for the parameters: $\Pi = 1, b_1 = 0.6$, and $\alpha = 0.5$. This means that for Project C, the firm will receive 1 unit of cash flow; the size of the private benefit, b_1, is 60% of the cash flow; and the controlling owner's shareholding is 50%.

Figure A.2 shows that, as the investment of the second largest shareholder gets higher, firm value increases to a maximum and then falls. This suggests that there is a trade-off between monitoring and collusion behavior by the second largest shareholder as the relative ownership stake increases.

[11] A wider range of values for the key variables are also considered to ensure robustness of our theoretical predictions. These results are available on request from the authors.

To develop our analysis further, we examine the case when there is no possibility of collusion and the second largest shareholder can only monitor the behavior of the controlling owner. This could happen in environments where minority shareholder rights are strong. Firm value, V, is determined as before and with the same parameters: $\Pi = 1, b_1 = 0.6$, and $\alpha = 0.5$. The only difference is that the probability of collusion, c, is set to zero.

Figure A.3 clearly shows that when there is no possibility of collusion between the two largest shareholders, the second largest shareholder will always add value to the company. This is consistent with earlier research in which the positive impact of multiple large shareholders is documented (e.g., Lehmann and Weigand, 2000; Maury and Pajuste, 2005; Laeven and Levine, 2008).

Overall, our theoretical analysis shows that the relationship between the Ownership Wedge and firm performance is concave when there is a possibility of collusion between large investors.[12]

[12] In unreported analysis, we carry out robustness checks by first varying the effect of the controlling owner's investment, α. Second we study the effect of varying $\boldsymbol{b}$. We show that the nonlinear relationship between firm value and relative size holds under a wide range of parameterizations. Results are available on request.

Figure A.1. Project Decision Tree

This figure presents the decision tree for project selection. S_{1st} and S_{2nd} refer to the first and second largest shareholders respectively.

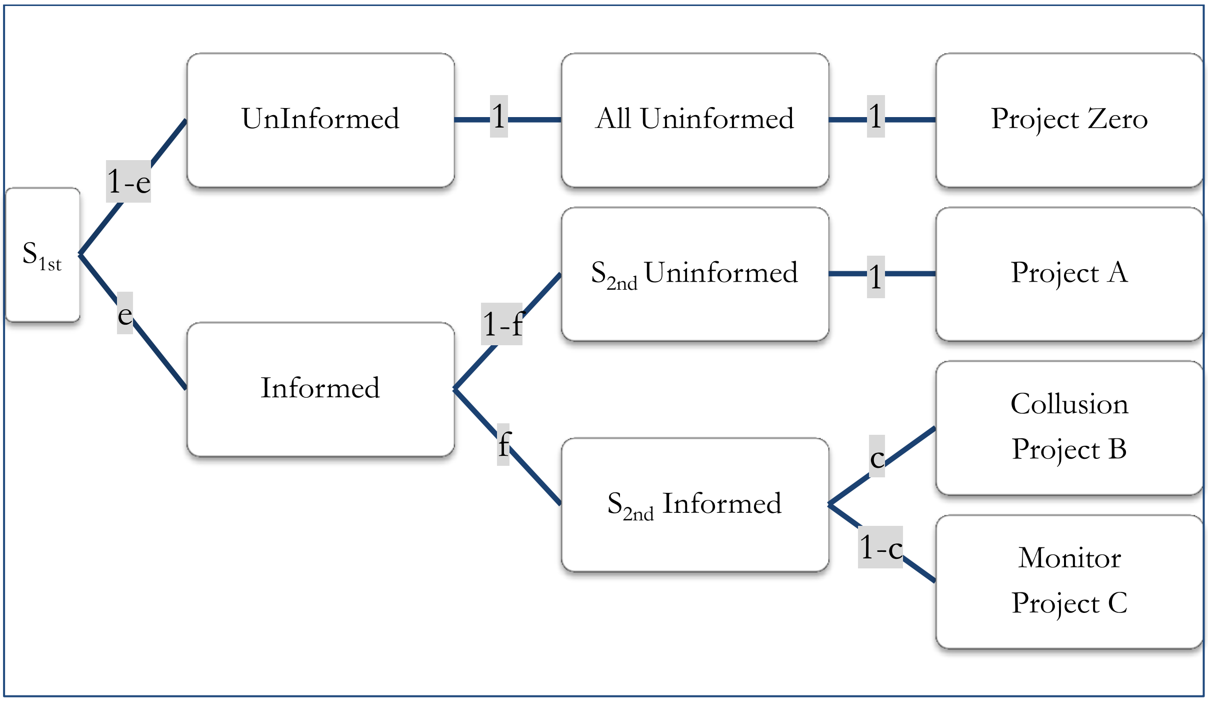
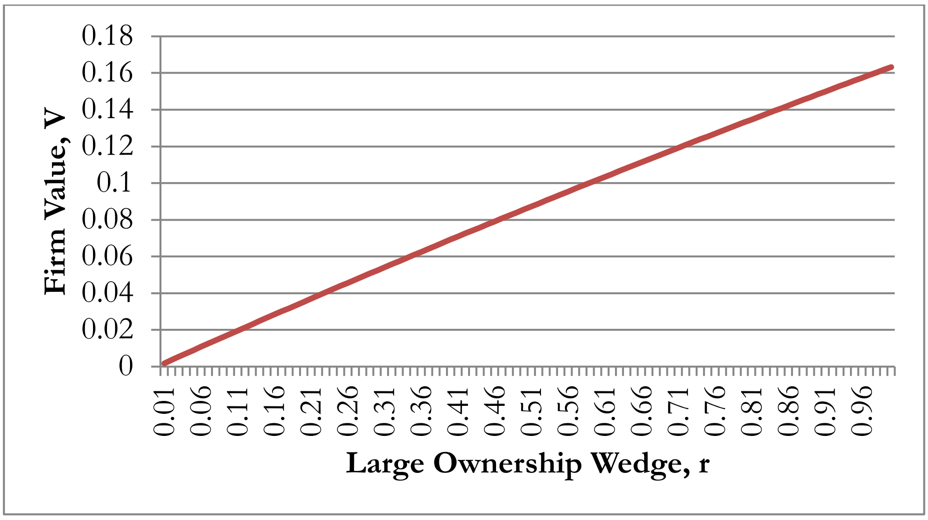


Figure A.2. Firm Value and the Ownership Wedge

This figure plots firm value, V, against the Ownership Wedge, r, where V is obtained using Equation (11) with the following numerical values for the parameters: $\Pi = 1, b = 0.6$, and $\alpha = 0.5$.

Figure A.3. Firm Value and the Ownership Wedge without Collusion

This figure plots the firm value and the Ownership Wedge. Firm value, V, is determined by Equations (5), (6) , (7), setting the probability of collusion $r = 0$ and the other parameters: $\Pi = 1, b = 0.6$, and $\alpha = 0.5$.



Appendix B. Definition of Variables

Variables	Description of Variables
Tobin's Q	The ratio of market value of total assets to replacement cost of total assets. The market value of total assets is the sum of the market value of total outstanding shares and book value of total liability. Replacement costs of total asset are approximated by book value of total assets. The market value of total outstanding shares is the sum of the market value of tradable shares and the market value of non-tradable shares. The market value of tradable shares is the sum of market value of tradable A shares and the market value of tradable B or H shares if firms issue B or H shares. Given the illiquidity discount of non-tradable shares, the price of non-tradable shares is approximated by using 20% and 30% of stock price of corresponding tradable A shares. The market value of non-tradable shares is the product of the non-tradable shares price and total number of non-tradable shares. The corresponding Tobin's Q denoted as Tobin's Q_1 and Tobin's Q_2.
M/B	Market-to-book ratio, which is defined as market value of total equity divided by the book value of total equity. The market value of total outstanding shares is constructed in a similar way to that for Tobin's Q calculation above. The corresponding non-tradable discounted M/Bs are denoted as M/B_1 and M/B_2.
OW_1	The ratio of shares held by the second largest shareholder to that held by the first largest shareholder, $OW_1 = Votes_2 / Votes_1$.
OW_2	The ratio of shares held by the second largest shareholder to the sum of both first largest and second largest shareholder, $OW_2 = Votes_2 / (Votes_1 + Votes_2)$.
OW_3	The ratio of the sum of shares held by the second and third largest shareholder to the shares held by the first largest shareholder, $OW_3 = (Votes_2 + Votes_3) / Votes_1$.
OW_4	The ratio of the sum of shares held by the second and third largest shareholder to the sum of shares held by the first, second, and third largest shareholders $OW_4 = (Votes_2 + Votes_3) / (Votes_1 + Votes_2 + Votes_3)$.
VOTING_1ST	The proportion of shares held by the first largest shareholder
VOTING_2ND	The proportion of shares held by the second largest shareholder
DUM_LS_N	Dummy variable equal to one if the shares held by the second largest shareholder are at least *N* per cent of total shares outstanding, zero otherwise.
DUM_STATE	Dummy variable equal to one if the first largest shareholder is a state-owned enterprise (SOE), zero otherwise.
IDSAME	Dummy variable equal to one if the identity of the first largest shareholder is the same as the identity of the second largest shareholder, zero otherwise. We classify as identity as 1) SOE; 2) Financial Institutions; 3) Corporate Owners; and 4) Individual Investors.
Cash-flow ratio	One minus the ratio of second largest shareholder voting rights to first largest shareholder voting rights.
Dispersion ratio	The difference between the voting rights of the first largest shareholder and second largest shareholder, divided by the sum of the voting rights of the first and second largest shareholders.
FIRMSIZE	The natural logarithm of total sales.
LEVERAGE	The ratio of total long-term liabilities to total assets.
GROWTH	Growth rate in sales, defined as the percentage change in sales year-on-year.
CAPEX	Capital expenditure, defined as the total capital expenditure divided by total assets.
TANGIBILITY	The ratio of fixed assets to total assets.
Tobin's Q(-t)	The t-year lag of Tobin's Q.
Industry Dummies	Dummy variables to represent 13 different industries, based on an official industry classification standard stipulated by CSRC (the China Securities Regulatory Commission)[13]. Financial firms are excluded because of the different nature of investment for these firms.
Year Dummies	Dummy variables to represent each year in the sample period.

[13] They are 1) Farming, Forestry, Animal Husbandry & Fishing; 2) Mining; 3) Manufacturing; 4) Utilities; 5) Construction; 6) Transportation & Warehouse; 7) Information Technology; 8) Wholesale & Retailing; 9) Finance& Insurance; 10) Real Estate; 11) Social Services; 12) Communications & Cultural; 13) Conglomerates.

RPT	Dummy variable equal to one if there are related party transactions carried out between a listed company and its largest shareholders (or affiliations), zero otherwise.
BOARDSIZE	The total number of directors on the board
BOARD_IND	The percentage of independent directors on the board.
DUALITY	Dummy variable equal to one if the CEO and Chairman are the same person, zero otherwise.
DUM_COMMITTEE	Dummy variable equal to one if a listed company has all four committees (audit, nomination, strategy, and remuneration), zero otherwise.
DUM_BH	Dummy variable equal to one if a listed company has B or H-shares in its capital structure, zero otherwise.
DUM_BIG4	Dummy variable equal to one if a firm hires one of the Big Four accounting firms (i.e., Deloitte, KPMG, PricewaterhouseCoopers, and Ernst & Young) as its external auditor, zero otherwise.

Table I Ownership Structure of Chinese Listed Companies

This table reports the ownership structure of Chinese listed companies in the period 2003 to 2011. Widely-held firms have no shareholder with at least 10% (5%) voting rights. Firms with one controlling shareholder have one large shareholder with at least 10%(5%) of the voting rights. Firms with multiple large shareholders have at least two large shareholders with at least 10% (5%) of the voting rights.

Ownership Structure	10% voting rights threshold		5% voting rights threshold	
	Number of Firms	% sample	Number of Firms	% sample
Widely Held	157	1.40%	17	0.15%
One Controlling Shareholder	7,626	67.84%	5,701	50.72%
Multiple Large Shareholders	3,458	30.76%	5,523	49.13%
Of which 2 large	2,874	25.57%	3,438	30.58%
Of which 3 large	508	4.52%	1,426	12.69%
Of which 4 or more large	76	0.68%	659	5.86%
Total	11,241	100.00%	11,241	100.00%

Table II Summary Statistics

This table presents summary statistics of all variables used in this paper. The sample period is from 2003 to 2011. Variable definitions are given in Appendix B. All variables are winsorized at the 1th and 99th percentile values.

Variable	Obs	Mean	Median	Std. Dev.	Min	Max
Tobin's Q1	11,241	1.6897	1.2422	1.2964	0.5997	8.8598
Tobin's Q2	11,241	1.7535	1.2957	1.3317	0.6504	9.1230
VOTING_1ST	11,241	0.3779	0.3553	0.1609	0.0922	0.7562
VOTING_2ND	11,241	0.0768	0.0490	0.0723	0.0017	0.2861
OW1	11,241	0.2794	0.1558	0.2879	0.0027	0.9826
OW2	11,241	0.1835	0.1348	0.1570	0.0027	0.4956
OW3	11,241	0.3990	0.2319	0.4079	0.0048	1.6559
OW4	11,241	0.2335	0.1882	0.1828	0.0048	0.6235
DUM_STATE	11,241	0.6247	1.0000	0.4842	0.0000	1.0000
IDSAME	11,241	0.4065	0.0000	0.4912	0.0000	1.0000
FIRMSIZE	11,241	20.9130	20.8988	1.5581	16.2519	24.9402
LEVERAGE	11,241	0.0795	0.0334	0.1059	0.0000	0.4702
GROWTH	11,241	0.2516	0.1476	0.6948	-0.7524	5.1711
CAPEX	11,241	0.0558	0.0371	0.0573	0.0001	0.2702
TANGIBILITY	11,241	0.2932	0.2644	0.1896	0.0026	0.7880
BOARDSIZE	11,005	9.3922	9.000	1.9831	3.0000	15.0000
BOARD_IND	11,005	0.3522	0.3300	0.0540	0.000	0.5600
DUALITY	11,005	0.1218	0.0000	0.3271	0.0000	1.0000
DUM_COMMITTEE	11,005	0.6507	1.0000	0.4767	0.0000	1.0000
DUM_BH	11,005	0.0994	0.000	0.2992	0.000	1.0000
DUM_BIG4	11,005	0.0716	0.0000	0.2578	0.0000	1.0000

Table III Firm Value and the Ownership Wedge

This table presents the results of OLS regressions with industry and year fixed effects. The dependent variable is Tobin's Q. The sample period is from 2003 to 2011 and the sample consists of all listed companies excluding financial firms. Variable definitions are given in Appendix B. All variables are winsorized at the 1st and 99th percentile values. Robust standard errors are provided in parentheses. *, **, *** indicate significance at the 10 per cent, 5 per cent and 1 per cent levels, respectively. Turning points are calculated by taking the first derivative of the linear and quadratic terms of OW in each model, setting the derivative to zero, and solving for OW. For example, in Model (1), the first derivative of the OW terms is .280 - .654OW_1. Setting this to zero and solving for OW_1 gives a turning point of 0.4281.

VARIABLES	(1) Model	(2) Model	(3) Model	(4) Model
	Dependent Variable: Tobin's Q			
Constant	7.875***	7.861***	7.823***	7.815***
	(0.229)	(0.230)	(0.230)	(0.230)
OW_1	0.280**			
	(0.115)			
OW_1^2	-0.327**			
	(0.130)			
OW_2		0.630***		
		(0.225)		
OW_2^2		-1.297***		
		(0.484)		
OW_3			0.261***	
			(0.070)	
OW_3^2			-0.184***	
			(0.051)	
OW_4				0.590***
				(0.185)
OW_4^2				-0.886***
				(0.336)
DUM_STATE	-0.117***	-0.116***	-0.111***	-0.111***
	(0.021)	(0.021)	(0.021)	(0.021)
FIRMSIZE	-0.338***	-0.338***	-0.336***	-0.337***
	(0.011)	(0.011)	(0.011)	(0.011)
LEVERAGE	-0.929***	-0.929***	-0.929***	-0.930***
	(0.123)	(0.123)	(0.123)	(0.123)
GROWTH	0.061***	0.060***	0.060***	0.060***
	(0.019)	(0.019)	(0.019)	(0.019)
CAPEX	0.248	0.243	0.247	0.238
	(0.173)	(0.173)	(0.173)	(0.173)
TANGIBILITY	0.155*	0.154*	0.154*	0.153*
	(0.081)	(0.081)	(0.081)	(0.081)
Industry Dummies	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES
Observations	11,241	11,241	11,241	11,241
R-squared	0.414	0.414	0.415	0.414
Adj. R-squared	0.412	0.412	0.413	0.413
Turning Point	42.81%	24.29%	70.92%	33.30%

Table IV Firm Value and the Presence of a Second Large Shareholder

This table presents the results of OLS regression with industry and year fixed effects. The dependent variable is Tobin's Q. The sample period is from 2003 to 2011 and the sample consists of all listed companies excluding financial firms. Variable definitions are given in Appendix B. All variables are winsorized at the 1th and 99th percentile values. Robust standard errors are provided in parentheses. *, **, *** indicate significance at the 10 per cent, 5 per cent and 1 per cent levels, respectively.

VARIABLES	(1) Model	(2) Model	(3) Model	(4) Model	(5) Model	(6) Model	(7) Model	(8) Model
Constant	7.752***	7.783***	7.870***	7.911***	8.001***	8.036***	7.980***	7.962***
	(0.223)	(0.224)	(0.228)	(0.229)	(0.228)	(0.229)	(0.225)	(0.224)
DUM_LS_05	0.165***							
	(0.026)							
DUM_LS_1		0.125***						
		(0.022)						
DUM_LS_2			0.042*					
			(0.021)					
DUM_LS_3				0.009				
				(0.020)				
DUM_LS_5					-0.052***			
					(0.020)			
DUM_LS_10						-0.099***		
						(0.022)		
DUM_LS_15							-0.093***	
							(0.025)	
DUM_LS_20								-0.136***
								(0.028)
DUM_STATE	-0.114***	-0.112***	-0.116***	-0.120***	-0.131***	-0.135***	-0.129***	-0.124***
	(0.020)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.020)	(0.020)
FIRMSIZE	-0.338***	-0.338***	-0.338***	-0.339***	-0.341***	-0.342***	-0.341***	-0.340***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
LEVERAGE	-0.929***	-0.933***	-0.926***	-0.926***	-0.921***	-0.916***	-0.923***	-0.929***
	(0.123)	(0.122)	(0.123)	(0.123)	(0.123)	(0.122)	(0.123)	(0.122)
GROWTH	0.059***	0.058***	0.060***	0.061***	0.062***	0.063***	0.062***	0.062***
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
CAPEX	0.234	0.230	0.238	0.249	0.251	0.247	0.258	0.243
	(0.173)	(0.173)	(0.173)	(0.173)	(0.173)	(0.173)	(0.173)	(0.172)
TANGIBILITY	0.155*	0.159**	0.156*	0.155*	0.156*	0.158*	0.157*	0.158*
	(0.081)	(0.081)	(0.081)	(0.081)	(0.081)	(0.081)	(0.081)	(0.081)
Industry Dummies	YES	YES	YES	YES	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	11,241	11,241	11,241	11,241	11,241	11,241	11,241	11,241
R-squared	0.415	0.415	0.414	0.414	0.414	0.415	0.415	0.415
Adj. R-squared	0.413	0.413	0.412	0.412	0.412	0.413	0.413	0.413

Table V Firm Value and the Identity of Large Shareholders

This table presents the results of OLS regressions with industry and year fixed effects. The dependent variable is Tobin's Q_1. The sample period is from 2003 to 2011 and the sample consists of all listed companies excluding financial firms. Variable definitions are given in Appendix B. All variables are winsorized at the 1th and 99th percentile values. Robust standard errors are provided in parentheses. *, **, *** indicate significance at the 10 per cent, 5 per cent and 1 per cent levels, respectively.

VARIABLES	(1) Model	(2) Model	(3) Model	(4) Model
Constant	7.901***	7.884***	7.852***	7.841***
	(0.230)	(0.230)	(0.230)	(0.230)
OW_1	0.373***			
	(0.119)			
OW_1^2	-0.403***			
	(0.133)			
OW_2		0.799***		
		(0.233)		
OW_2^2		-1.538***		
		(0.494)		
OW_3			0.322***	
			(0.072)	
OW_3^2			-0.214***	
			(0.052)	
OW_4				0.725***
				(0.192)
OW_4^2				-1.029***
				(0.343)
IDSAME	-0.064***	-0.065***	-0.071***	-0.071***
	(0.021)	(0.021)	(0.021)	(0.021)
DUM_STATE	-0.127***	-0.127***	-0.122***	-0.123***
	(0.021)	(0.021)	(0.021)	(0.021)
FIRMSIZE	-0.338***	-0.338***	-0.337***	-0.337***
	(0.011)	(0.011)	(0.011)	(0.011)
LEVERAGE	-0.927***	-0.927***	-0.927***	-0.928***
	(0.122)	(0.122)	(0.123)	(0.123)
GROWTH	0.062***	0.061***	0.062***	0.061***
	(0.019)	(0.019)	(0.019)	(0.019)
CAPEX	0.244	0.237	0.242	0.231
	(0.173)	(0.173)	(0.173)	(0.173)
TANGIBILITY	0.156*	0.155*	0.156*	0.154*
	(0.081)	(0.081)	(0.081)	(0.081)
Industry Dummies	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES
Observations	11,241	11,241	11,241	11,241
R-squared	0.415	0.415	0.415	0.415
Adj. R-squared	0.413	0.413	0.413	0.413

Table VI Expropriation and the Ownership Wedge

This table presents the results of the relationship between the likelihood of expropriation by the largest shareholders and the Ownership Wedge. We use related party transactions conducted by the largest shareholders (and its affiliations) as the proxy of the expropriation. The methodology is panel data PROBIT Model. The sample period is from 2003 to 2011 including all listed companies excluding financial companies. The dependent variable is RPT, which is a dummy variable and it takes one if there is related party transactions carried out between a listed company and its largest shareholders (and its affiliations), takes zero otherwise. Variable definitions are given in Appendix B. All variables are winsorized at the 1st and 99th per cent values. Robust standard errors are provided in parentheses. *, **, *** indicate significance at the 10 per cent, 5 per cent and 1 per cent significance levels, respectively.

VARIABLES	(1) Model	(3) Model	(5) Model	(7) Model
Constant	-4.080***	-3.994***	-4.006***	-3.923***
	(0.555)	(0.556)	(0.553)	(0.554)
OW_1	-2.655***			
	(0.331)			
OW_1^2	1.663***			
	(0.346)			
OW_2		-4.380***		
		(0.691)		
OW_2^2		4.185***		
		(1.358)		
OW_3			-1.845***	
			(0.201)	
OW_3^2			0.714***	
			(0.134)	
OW_4				-3.156***
				(0.571)
OW_4^2				1.627*
				(0.921)
DUM_STATE	0.120**	0.115*	0.109*	0.108*
	(0.060)	(0.060)	(0.060)	(0.060)
FIRMSIZE	0.201***	0.200***	0.197***	0.198***
	(0.024)	(0.024)	(0.024)	(0.024)
LEVERAGE	0.297	0.297	0.324	0.317
	(0.269)	(0.269)	(0.269)	(0.269)
GROWTH	0.064**	0.064**	0.066**	0.066**
	(0.028)	(0.028)	(0.028)	(0.028)
CAPEX	0.319	0.337	0.335	0.357
	(0.424)	(0.424)	(0.424)	(0.424)
TANGIBILITY	0.257	0.259	0.255	0.256
	(0.171)	(0.171)	(0.171)	(0.171)
BOARDSIZE	0.047***	0.048***	0.049***	0.049***
	(0.016)	(0.016)	(0.016)	(0.016)
BOARD_IND	-0.144	-0.133	-0.136	-0.147
	(0.453)	(0.454)	(0.453)	(0.453)
DUALITY	-0.111	-0.111	-0.112	-0.112
	(0.070)	(0.070)	(0.069)	(0.069)
DUM_BH	-0.367**	-0.377**	-0.364**	-0.373**
	(0.150)	(0.150)	(0.149)	(0.149)
DUM_COMMITT	-0.061	-0.061	-0.057	-0.055
	(0.058)	(0.058)	(0.057)	(0.057)
DUM_BIG4	-0.359***	-0.364***	-0.370***	-0.375***
	(0.123)	(0.123)	(0.122)	(0.122)
Industry Dummies	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES
Observations	11,005	11,005	11,005	11,005
Number of Firms	1,379	1,379	1,379	1,379

Table VII Firm Value and the Ownership Wedge – System GMM estimation

This table presents the regression results of Tobin's Q_1 on various ownership wedge and control variables by using system GMM model specification. The sample period is from 2003 to 2011 and the sample consists of all listed companies excluding financial firms. Variable definitions are given in Appendix B. All variables are winsorized at the 1th and 99th percentile values. Robust standard errors are provided in parentheses. *, **, *** indicate significance at the 10 per cent, 5 per cent and 1 per cent levels, respectively.

VARIABLES	(1) Model	(2) Model	(3) Model	(4) Model
Constant	6.463***	6.404***	6.380***	6.319***
	(0.564)	(0.560)	(0.534)	(0.548)
OW_1	0.817**			
	(0.351)			
OW_1^2	-1.001***			
	(0.371)			
OW_2		2.021***		
		(0.689)		
OW_2^2		-4.500***		
		(1.396)		
OW_3			0.422**	
			(0.213)	
OW_3^2			-0.284*	
			(0.151)	
OW_4				1.645***
				(0.585)
OW_4^2				-2.811***
				(1.017)
TOBIN'S Q(-1)	0.122***	0.125***	0.124***	0.129***
	(0.025)	(0.026)	(0.026)	(0.026)
TOBIN'S Q(-2)	0.196***	0.197***	0.197***	0.194***
	(0.020)	(0.020)	(0.020)	(0.020)
TOBIN'S Q(-3)	0.289***	0.287***	0.282***	0.277***
	(0.025)	(0.025)	(0.024)	(0.025)
DUM_STATE	-0.047	-0.049	-0.039	-0.040
	(0.031)	(0.031)	(0.032)	(0.031)
FIRMSIZE	-0.292***	-0.289***	-0.288***	-0.286***
	(0.027)	(0.026)	(0.025)	(0.026)
LEVERAGE	-1.367***	-1.309***	-1.306***	-1.245***
	(0.253)	(0.253)	(0.254)	(0.251)
GROWTH	0.053	0.051	0.049	0.066
	(0.059)	(0.058)	(0.056)	(0.056)
CAPEX	0.716	0.535	0.482	0.500
	(0.504)	(0.502)	(0.510)	(0.508)
TANGIBILITY	0.689***	0.623***	0.630***	0.615***
	(0.174)	(0.173)	(0.172)	(0.172)
Industry Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
Observations	7,001	7,001	7,001	7,001
Number of Firms	1,296	1,296	1,296	1,296

Table VIII Firm Value and the Alternative Ownership Wedge Measures

This table presents the results of OLS regressions with industry and year fixed effects. The dependent variable is Tobin's Q_1. The sample period is from 2003 to 2011 and the sample consists of all listed companies excluding financial firms. Variable definitions are given in Appendix B. Year Dummies are dummy variables and represent different years. All variables are winsorized at the 1th and 99th percentile values. Robust standard errors are provided in parentheses. *, **, *** indicate significance at the 10 per cent, 5 per cent and 1 per cent levels, respectively.

VARIABLES	(1) Model	(2) Model
Constant	7.829***	7.852***
	(0.226)	(0.225)
Cash-flow ratio	0.373**	
	(0.155)	
Cash-flow ratio_SQ	-0.327**	
	(0.130)	
Dispersion ratio		0.333**
		(0.138)
Dispersion ratio_SQ		-0.324***
		(0.121)
DUM_STATE	-0.117***	-0.116***
	(0.021)	(0.021)
FIRMSIZE	-0.338***	-0.338***
	(0.011)	(0.011)
LEVERAGE	-0.929***	-0.929***
	(0.123)	(0.123)
GROWTH	0.061***	0.060***
	(0.019)	(0.019)
CAPEX	0.248	0.243
	(0.173)	(0.173)
TANGIBILITY	0.155*	0.154*
	(0.081)	(0.081)
Industry Dummies	YES	YES
Year Dummies	YES	YES
Observations	11,241	11,241
R-squared	0.414	0.414
Adj. R-squared	0.412	0.412

Table IX Split Share Structure Reform

This table presents the results of OLS regressions with industry and year fixed effects for period of before (2003-2006) and after (2007-2011) the split share structure reform respectively. The dependent variable is Tobin's Q_1. Variable definitions are given in Appendix B. All variables are winsorized at the 1th and 99th percentile values. Robust standard errors are provided in parentheses. *, **, *** indicates] significance at the 10 per cent, 5 per cent and 1 per cent levels, respectively.

VARIABLES	(1) Model	(2) Model	(3) Model	(4) Model	(5) Model	(6) Model	(7) Model	(8) Model
	BEFORE				AFTER			
Constant	4.402***	4.402***	4.387***	4.385***	11.276***	11.256***	11.183***	11.182***
	(0.275)	(0.276)	(0.275)	(0.276)	(0.321)	(0.321)	(0.321)	(0.321)
OW_1	0.266**				0.366**			
	(0.112)				(0.184)			
OW_1^2	-0.294**				-0.313			
	(0.133)				(0.211)			
OW_2		0.458**				0.724**		
		(0.214)				(0.363)		
OW_2^2		-0.892*				-1.113		
		(0.469)				(0.787)		
OW_3			0.162**				0.409***	
			(0.069)				(0.111)	
OW_3^2			-0.109**				-0.236***	
			(0.055)				(0.084)	
OW_4				0.353**				0.688**
				(0.174)				(0.303)
OW_4^2				-0.511*				-0.714
				(0.303)				(0.556)
DUM_STATE	-0.073***	-0.074***	-0.070***	-0.071***	-0.147***	-0.146***	-0.140***	-0.140***
	(0.019)	(0.019)	(0.019)	(0.019)	(0.031)	(0.031)	(0.031)	(0.031)
FIRMSIZE	-0.170***	-0.170***	-0.169***	-0.170***	-0.430***	-0.430***	-0.427***	-0.428***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.015)	(0.015)	(0.015)	(0.015)
LEVERAGE	0.428**	0.429**	0.431**	0.429**	-1.468***	-1.467***	-1.469***	-1.467***
	(0.179)	(0.179)	(0.179)	(0.179)	(0.160)	(0.160)	(0.160)	(0.160)
GROWTH	0.034*	0.034*	0.034*	0.034*	0.063**	0.063**	0.062**	0.062**
	(0.018)	(0.018)	(0.018)	(0.018)	(0.026)	(0.026)	(0.026)	(0.026)
CAPEX	-0.158	-0.161	-0.154	-0.159	0.233	0.223	0.210	0.202
	(0.165)	(0.165)	(0.165)	(0.165)	(0.287)	(0.287)	(0.287)	(0.288)
TANGIBILITY	0.065	0.064	0.063	0.063	0.150	0.149	0.151	0.148
	(0.090)	(0.090)	(0.091)	(0.091)	(0.119)	(0.119)	(0.119)	(0.119)
Industry Dummies	YES	YES	YES	YES	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,935	4,935	4,935	4,935	6,306	6,306	6,306	6,306
R-squared	0.185	0.185	0.185	0.185	0.398	0.398	0.399	0.399
Adj. R-squared	0.180	0.180	0.180	0.180	0.395	0.395	0.396	0.396

