Ownership concentration and firm valuation: A segmented analysis

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Abstract

This study investigates the valuation effect of concentrated ownership in a typical frontier market. Using an extensive sample of Vietnamese publicly listed firms, we find that the valuation effect is inconclusive before combined equity holdings reach a threshold of around 28%, beyond which market valuation increases exponentially with ownership. The latter *log-linear* effect can be interpreted as a more profound dominance of the monitoring incentives of large shareholders over the potential expropriation of minority shareholders at higher levels of concentration. Our finding reconciles the seemingly conflicting results of previous studies and contributes to understanding corporate governance practices in frontier markets.

Keywords: ownership concentration, market valuation, piecewise linear regression, frontier markets, Vietnam

JEL Classification Code: G30 G32 G34

1. Introduction

Ownership structure shapes the nature of agency problems influencing shareholder interests and thus should affect firm valuation by market investors. The agency problem in terms of interest conflicts between managers and shareholders appears to be the norm in firms with a dispersed structure of ownership. Managers whose interests are derived from shareholders' ones can make biased decisions to execute under- or over-investments which may distort firm value. Such agency costs can be alleviated once ownership is concentrated in the hands of some owners, incentivizing and/or empowering them to monitor management effectively (Shleifer and Vishny, 1986). This monitoring effect of ownership concentration is even more substantial in markets with under-developed external governance mechanisms (Filatotchev et al., 2013). In such markets, ownership concentration can serve as an effective internal governance mechanism substituting for shortfalls in institutional environment (Shleifer and Vishny, 1997; Lins, 2003; Boubakri et al., 2005). In general, a positive relation between concentration and valuation should be observed as indicative of the monitoring effect.

In firms with highly concentrated ownership, the agency problem in terms of interest conflicts between controlling and minority shareholders matters most (Claessen and Yurtoglu, 2013). It is because a significant presence of controlling shareholders, albeit alleviates managerial agency costs, damages minority interests in virtue of a possibility of wealth expropriation by these large owners (La Porta et al., 2000). The expropriation effect of majority/controlling shareholders thus should be more pronounced in institutional environments with weak protection of minority investor rights such as emerging/transitional economies (see Claessen and Yurtoglu, 2013; Balsmeier and Czarnitzki, 2017). Other things being equal, this effect of concentrated holdings should exert a negative impact on firm valuation.

In terms of a net effect, the concentration–valuation relation should be an outcome of a trade-off between the monitoring and expropriation effects (Filatotchev et al., 2013). As corporate governance practices are different among countries, there exist internationally diversified patterns of the relation. In fact, empirical studies tend to confirm the relation as a non-monotonic curve: either a U-shaped curve (Hu and Izumida, 2008; Tran and Le, 2017), or an inverted U-shaped curve (McConnell and Servaes, 1990; Himmelberg et al., 1999; Thomsen and Pedersen, 2000; Makhija and Spiro, 2000; Beiner et al., 2006), or piecewise-linear patterns (Morck et al., 1988; Hermalin and Weisbach, 1991; Holderness et al., 1999). However, evidence in emerging/transitional economies has a tendency to show solely a positive relation (Claessens,

1997; Claessens et al., 1997; Xu and Wang, 1999; Claessens et al., 2002; Lins, 2003; Bai et al., 2004; Makhija, 2004; Gunasekarage et al., 2007; Heugens et al., 2009; Ma et al., 2010; Nguyen et al., 2015). This can be interpreted as a reflection on the weakness of external governance mechanisms such as market disciplines or a legal and regulatory framework for investor protection, which encourages ownership concentration to act as an effective internal governance mechanism substituting for these institutional deficiencies.

Under-developed institutional infrastructures characterizing emerging/transitional economies convince corporate governance researchers of the rationality of investigating the role of ownership concentration in these markets. However, there is a scant evidence base for this strand of research in frontier emerging markets (Tran and Le, 2017). In the valuation perspective, this neglected area of the global equity market is garnering a certain attention of international investors because of its respectable potential for diversifying risks and providing excess returns. Indeed, Berger et al. (2011) show that frontier markets exhibit persistently low degrees of integration with the global market and thereby grant investors significant benefits of international diversification. It is without any doubt that knowledgeable investors also highly realize governance-related risks in these markets. In the practice of frontier/emerging market investing, experienced investors acknowledge ownership structure as a key consideration in terms of risks and opportunities related to corporate governance quality (Hedberg, 2014). Therefore, studying the valuation effect of concentrated ownership structure would have valuable implications for equity investment orientation and internal corporate governance in frontier market economies.

Among frontier markets, Vietnam with its unique characteristics is one typical case for an empirical investigation into the relationship between concentration and valuation (Tran and Le, 2017). Empirical evidence in the Vietnamese context has been unclear though. Nguyen et al. (2015) address the relationship in a comparison approach using a pooled dataset of both Singaporean and Vietnamese firms and find a positive, linear (non-quadratic) impact of combined ownership on firm value (measured by Tobin's *Q* in logarithm). Their results imply that ownership concentration in an under-developed national governance system like Vietnam's one provides firms with an efficient mechanism in monitoring management as predicted by the agency theory. Tran and Le (2017), who use Tobin's *Q* in level as a market-based measure of firm performance, detect a seemingly U-shaped relation between blockholding and market performance solely for Vietnamese firms. Our study is motivated by the need for reconciling

these seemingly conflicting findings in Vietnam. A thorough examination in the Vietnamese market is also necessary for defining comprehensively one central piece of the corporate governance landscape in frontier markets.

In order to examine the association of market valuation with ownership concentration in a frontier market context, we employ a sample of 480 non-financial firms listed publicly in the two stock exchanges of Vietnam. Using the "piecewise" regression approach, we find that ownership concentration exceeding a certain threshold of equity holding, 28% for example, is positively associated with market valuation. Especially, the marginal effect of the relation increases at an accelerated pace. This provides an insightful explanation for seemingly contradictory findings by Nguyen et al. (2015) and Tran and Le (2017). This study sheds light on the valuation effect of ownership concentration in frontier markets by specifying evidence of a non-linearly, positively monotonic pattern. Basically, ownership coordination in under-developed institutional environments with weak national governance systems like Vietnam's one is an efficient internal mechanism of corporate governance. Such a mechanism is, however, effective beyond a threshold of ownership concentration and particularly more profound at higher levels of concentration. The agency theory grants plausible explanations to this phenomenon, but a deeper investigation into this should be necessary.

For the remainder of the paper, section 2 describes the methodology and data; section 3 reports and discusses empirical results; and section 4 concludes.

2. Data and Methodology

2.1. Sampling and data sources

Our sample includes 480 non-financial firms listed on the Vietnamese stock exchanges. Similar to Tran and Le (2017), the dataset is an unbalanced panel without gaps covering the 2008–2015 period. Accounting and financial data are extracted from the *Thomson Reuters* database, whereas ownership data and management/board profiles are sourced from Tai Viet Corporation (*Vietstock*).

2.2. Empirical specification

The influence of ownership concentration on market valuation is modeled as follows:

$$Valuation_{it} = \beta_0 + \beta_1 Valuation_{it-1} + \beta_2 Blockholding_{it} + \beta_3 CEO\ duality_{it} + \beta_4 Board\ size_{it} +$$
$$\beta_5 Board\ independence_{it} + \beta_6 Gender\ diversiy_{it} + \beta_7 Firm\ size_{it} +$$

$$\beta_8 Leverage_{it} + \beta_9 ROA_{it} + \beta_{10} ROA_{it-1} + \beta_{11} Capex_{it} + \beta_{12} Age_{it} +$$

$$\beta_{13} Tangibility_{it} + \beta_{14} Sales\ growth_{it} + \beta_{15} Industry_i + \beta_{16} Year_t + e_{it} \quad (1)$$

where, the dependent variable of valuation is Tobin's *Q* or its logarithmic form, ln*Q*. The measure of ownership concentration, $Blockholding$, is our explanatory variable of interest. Control variables include corporate governance-related variables (i.e., $CEO\ duality$, $Board\ size$, $Board\ independence$, and $Gender\ diversiy$) and other firm-specific characteristics (i.e., $Firm\ size$, $Leverage$, ROA; $Capex$, Age, $Tangibility$, and $Sales\ growth$). Definitions for these variables are delineated in Appendix A. $Industry$ and $Year$ are vectors of industry and year dummies, respectively. The subscripts i and t specify firm and time dimensions, respectively; and $t-1$ denotes one-year lagged values.

Tran and Le (2017) highlight a U-shaped relation between concentration and valuation. We report replications of their main results in Appendix B. It is simplistically calculated that the turning point of the U-shaped curve is at an ownership level of around 28%. Motivated by Morck et al. (1988) and Chen et al. (2005), we use the piecewise linear specification to decompose the non-linear relation into segmented relations. We define the following two variables of ownership concentration (assuming that the actual blockholding fraction is *h*):

$$Blockholding\ (0.05, 0.28] = \begin{cases} h - 0.05\ (\text{if}\ 0.05 \leq h < 0.28) \\ 0.23\ (\text{if}\ h \geq 0.28) \end{cases}$$

$$Blockholding\ (0.28, 1.00) = \begin{cases} 0\ (\text{if}\ h < 0.28) \\ h - 0.28\ (\text{if}\ h \geq 0.28) \end{cases}$$

There are also other plausible reasons for choosing the threshold of 28% as a cut-off ownership level in the segmented specification (1) for Vietnamese firms. In the context of Vietnamese market, a voting holding of over 25% can avoid an unexpected prospect that a shareholder coordination representing at least 75% of all voting stocks takes a complete control of the firm. According to Vietnam's corporate law, a minimum holding of voting shares that can ratify issues in shareholder meetings is 26.01% (i.e., 51% of 51%), unless otherwise prescribed by the company's charter. Further, one shareholder or a group of shareholders who owns above 35% of all votes, unless otherwise stated by the charter, is empowered to convene a shareholder meeting and possibly veto important strategic decisions in the meeting. As the cut-off threshold of 28% may accidentally appear, we thus have also replicated all relevant regressions by employing cut-off points at 25% and 35% that are used by Morck et al. (1988) and Chen et al. (2005). Estimated patterns are unchanged when we use different cut-offs. Therefore, we suggest that one could

refer to an ownership level within the 25-35% range as a breakpoint in the piecewise specification for Vietnamese firms.

In the context of corporate governance research, it is necessary to employ a dynamic approach to examining the governance–performance relationship (Wintoki et al., 2012). For Vietnam, Tran and Le (2017) show that the non-linear impact of concentration on valuation is revealed through a dynamic model like our specification (1), which is potentially plagued by serious issues of endogeneity, namely dynamic endogeneity, simultaneity, and unobserved heterogeneity. We deal with these three sources of endogeneity by using the two-step dynamic system generalized method of moments (GMM) proposed by Blundell and Bond (1998). For the sake of comparison, we also report results from pooled OLS and fixed-effects estimations (with cluster effects at the firm level) which produce biased estimates in the presence of endogeneity issues though (Wintoki et al., 2012).

3. Results and Discussion

3.1. Descriptive statistics

Table 1 presents means of *Q* and ln*Q* for each 5% interval of block ownership for sampled 480 Vietnamese firms, with 2980 firm-year observations during the 2008–2015 period. Observably, valuation (*Q* and ln*Q*) tends to increase with concentrated ownership beyond the interval of 25-30%, whereas the pattern between blockholdings of 5% and 25% is unclear. Table 2 provides descriptive statistics for the entire sample. *Q* has a mean of 0.93 with a standard deviation of 0.31. Ownership in Vietnamese listed firms is concentrated highly, at an average level of 49% with a standard deviation of 0.19. Table 3 shows pairwise correlations between variables. There is no seriously large correlation between explanatory variables.

[Table 1 about here]

[Table 2 about here]

[Table 3 about here]

3.2. Main results and discussion

3.2.1. Main results

Table 4 and Table 5 report estimates for Eq. (1) using *Q* and ln*Q*, respectively. For each table, the first three columns represent OLS and fixed-effects estimates using the static panel approach. The difference between columns (1) and (2) is without and with industry effects. Columns (4) show OLS estimates using

the dynamic panel approach. For both Table 4 and Table 5, stronger improvements in *R*-squared of the dynamic models compared to the static ones indicate the dynamic approach is appropriate for examining the governance-performance relation (Wintoki et al., 2012; Tran and Le, 2017). With potential sources of endogeneity inherent in such a relation, estimates in columns (4) of Table 4 and Table 5 are biased and inconsistent. Rather, the two-step dynamic system GMM yields robust estimates as reported in columns (5) and (6). There is no considerable difference between GMM estimates with and without industry effects.

[Table 4 about here]

[Table 5 about here]

Similar to results found by Nguyen et al. (2015) and Tran and Le (2017), estimates for control variables except ROA appear to be insignificant after using the GMM to control for endogeneity. The strong significance of lagged *Q* and ln*Q* in all dynamic models supports the importance of using a dynamic approach in corporate governance research. Finally, our variables of interest, $Blockholding\ (0.05, 0.28]$ and $Blockholding\ (0.28, 1.00)$, have their estimated patterns consistent across all static and dynamic estimations. The former's coefficients are insignificantly negative, and the latter's ones are significantly positive. Such results in Table 4 explain why the U-shaped concentration–valuation (*Q*) relation discovered by Tran and Le (2017) is weak statistically, and partly help to interpret the positive concentration–value (ln*Q*) relation found by Nguyen et al. (2015). More interestingly, the stronger significance at the 1% level of $Blockholding\ (0.28, 1.00)$ in Table 5 (ln*Q* model), in comparison to the significance at the 5% level of $Blockholding\ (0.28, 1.00)$ in Table 4 (*Q* model) demonstrates that valuation (*Q*) should be an *exponential* function of ownership exceeding 28%. Plausibly reconciling the findings by Nguyen et al. (2015) and Tran and Le (2017), our main finding is that concentration–valuation relation is a *log-linear* expression in the ownership interval above 28% and inconclusive in the lower interval. Other things being equal, the log-linear relation has the general form

$$Q = f(blockhoding) \sim \mathrm{e}^{0.56 \cdot blockholding_{(>0.28)}}$$

Following suggestions by Roodman (2009) and Tran and Le (2017), our GMM estimates are obtained from tests for sensitivity to reductions in the instrument count, whose results are described in Appendix C and Appendix D. Our chosen variants of GMM system (columns (4)) are the ones of validity in terms of GMM-specific tests such as the Arellano-Bond test for autocorrelation in first-differenced errors, and

the Sargan- and Hansen-typed tests for the validity of the full set and subsets of instruments. Patterns of GMM estimates are unchanged when we use differently sized variants of instrument count. GMM estimates are used for discussion.

3.2.2. Discussion

The association of valuation with concentration ranging from 5% to 28% is inconclusive in the context of Vietnam as a frontier market. One interpretation is that the monitoring effect is negligible at low levels of ownership concentration. When ownership is dispersed, shareholders confront the free-rider problem where there is no enough incentive for a single shareholder to individually bear entire increased monitoring costs and at the same time gain increased monitoring benefits pro rata to his or her equity stake. Another explanation is that the monitoring effect tends to be minor and may be cleared out by opposite effects such as the expropriation effect – which also tends to be modest in low degrees of concentration.

When combined ownership by large shareholders exceeds 28%, valuation increases with concentration. This positive relation supports the agency theory's argument about the monitoring effect of ownership concentration. By holding major equity fractions, controlling shareholder(s) or a coordinated group of shareholders should have interest-related motives in monitoring and disciplining the firm's management and drive its investment strategies in alignment with shareholder value-maximization targets (Shleifer and Vishny, 1986). The more ownership is concentrated, the more incentives shareholders as a whole have. As the monitoring mechanism helps mitigate managerial agency costs, firm performance gets improved – as predicted by Jensen and Meckling's (1976) theory. This is straightforward to be realized by outside investors, and consequent market expectations push up equity prices. The higher ownership is concentrated, the greater firm value is.

Such a positive ownership–valuation relation is in line with evidence advocating the monitoring effectiveness in under-developed governance environments like emerging markets (Claessens, 1997; Claessens et al., 1997; Xu and Wang, 1999; Claessens et al., 2002; Lins, 2003; Bai et al., 2004; Makhija, 2004; Gunasekarage et al., 2007; Heugens et al., 2009; Ma et al., 2010; Nguyen et al., 2015). Contextualized in a frontier market, our study confirms that ownership concentration acts as an efficient internal governance mechanism partly substituting for weak external governance mechanisms. Furthermore, we argue that there may exist certain levels of the expropriation effect that should be

overwhelmed by stronger levels of the monitoring effect.[1] Then, a trade-off between both effects shapes the concentration–valuation relation. In fact, the positive relation in this case implies that the net effect (i.e., the dominance of the monitoring effect over the expropriation effect) is greater when ownership is more concentrated.

However, our finding in a frontier market is quite distinct from existing evidence in emerging markets. Instead of being linear, the positive relation found in our Vietnamese sample is non-linearly monotonic. Specifically, valuation increases exponentially with concentrated ownership exceeding 28%, implying that the valuation–concentration relation is a log-linear expression. Interestingly, this can help explain the seemingly conflicting findings by Nguyen et al. (2015) and Tran and Le (2017). Because Nguyen et al. (2015) employ a logarithmic transformation of Tobin's *Q* estimates, the essential of the linear positive relation between ownership concentration and logged *Q* found in their study is a *log-linear* relation between ownership concentration and in-level *Q*. From Tran and Le's (2017) estimates of the U-shaped (quadratic) relation between block holding and *Q*, it is simply calculated that the turning point of the U-shaped curve is at around the 28% level of combined ownership, other things being equal.[2] In fact, our robust results indicate that the concentration–valuation curve should be the graph of a *log-linear* function or the positive half of a U-shaped curve. Obviously, the monitoring effect or the net effect from its trade-off with the expropriation effect is more profound at higher degrees of concentration.[3]

[1] It is because the expropriation effect of large shareholders as an agency cost of the controlling–minority problem matters most in firms with concentrated ownership structure and should be pronounced under weak institutional environments.

[2] It also should be noted that the statistical significance of their estimates is weak. We futher conduct robustness checks and find that our estimated patterns of the concentration–valuation relation in ownership segments are unchanged when using other thresholds in the vicinity of 28% as breakpoints. Therefore, we suggest that one can refer to any ownership level between 25% and 35% as a turning "point" for the segmented analysis.

[3] At high levels of ownership concentration, our finding is consistent with Hu and Izumida's (2008) evidence for Japanese firms. They find that when ownership is more concentrated, while monitoring incentives of controlling shareholders are stronger, expropriation activities by these shareholders are less as a result of the increasing net cost of expropriation. Ultimately, the monitoring effect is dominant at high degrees of ownership concentration.

Finally, we suggest a more thorough investigation into the accelerated impact of ownership concentration on firm value in a typical frontier market like Vietnam, which holds a promise for future research. The acceleration may be sourced from other effects instead of solely the monitoring and expropriation effects of large shareholders. For example, digging deeper into the concentrated structure of ownership types like managerial ownership can help to assess the relationship in terms of the interest-convergence effect (Jensen and Meckling, 1976) and/or the entrenchment effect (Demsetz, 1983; Fama and Jensen, 1983). Indeed, the association of firm valuation (*Q*) with ownership concentration may partly be driven by a trade-off between these two effects of managerial ownership. For instance, the negative entrenchment effect can exhibit minimal increments beyond the (managerial) ownership threshold of 25% (Morck et al., 1988), whereas the positive effect of interest alignment is amplified with ownership. Additionally, the stronger increase of firm value at the higher end of ownership distribution could come from higher premiums that potential acquirers are expected to pay for their demand for control rights through acquiring management's equity stakes – which the management refuses to cede to these takeovers at unsatisfactorily lower prices (Stulz, 1988). Such a role of high managerial holdings played in impeding takeover attempts might also be regarded as a positive effect of the entrenchment. Also, the potential effects of managerial ownership concentration could take part in making the concentration–valuation relation vanished across the interval between 5% and 25% as shown in our study, for example.

4. Conclusion

This study contributes to enriching the existing literature on corporate governance practices in emerging markets in general and frontier markets in particular by investigating the valuation effect of ownership concentration. Our evidence on an extensive sample of frontier equities confirms the essential role of ownership concentration as a surrogate for external control mechanisms in under-developed institutional environments. Specifically, we find that the valuation effect is non-linearly, positively monotonic when ownership of blockholders exceeds a certain level, around 28% for Vietnamese firms. However, there is no significant valuation effect in the 5-28% interval of concentrated equity holdings. Our segmented regression analysis brings about a reconciliation of seemingly conflicting findings shown previously by Nguyen et al. (2015) and Tran and Le (2017).

Although our results fundamentally support the argument of the agency theory about the monitoring effect of large shareholders in the context of a frontier market, a more thorough investigation into the

trade-off effect between the monitoring and expropriation effects in lower levels of ownership concentration is critical to consider a phenomenon that both effects can cancel each other. Also, delving into the concentrated structure of ownership types can cast more insight on the exponential increase of the valuation effect at the higher end of combined ownership distribution. Future research on these would promise a more insightful interpretation of the concentration–valuation relation in frontier/emerging markets. In the perspective of research methodology, our approach implies that observing non-linear effects within segmented ownership intervals of the piecewise specification could help reconcile conflicting evidence that is omnipresent in the corporate governance literature.

The current study has implications for investment and policy in frontier emerging markets. Urged on by this study, corporate practices in frontier markets could derive investment and policy experiences from advanced emerging markets. Although the evolution of institutional environments in these under-developed markets might take a long time before external governance mechanisms would become effective, investors can embrace opportunities coupled with governance-related risks that ownership concentration is a key consideration for. Also, capital market regulators can allow the under-diversification of equity blockholders for a more efficient environment of corporate governance. For example, Vietnam's regulators can incrementally relax restrictions on foreign investment involvement in local companies by raising the foreign ownership cap (currently, 49%), which could take advantage of efficient governance experiences carried by large foreign investors from advanced markets.

References

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*(4), 599-616.

Balsmeier, B., Czarnitzki, D., 2017. Ownership concentration, institutional development and firm performance in Central and Eastern Europe. *Managerial and Decision Economics 38*(2), 178-192.

Beiner, S., Drobetz, W., Schmid, M.M., Zimmermann, H., 2006. An integrated framework of corporate governance and firm valuation. *European Financial Management 12*(2), 249-283.

Berger, D., Pukthuanthong, K., Yang, J., 2011. International diversification with frontier markets. *Journal of Financial Economics 101*, 227-242.

Blundell, R., Bond, S., 1998. Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics 87*(1), 115-143.

Boubakri, N., Cosset, J.C., Guedhami, O., 2005. Postprivatization corporate governance: the role of ownership structure and investor protection. *Journal of Financial Economics 76*(2), 369-399.

Chen, Z., Cheung, Y.L., Stouraitis, A., Wong, A.W., 2005. Ownership concentration, firm performance, and dividend policy in Hong Kong. *Pacific-Basin Finance Journal 13*(4), 431-449.

Claessens, S., 1997. Corporate governance and equity prices: Evidence from the Czech and Slovak Republics. *The Journal of Finance 52*(4), 1641-1658.

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*(6), 2741-2771.

Claessens, S., Djankov, S., Pohl, G., 1997. *Ownership and corporate governance: Evidence from the Czech Republic*. World Bank Publications.

Claessens, S., Yurtoglu, B.B., 2013. Corporate governance in emerging markets: a survey. *Emerging Markets Review 15*, 1-33.

Demsetz, H., 1983. The structure of ownership and the theory of the firm. *The Journal of Law and Economics 26*(2), 375-390.

Fama, E.F., Jensen, M.C., 1983. Separation of ownership and control. *The Journal of Law and Economics 26*(2), 301-325.

Filatotchev, I., Jackson, G., Nakajima, C., 2013. Corporate governance and national institutions: a review and emerging research agenda. *Asia Pacific Journal of Management 30*(4), 965-986.

Gunasekarage, A., Hess, K., Hu, A.J., 2007. The influence of the degree of state ownership and the ownership concentration on the performance of listed Chinese companies. *Research in International Business and Finance 21*(3), 379-395.

Hedberg L., 2014. *Navigating emerging and frontier markets with Corporate Governance* [White paper]. Retrieved May 8, 2018, from East Captial: http://www.eastcapital.com/Documents/White_Paper-Corporate_Governance_September_2014.pdf

Hermalin, B.E., Weisbach, M.S., 1991. The effects of board composition and direct incentives on firm performance. *Financial Management*, 101-112.

Heugens, P.P., van Essen, M., van Oosterhout, J.H., 2009. Meta-analyzing ownership concentration and firm performance in Asia: Towards a more fine-grained understanding. *Asia Pacific Journal of Management 26*(3), 481-512.

Himmelberg, C., Hubbard, R.G., Palia, D., 1999. Understanding the determinants of managerial ownership and the link between ownership and performance. *Journal of Financial Economics 53*, 353-384.

Holderness, C.G., Kroszner, R.S., Sheehan, D.P., 1999. Were the good old days that good? Changes in managerial stock ownership since the great depression. *The Journal of Finance 54*(2), 435-469.

Hu, Y., Izumida, S., 2008. Ownership concentration and corporate performance: a causal analysis with Japanese panel data. *Corporate Governance: An International Review 16*(4), 342-358.

Jensen, M.C., Meckling, W.H., 1976. Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics 3*(4), 305-360.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R.W, 2000. Investor protection and corporate governance. *Journal of Financial Economics 58*(1), 3-27.

Lins, K.V., 2003. Equity ownership and firm value in emerging markets. *Journal of Financial and Quantitative Analysis 38*(1), 159-184.

Ma, S., Naughton, T., Tian, G., 2010. Ownership and ownership concentration: which is important in determining the performance of China's listed firms? *Accounting & Finance 50*(4), 871-897.

Makhija, A.K., Spiro, M., 2000. Ownership structure as a determinant of firm value: Evidence from newly privatized Czech firms. *Financial Review 35*(3), 1-32.

Makhija, M.V., 2004. The value of restructuring in emerging economies: the case of the Czech Republic. *Strategic Management Journal 25*(3), 243-267.

McConnell, J.J., Servaes, H., 1990. Additional evidence on equity ownership and corporate value. *Journal of Financial Economics 27*(2), 595-612.

Morck, R., Shleifer, A., Vishny, R.W., 1988. Management ownership and market valuation: an empirical analysis. *Journal of Financial Economics 20*, 293-315.

Nguyen, T., Locke, S., Reddy, K., 2015. Ownership concentration and corporate performance from a dynamic perspective: Does national governance quality matter? *International Review of Financial Analysis 41*, 148-161.

Roodman, D., 2009. A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics 71*(1), 135-158.

Shleifer, A., Vishny, R.W., 1986. Large shareholders and corporate control. *Journal of Political Economy 94*, 461-488.

Shleifer, A., Vishny, R.W., 1997. A survey of corporate governance. *The Journal of Finance 52*(2), 737-783.

Stulz, R., 1988. Managerial control of voting rights: Financing policies and the market for corporate control. *Journal of Financial Economics 20*, 25-54.

Thomsen, S., Pedersen, T., 2000. Ownership structure and economic performance in the largest European companies. *Strategic Management Journal*, 689-705.

Tran, N.H., Le, C.D., 2017. Ownership concentration, corporate risk-taking and performance: Evidence from Vietnamese listed firms. Available at SSRN: https://ssrn.com/abstract=3030405

Wintoki, M.B., Linck, J.S., Netter, J.M., 2012. Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics 105*(3), 581-606.

Xu, X., Wang, Y., 1999. Ownership structure and corporate governance in Chinese stock companies. *China Economic Review 10*(1), 75-98.

Appendix A. Variables' definition and data source

Variable	Definition	Database
Firm valuation		*Thomson Reuters*
Q	Tobin's *Q*: the market value of equity plus the book value of debt, all divided by the book value of total assets	
ln*Q*	The natural logarithm of *Q*	
Corporate governance variables		*Vietstock*
Blockholding	The accumulated percentage of shareholdings by all large investors who own at least 5% of a firm's outstanding shares	
Blockholding (0.05 0.28]	= blockholding minus 0.05 if $0.05 \leq$ blockholding < 0.28, = 0.23 if blockholding ≥ 0.28	
Blockholding (0.28 1.00)	= 0 if blockholding < 0.28, = blockholding minus 0.28 if blockholding ≥ 0.28	
CEO duality	A dummy variable equal to 1 if the chairman and the chief executive officer (CEO) is the same person, and zero otherwise	
Board size	The number of directors on the firm's board	
Board independence	The proportion of outside (non-executive) directors on the board	
Gender diversity	The proportion of female directors on the board	
Other firm characteristics		*Thomson Reuters*
ROA	Profitability: the ratio of earnings before interest and taxes (EBIT) during a year to total assets at the beginning of the year	
Leverage	Financial leverage: the ratio of total debt to total assets	
Firm size	The natural logarithm of total assets	
Capex	Capital expenditures divided by sales	
Age	The natural logarithm of the number of years since the date of listing	
Tangibility	The ratio of fixed to total assets	
Sales growth	Annual growth rate in sales	

Appendix B. Replications of the previous approaches to examining the concentration-valuation relation

Dependent variable:	ln*Q* [Nguyen et al.'s (2015) approach]						*Q* [Tran and Le's (2017) approach]					
	(1)		(2)		(3)		(4)		(5)		(6)	
Explanatory variables:	Pooled OLS		Fixed effects		System GMM		Pooled OLS		Fixed effects		System GMM	
Q(t-1)					0.6460	(13.10)***					0.7064	(15.83)***
Blockholding	0.1688	(4.13)***	0.0775	(0.86)	0.2738	(2.12)**	-0.2883	(-1.47)	-0.4317	(-1.75)*	-0.3783	(-1.11)
Blockholding^2							0.4921	(2.31)**	0.5426	(2.54)**	0.6922	(1.74)*
CEO duality	0.0229	(1.58)	0.0306	(1.39)	0.0218	(0.61)	0.0313	(1.96)*	0.0347	(1.32)	0.0195	(0.52)
Board size	0.0354	(0.76)	0.0129	(0.22)	-0.1571	(-0.87)	0.0439	(0.81)	0.0476	(0.73)	-0.1585	(-0.91)
Board independence	0.0520	(1.54)	0.0072	(0.17)	0.1127	(1.01)	0.0779	(2.23)**	-0.0023	(-0.05)	0.0640	(0.55)
Gender diversity	-0.0632	(-1.39)	-0.0506	(-0.83)	-0.0216	(-0.15)	-0.0685	(-1.40)	-0.0851	(-1.31)	0.0027	(0.02)
ROA(t)	0.8928	(7.72)***	0.6282	(5.10)***	1.6082	(2.86)***	0.9707	(7.42)***	0.6360	(4.89)***	1.7435	(2.97)***
ROA(t-1)	0.5393	(5.15)***	0.3651	(3.83)***	-0.4919	(-1.62)	0.5694	(4.28)***	0.3076	(2.58)***	-0.6359	(-1.94)*
Leverage	0.1347	(3.90)***	0.1388	(1.92)*	0.0162	(0.18)	0.0147	(0.41)	0.0804	(1.08)	0.0058	(0.07)
Firm size	0.0226	(3.15)***	0.1126	(2.28)**	0.0189	(0.81)	0.0250	(2.92)***	0.0929	(1.72)*	0.0253	(0.91)
Capex	0.0389	(1.37)	-0.0146	(-0.40)	0.1102	(1.01)	0.0319	(1.14)	-0.0285	(-0.69)	0.1322	(1.15)
Age	-0.0480	(-1.87)*	-0.1913	(-2.31)**	0.0207	(0.99)	-0.0439	(-1.61)	-0.2035	(-2.14)**	0.0295	(1.29)
Tangibility	-0.1138	(-3.09)***	0.1635	(1.55)	-0.1416	(-1.34)	-0.0815	(-2.10)**	0.1981	(1.77)*	-0.1924	(-1.91)*
Sales growth	-0.0001	(0.00)	0.0006	(0.05)	0.0613	(0.55)	-0.0041	(-0.30)	-0.0019	(-0.16)	0.0230	(0.22)
Constant	-0.6137	(-5.47)***	-1.4927	(-2.29)**	-0.2383	(-0.90)	0.4641	(3.22)***	-0.1151	(-0.16)	0.1488	(0.52)
Industry fixed effects	Yes		No		Yes		Yes		No		Yes	
Year fixed effects	Yes		Yes		Yes		Yes		Yes		Yes	
Prob. (*F* statistic)	0.000		0.000		0.000		0.000		0.000		0.000	
R-squared	0.353		0.288				0.335		0.228			
No. of firms	480		480		480		480		480		480	
No. of observations	2500		2500		2500		2500		2500		2500	
No. of instruments					49						51	
Arellano-Bond test: *AR*(1) (*p*-value)					0.000						0.000	
Arellano-Bond test: *AR*(2) (*p*-value)					0.043						0.129	
Hansen *J*-test of over-identification (*p*-value)					0.124						0.605	
Difference-in-Hansen test for exogeneity (*p*-value)												
GMM instruments for level equation (All)					0.072						0.507	
GMM instruments for diff. equation (Lagged valuation)					0.086						0.166	
GMM instruments for level equation (Lagged valuation)					0.101						0.195	

Note: Estimated coefficients are reported with heteroskedasticity-robust *t*-statistics in parentheses. * indicates significance at 10%; ** significance at 5%; *** significance at 1%. System-GMM estimates are obtained from Blundell and Bond's (1998) two-step system GMM using a two-equation system of the regression in levels and in first differences. According to column (6) in this table, the turning point of the quadratic curve is simplistically calculated as at an ownership concentration level of $\frac{-(-0.3783)}{2\times 0.6922} \approx 0.28$, other things being equal.

Appendix C. Test for sensitivity to reductions in the instrument count: the specification of *Q*

	(1) Full instruments, collapsed		(2) 2nd-3rd lag instruments, collapsed		(3) 2nd lag instruments only, collapsed		(4) Selected instruments, collapsed	
Q(t-1)	0.6849	(12.06)***	0.7035	(14.67)***	0.7913	(13.02)***	0.7580	(14.26)***
Blockholding (0.05 0.28]	-0.4148	(-1.40)	-0.3450	(-0.98)	-0.3585	(-0.84)	-0.4370	(-1.12)
Blockholding (0.28 1.00)	0.4154	(2.62)***	0.4362	(2.34)**	0.4757	(2.24)**	0.4643	(2.45)**
No. of firms	480		480		480		480	
No. of observations	2500		2500		2500		2500	
No. of instruments	108		57		44		50	
Arellano-Bond test for *AR*(1) in differences (*p*-value)	0.000		0.000		0.000		0.000	
Arellano-Bond test for *AR*(2) in differences (*p*-value)	0.059		0.105		0.161		0.119	
Sargan test of over-identification (*p*-value)	0.001		0.088		0.149		0.295	
Hansen *J*-test of over-identification (*p*-value)	0.053		0.823		0.388		0.691	
Difference-in-Hansen test for exogeneity (*p*-value)								
GMM instruments for level equation (All)	0.037		0.453				0.588	
GMM instruments for diff. equation (Lagged valuation)	0.258		0.378		0.514		0.450	
GMM instruments for level equation (Lagged valuation)	0.051		0.636		0.289		0.246	
GMM instruments for diff. equation (Governance variables)	0.043		0.586		0.239		0.230	
GMM instruments for level equation (Governance variables)	0.406		0.282		0.233		0.269	
GMM instruments for diff. equation (Firm characteristics)	0.021		0.514		0.068		0.325	
GMM instruments for level equation (Firm characteristics)	0.737		0.844		0.702		0.781	
IV instruments for level equation (Age; Industries; Years)	0.020		0.620				0.704	

Note: Estimated coefficients are reported with heteroskedasticity-robust *t*-statistics in parentheses. * indicates significance at 10%; ** significance at 5%; *** significance at 1%.
System-GMM estimates are obtained from Blundell and Bond's (1998) two-step system GMM using a two-equation system of the regression in levels and in first differences.
The two-step system GMM uses the Windmeijer finite-sample correction for downward biased two-step standard errors.
Estimates for explanatory variables, other than valuation and ownership variables, are not reported for brevity.

Appendix D. Test for sensitivity to reductions in the instrument count: the specification of ln*Q*

	(1) Full instruments, collapsed		(2) 2nd-3rd lag instruments, collapsed		(3) 2nd lag instruments only, collapsed		(4) Selected instruments, collapsed	
ln*Q*(t-1)	0.6184	(11.84)***	0.6403	(12.60)***	0.6970	(12.10)***	0.6832	(12.11)***
Blockholding (0.05 0.28]	-0.5009	(-1.77)	-0.3804	(-1.13)	-0.5303	(-1.37)	-0.5490	(-1.48)
Blockholding (0.28 1.00)	0.3809	(2.60)***	0.4539	(2.57)***	0.6107	(3.18)***	0.5637	(3.05)***
No. of firms	480		480		480		480	
No. of observations	2500		2500		2500		2500	
No. of instruments	108		57		44		50	
Arellano-Bond test for *AR*(1) in differences (*p*-value)	0.000		0.000		0.000		0.000	
Arellano-Bond test for *AR*(2) in differences (*p*-value)	0.015		0.071		0.078		0.071	
Sargan test of over-identification (*p*-value)	0.016		0.081		0.055		0.170	
Hansen *J*-test of over-identification (*p*-value)	0.023		0.372		0.139		0.297	
Difference-in-Hansen test for exogeneity (*p*-value)								
GMM instruments for level equation (All)	0.009		0.079				0.206	
GMM instruments for diff. equation (Lagged valuation)	0.099		0.196		0.360		0.237	
GMM instruments for level equation (Lagged valuation)	0.009		0.929		0.473		0.497	
GMM instruments for diff. equation (Governance variables)	0.062		0.219		0.075		0.073	
GMM instruments for level equation (Governance variables)	0.451		0.118		0.090		0.103	
GMM instruments for diff. equation (Firm characteristics)	0.008		0.131		0.011		0.068	
GMM instruments for level equation (Firm characteristics)	0.472		0.613		0.796		0.773	
IV instruments for level equation (Age; Industries; Years)	0.005		0.271				0.434	

Note: Estimated coefficients are reported with heteroskedasticity-robust *t*-statistics in parentheses. * indicates significance at 10%; ** significance at 5%; *** significance at 1%.
System-GMM estimates are obtained from Blundell and Bond's (1998) two-step system GMM using a two-equation system of the regression in levels and in first differences.
The two-step system GMM uses the Windmeijer finite-sample correction for downward biased two-step standard errors.
Estimates for explanatory variables, other than valuation and ownership variables, are not reported for brevity.

Table 1. Mean values of *Q* and ln*Q*, grouped by the level of concentrated ownership

				Q		**ln*Q***	
Blockholding	***Obs.***	***Freq.***	***Cum. Freq.***	***Mean***	***Std. Dev.***	***Mean***	***Std. Dev.***
5-10%	54	1.81%	1.81%	0.84	0.24	-0.21	0.27
10-15%	90	3.02%	4.83%	0.89	0.33	-0.17	0.31
15-20%	111	3.72%	8.56%	0.86	0.23	-0.18	0.26
20-25%	116	3.89%	12.45%	0.86	0.23	-0.19	0.25
25-30%	152	5.10%	17.55%	0.89	0.27	-0.15	0.27
30-35%	163	5.47%	23.02%	0.85	0.23	-0.20	0.27
35-40%	178	5.97%	28.99%	0.87	0.22	-0.17	0.25
40-45%	207	6.95%	35.94%	0.90	0.30	-0.15	0.31
45-50%	211	7.08%	43.02%	0.93	0.32	-0.11	0.28
50-55%	533	17.89%	60.91%	0.92	0.25	-0.12	0.24
55-60%	292	9.80%	70.70%	0.96	0.32	-0.08	0.28
60-65%	271	9.09%	79.80%	0.99	0.32	-0.05	0.28
65-70%	208	6.98%	86.78%	0.98	0.32	-0.07	0.28
70-75%	144	4.83%	91.61%	0.93	0.29	-0.12	0.29
75-80%	130	4.36%	95.97%	1.02	0.38	-0.04	0.33
80-85%	54	1.81%	97.79%	1.07	0.32	0.03	0.29
85-90%	37	1.24%	99.03%	1.13	0.48	0.05	0.36
90-95%	20	0.67%	99.70%	1.34	0.54	0.23	0.36
95-100%	9	0.30%	100.00%	1.56	0.74	0.33	0.52

Table 2. Descriptive statistics

	Obs.	*Mean*	*Std. Dev.*	*Min*	*25%*	*Median*	*75%*	*Max*
Q	2980	0.93	0.31	0.32	0.77	0.89	1.01	2.66
ln*Q*	2980	-0.11	0.28	-1.13	-0.26	-0.12	0.01	0.98
Blockholding	2980	0.49	0.19	0.05	0.36	0.51	0.61	0.99
Blockholding (0.05 0.28]	2980	0.22	0.04	0.00	0.23	0.23	0.23	0.23
Blockholding (0.28 1.00)	2980	0.23	0.16	0.00	0.08	0.23	0.33	0.71
CEO duality	2980	0.35	0.48	0.00	0.00	0.00	1.00	1.00
Board size	2980	1.68	0.18	1.10	1.61	1.61	1.79	2.40
Board independence	2980	0.59	0.20	0.00	0.40	0.60	0.80	1.00
Gender diversity	2980	0.14	0.16	0.00	0.00	0.14	0.20	0.80
ROA	2980	0.09	0.09	-0.16	0.03	0.08	0.13	0.50
Leverage	2980	0.34	0.25	0.00	0.09	0.34	0.55	0.86
Firm size	2980	13.18	1.45	9.40	12.27	13.10	14.12	18.80
Capex	2980	0.09	0.23	0.00	0.01	0.02	0.08	2.09
Age	2980	1.74	0.47	0.69	1.39	1.79	2.08	2.83
Tangibility	2980	0.26	0.22	0.00	0.09	0.20	0.37	0.92
Sales growth	2980	0.13	0.35	-0.88	-0.06	0.10	0.27	0.98

Table 3. Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) *Q*	1.00															
(2) ln*Q*	0.96	1.00														
(3) Blockholding	0.19	0.20	1.00													
(4) Blockholding (0.05 0.28]	0.08	0.09	0.65	1.00												
(5) Blockholding (0.28 1.00)	0.20	0.20	0.98	0.48	1.00											
(6) CEO duality	-0.02	-0.03	-0.18	-0.08	-0.18	1.00										
(7) Board size	0.08	0.07	-0.02	0.02	-0.03	0.03	1.00									
(8) Board independence	0.09	0.07	0.11	0.05	0.12	-0.34	0.10	1.00								
(9) Gender diversity	0.01	0.00	-0.03	-0.04	-0.03	0.08	0.07	-0.02	1.00							
(10) ROA	0.37	0.34	0.10	0.07	0.10	-0.02	0.10	0.01	0.07	1.00						
(11) Leverage	-0.04	0.06	0.00	0.03	-0.01	0.02	0.07	-0.10	-0.10	-0.20	1.00					
(12) Firm size	0.16	0.19	0.13	0.05	0.13	-0.06	0.27	0.08	-0.01	0.01	0.43	1.00				
(13) Capex	0.02	0.03	0.03	0.00	0.03	-0.07	0.12	0.09	0.00	-0.03	0.10	0.18	1.00			
(14) Age	0.01	0.01	0.04	0.02	0.04	-0.14	0.01	0.07	0.01	-0.13	-0.02	0.11	-0.07	1.00		
(15) Tangibility	0.02	0.01	0.15	0.07	0.16	-0.09	0.09	0.03	-0.11	0.02	0.20	0.11	0.30	0.00	1.00	
(16) Sales growth	0.08	0.08	-0.04	-0.04	-0.04	-0.02	0.04	0.02	0.06	0.27	0.02	0.08	0.01	-0.11	0.00	1.00

* indicates significance at 10%; ** significance at 5%; *** significance at 1%.

Table 4. Ownership concentration and firm valuation: the specification of *Q*

Dependent variable:	Static panel						Dynamic panel					
Firm valuation=*Q*	(1)		(2)		(3)		(4)		(5)		(6)	
Explanatory variables:	Pooled OLS without industry effects		Pooled OLS with industry effects		Fixed effects		Pooled OLS with industry effects		System GMM without industry effects		System GMM with industry effects	
Q(t-1)							0.6697	(28.54)***	0.7707	(14.33)***	0.7580	(14.26)***
Blockholding (0.05 0.28]	-0.1889	(-0.91)	-0.2010	(-0.97)	-0.4002	(-1.34)	-0.0690	(-0.61)	-0.4896	(-1.23)	-0.4370	(-1.12)
Blockholding (0.28 1.00)	0.2626	(4.48)***	0.2437	(4.29)***	0.1758	(2.02)**	0.0825	(2.96)***	0.5374	(2.80)***	0.4643	(2.45)**
CEO duality	0.0340	(2.09)**	0.0327	(2.04)**	0.0345	(1.31)	0.0139	(1.67)*	0.0236	(0.62)	0.0301	(0.80)
Board size	0.0446	(0.82)	0.0467	(0.84)	0.0477	(0.72)	0.0488	(1.98)**	-0.2722	(-1.47)	-0.2611	(-1.44)
Board independence	0.0902	(2.57)***	0.0840	(2.36)**	0.0037	(0.08)	0.0193	(1.02)	0.1215	(1.07)	0.1101	(1.00)
Gender diversity	-0.0366	(-0.78)	-0.0647	(-1.34)	-0.0861	(-1.33)	-0.0151	(-0.62)	-0.0657	(-0.43)	-0.0041	(-0.03)
ROA(t)	0.9921	(7.54)***	0.9604	(7.35)***	0.6371	(4.86)***	0.6947	(6.75)***	1.4931	(2.37)**	1.5263	(2.49)**
ROA(t-1)	0.5961	(4.48)***	0.5731	(4.32)***	0.3158	(2.65)***	0.1243	(1.33)	-0.4375	(-1.19)	-0.4419	(-1.24)
Leverage	0.0170	(0.50)	0.0136	(0.38)	0.0786	(1.06)	0.0221	(1.27)	0.0417	(0.45)	0.0065	(0.07)
Firm size	0.0229	(2.90)***	0.0250	(2.90)***	0.0928	(1.72)*	0.0028	(0.75)	0.0364	(1.43)	0.0386	(1.39)
Capex	0.0294	(1.03)	0.0369	(1.33)	-0.0222	(-0.54)	0.0282	(1.68)*	0.1260	(1.12)	0.1148	(0.97)
Age	-0.0274	(-1.02)	-0.0456	(-1.63)	-0.2018	(-2.13)**	0.0276	(2.26)**	0.0361	(1.66)*	0.0307	(1.27)
Tangibility	-0.0703	(-1.93)*	-0.0808	(-2.09)**	0.1969	(1.77)*	-0.0367	(-1.99)**	-0.1830	(-1.62)	-0.1760	(-1.81)*
Sales growth	-0.0051	(-0.36)	-0.0037	(-0.27)	-0.0014	(-0.12)	0.0207	(1.82)*	-0.0656	(-0.54)	-0.0558	(-0.47)
Constant	0.4411	(3.28)***	0.4362	(3.07)***	-0.1354	(-0.19)	0.1791	(2.50)**	0.1317	(0.46)	0.0612	(0.21)
Industry fixed effects	No		Yes		No		Yes		No		Yes	
Year fixed effects	Yes		Yes		Yes		Yes		Yes		Yes	
Prob. (*F* statistic)	0.000		0.000		0.000		0.000		0.000		0.000	
R-squared	0.321		0.332		0.226		0.642					
No. of firms	480		480		480		480		480		480	
No. of observations	2500		2500		2500		2500		2500		2500	
No. of instruments									42		50	
Arellano-Bond test: *AR*(1) (*p*-value)									0.000		0.000	
Arellano-Bond test: *AR*(2) (*p*-value)									0.128		0.119	
Sargan test of over-identification (*p*-value)									0.353		0.295	
Hansen *J*-test of over-identification (*p*-value)									0.785		0.691	
Difference-in-Hansen test for exogeneity (*p*-value)												
GMM instruments for level equation (All)									0.709		0.588	
GMM instruments for diff. equation (Lagged valuation)									0.347		0.450	
GMM instruments for level equation (Lagged valuation)									0.453		0.246	

Note: Estimated coefficients are reported with heteroskedasticity-robust *t*-statistics in parentheses. * indicates significance at 10%; ** significance at 5%; *** significance at 1%. System-GMM estimates are obtained from Blundell and Bond's (1998) two-step system GMM using a two-equation system of the regression in levels and in first differences.

Table 5. Ownership concentration and firm valuation: the specification of ln*Q*

Dependent variable: Firm valuation=ln*Q*	Static panel						Dynamic panel					
	(1)		(2)		(3)		(4)		(5)		(6)	
Explanatory variables:	Pooled OLS without industry effects		Pooled OLS with industry effects		Fixed effects		Pooled OLS with industry effects		System GMM without industry effects		System GMM with industry effects	
ln*Q*(t-1)							0.6457	(30.18)***	0.6936	(12.31)***	0.6832	(12.11)***
Blockholding (0.05 0.28]	-0.1215	(-0.63)	-0.1380	(-0.72)	-0.4104	(-1.47)	-0.0463	(-0.40)	-0.5933	(-1.58)	-0.5490	(-1.48)
Blockholding (0.28 1.00)	0.2493	(4.60)***	0.2254	(4.31)***	0.1860	(2.29)**	0.0784	(2.96)***	0.6194	(3.36)***	0.5637	(3.05)***
CEO duality	0.0245	(1.64)	0.0239	(1.65)*	0.0314	(1.45)	0.0123	(1.55)	0.0154	(0.40)	0.0207	(0.54)
Board size	0.0324	(0.72)	0.0398	(0.86)	0.0168	(0.29)	0.0453	(2.07)**	-0.2300	(-1.29)	-0.2254	(-1.26)
Board independence	0.0621	(1.85)*	0.0518	(1.54)	0.0052	(0.12)	0.0131	(0.73)	0.1526	(1.35)	0.1470	(1.34)
Gender diversity	-0.0441	(-1.01)	-0.0666	(-1.46)	-0.0577	(-0.95)	-0.0143	(-0.61)	-0.0792	(-0.48)	-0.0121	(-0.07)
ROA(t)	0.9273	(7.87)***	0.9006	(7.71)***	0.6314	(5.06)***	0.6625	(6.96)***	1.5346	(2.73)***	1.5397	(2.74)***
ROA(t-1)	0.5413	(5.12)***	0.5309	(5.04)***	0.3440	(3.59)***	0.1201	(1.42)	-0.4324	(-1.32)	-0.4378	(-1.34)
Leverage	0.1364	(4.08)***	0.1407	(4.00)***	0.1417	(1.97)**	0.0692	(3.85)***	0.1082	(1.23)	0.0713	(0.77)
Firm size	0.0210	(3.21)***	0.0216	(2.98)***	0.1106	(2.25)**	0.0027	(0.86)	0.0353	(1.48)	0.0420	(1.62)
Capex	0.0316	(1.05)	0.0385	(1.35)	-0.0159	(-0.44)	0.0306	(1.79)*	0.1200	(1.35)	0.1082	(1.13)
Age	-0.0289	(-1.15)	-0.0453	(-1.76)*	-0.1792	(-2.21)**	0.0243	(2.08)**	0.0202	(0.98)	0.0153	(0.68)
Tangibility	-0.1001	(-2.79)***	-0.1170	(-3.14)***	0.1613	(1.54)	-0.0471	(-2.62)***	-0.1640	(-1.55)	-0.1746	(-1.85)*
Sales growth	-0.0019	(-0.14)	-0.0006	(-0.05)	0.0008	(0.07)	0.0243	(1.98)**	-0.0922	(-0.77)	-0.0955	(-0.77)
Constant	-0.5656	(-5.07)***	-0.5478	(-4.55)***	-1.3968	(-2.12)**	-0.1489	(-2.41)**	-0.1748	(-0.64)	-0.3069	(-1.10)
Industry fixed effects	No		Yes		No		Yes		No		Yes	
Year fixed effects	Yes		Yes		Yes		Yes		Yes		Yes	
Prob. (*F* statistic)	0.000		0.000		0.000		0.000		0.000		0.000	
R-squared	0.340		0.355		0.292		0.640					
No. of firms	480		480		480		480		480		480	
No. of observations	2500		2500		2500		2500		2500		2500	
No. of instruments									42		50	
Arellano-Bond test: *AR*(1) (*p*-value)									0.000		0.000	
Arellano-Bond test: *AR*(2) (*p*-value)									0.081		0.071	
Sargan test of over-identification (*p*-value)									0.157		0.170	
Hansen *J*-test of over-identification (*p*-value)									0.358		0.297	
Difference-in-Hansen test for exogeneity (*p*-value)												
GMM instruments for level equation (All)									0.265		0.206	
GMM instruments for diff. equation (Lagged valuation)									0.154		0.237	
GMM instruments for level equation (Lagged valuation)									0.744		0.497	

Note: Estimated coefficients are reported with heteroskedasticity-robust *t*-statistics in parentheses. * indicates significance at 10%; ** significance at 5%; *** significance at 1%. System-GMM estimates are obtained from Blundell and Bond's (1998) two-step system GMM using a two-equation system of the regression in levels and in first differences.