Valuation Effects of Winner-Picking and Coinsurance Internal Capital Allocation Practices, and the Contingent Role of Corporate Control

Abstract

By analyzing the sample of non-financial firms in Taiwan, this study reveals that both winner-picking and coinsurance internal capital allocation practices increase firms' valuation. Moreover, among top-performing firms, corporate control strengthens the value-enhancing effect of winner-picking practice as controlling shareholders are more incentivized to use their power to direct the internal capital to boost firm value and their private benefits. On the contrary, among poorly-performing firms, the positive effect of coinsurance practice on firm value is pronounced only when corporate control level is low. As controlling shareholders are unlikely to benefit from poorly-performing firms' operations, the entrenchment concern arising from increased corporate control may lead to the misuse of internal capital, and thus weakened the value-enhancing effect of coinsurance practice. Collectively, our study documents the valuation effects of internal capital allocation practices, and the divergent contingent role of controlling shareholders' corporate control over firms regarding these allocation practices.

Key words: Winner-picking, Coinsurance, Internal capital markets, Tobin's Q, Controlling shareholders, Corporate control

1. Introduction

This study investigates the valuation effects of "winner-picking" and "coinsurance" internal capital allocation practices, and the contingent role of controlling shareholders' corporate control over firms. In the internal capital markets (ICMs hereafter) literature, winner-picking refers to the practice that headquarter of firm allocates financial resources to more productive units, and thus ultimately improve firm value (e.g. Gertner et al., 1994; Stein, 1997). On the other hand, coinsurance refers to the practice that groups or headquarters allocate capital to firms experiencing credit crunch or performance dips as financial supports (e.g. Jia et al., 2013). Drawing from the literature, supporting financially weak members can also improve their firm value by reducing the likelihood of being bankrupt and the uncertainty of future payoff of their debtholders, and thus reduce the bankruptcy costs and the cost of debt (Hoshi et al., 1990, 1991; Byun et al., 2013).

Despite the valuation implications of the above-mentioned internal capital allocation practices, to the best of our knowledge, the studies explicitly examine the valuation effects of such practices seem to remain scant. In the literature, several studies have examined the direct effect of internal capital received on group firm's performance and firm value (e.g. Jia et al., 2013; Buchuk et al., 2014, 2020). Nevertheless, the valuation effect of internal capital received conditional on varying levels of profitability seems to remain unexplored. When groups engage in winner-picking and coinsurance practices, which means that groups allocate capital to top-performing and poorly-performing members respectively, do such practices lead to the intended value-creating effects? Moreover, as previous studies suggest, controlling shareholders' corporate control leads to the entrenchment concern due to less effective monitoring mechanism on managerial decisions, and such entrenchment problem can lead to opportunistic behavior and

decrease firm value (e.g. Yeh et al., 2001; Yeh and Woidtke, 2005; Young, 2008; Saghi-Zedek and Tarazi, 2015). In this study, we argue that the entrenchment concern arising from high level of corporate control may distort the original purposes of winner-picking and coinsurance practices, and the intended value-creating effects of these internal capital allocation practices may be weakened as controlling shareholders with high level of corporate control may leverage their power to direct the internal capital to fulfill their self-interest instead of enhancing firm value.

To the best of our knowledge, whether the valuation effects of winner-picking and coinsurance practices are contingent upon the degree of controlling shareholders' corporate control over firms seems to remain unanswered in the literature. From the perspective of capital markets regulators and investors, entrenched controlling shareholders' potential misuse of the internal capital would be a concern as the intended value-creating purposes of internal capital allocation may not be realized due to the entrenchment problem. Motivated by the importance of this research issue, this study analyzes the effects of winner-picking and coinsurance practices on group firms' value, and the contingent role of controlling shareholders' corporate control in the context of non-financial firms in Taiwan. The detailed data on firms' internal capital inflows and outflows via related-party borrowing, ownership structure, and other financial information available at Taiwan Economic Journal (TEJ) database provide ideal setting to conduct empirical analyses. Moreover, like other emerging markets, like China and Korea, Taiwan is also characterized as a market with relatively low investor protection (Yeh and Woidtke, 2005; Young et al., 2008; Kang et al., 2014; Du, 2022). Such similarity can increase our findings' generalizability to other emerging markets. By analyzing the sample of Taiwan's non-financial firms for the period of 2007 to 2021, we document the following findings. First, the value enhancing effects of both winnerpicking and coinsurance capital allocation practices are documented. For topperforming firms, the receipt of internal capital enables them to facilitate investments to further enhance their performance. For poorly-performing firms, the receipt of internal capital can improve their financial positions and reduce the likelihood of being insolvent, which can also improve their valuation as well.

Second, for top-performing firms, controlling shareholders' corporate control does not weaken the positive effect of winner-picking practice on firm value. Instead, the valueenhancing effect is pronounced only in the presence of controlling shareholders' high corporate control over firms in terms of CEO duality, excess control rights, and board control. On the other hand, among poorly-performing firms, we find that the positive effect of coinsurance practice on firm value is weakened in the presence of controlling shareholders' high level of corporate control in terms of excess control rights and board control. The divergent moderating roles of corporate control among top-performing and poorly-performing firms may be attributed to controlling shareholders' private benefits derived from firms' business operations. For top-performing firms, as controlling shareholders can gain benefits from these firms, they may be more inclined to utilize the internal capital to further boost these firms' valuation. On the contrary, as controlling shareholders are unlikely to benefit from poorly-performing firms' operations, their motivation to use the internal capital to boost firm value may be weakened. They may instead use the internal capital for their self-interest when they are more entrenched, and such phenomenon worths more attention by the regulators and investors.

Our study contributes to the literature on ICMs in the following ways. First, previous studies on ICMs mainly focus on the analyses and discussions on the directions of ICMs allocation and the rationales for such allocation directions, such as investment facilitation, bankruptcy risk, divisional managers' rent-seeking behavior, information

transmission between headquarter and divisions (e.g. Gertner et al., 1994; Stein, 1997; Jia et al., 2013; Buchuk et al., 2014, 2020; Beaver, 2024; Hoang et al., 2024). Different from previous works, this study explicitly recognizes the co-existence of both winnerpicking and coinsurance practices, and investigates the valuation effects of these practices under a unified framework. Second, by analyzing the contingent role of controlling shareholders' corporate control in relation to the valuation effects of these internal capital allocation practices, our study extends the existing studies on the effects of ultimate owners' corporate control on managerial decisions and financial consequences (e.g. Yeh and Woidtke, 2005; Young et al., 2008; Byrd et al., 2012; Saghi-Zedek and Tarazi, 2015; Xu, 2021). This study reveals that controlling shareholders' private benefits from firms' operations and the entrenchment concern arising from corporate control may also determine how internal capital is used, and whether the intended value-enhancing effects of internal capital allocation can be realized. These findings would be great interest to capital markets regulators and investors.

2. Hypotheses Development

In our study, we contend that both winner-picking and coinsurance practices of internal capital allocation exert positive effects on firm value. Regarding winner-picking arguments, Buchuk et al. (2014, 2020) find that ICMs recipients tend to be more profitable yet financially constrained, and the recipients are associated with better financial performance after receiving funds via ICMs. Similarly, several studies also suggest that the access to ICMs is one important factor for group-affiliated firms to outperform standalone firms during the crisis period characterized as more limited access to external financing (e.g. Almeida et al., 2015; Santioni et al., 2020; Lee, 2022). After receiving funds via ICMs, better performing firms can facilitate investments to increase performance and firm value. Thus, the corresponding hypothesis is stated as:

Hypothesis 1 (Value-enhancing effect of winner-picking): among top-performing firms, internal capital received exerts positive effect on firm value.

Coinsurance practices of internal capital allocation can increase firms' value in the following ways. First, previous studies suggest that the income-smoothing and mutual supporting function within business groups can reduce group members' likelihood of being bankrupt and the associated costly procedures of bankruptcy (e,g, Hoshi et al., 1990, 1991; Khanna and Yafeh, 2005, 2007). Moreover, Byun et al. (2013) further suggest that reduced bankruptcy risk lowers the cost of debt. Avramidis et al. (2021) suggest that banks require less collateral from group-affiliated firms, and are less inclined to downgrade these firms credit profile due to the risk-sharing mechanism via ICMs. Collectively, the above-mentioned arguments suggest that business groups can support poorly-performing members to improve financial positions and firm value, and the corresponding hypothesis is stated as:

Hypothesis 2 (Value-enhancing effect of coinsurance): among under-performing firms, internal capital received exerts positive effect on firm value.

We further argue that the intended value-enhancing effects of winner-picking and coinsurance practices suggested by the literature may be distorted by controlling shareholders' corporate control over firms. As Yeh et al. (2001), Yeh and Woidtke (2005) suggest, controlling shareholders can increase their control over firms by having a joint CEO and chairman of the board, and increasing voting rights and board seats control. Taking these measures can mitigate the effectiveness of monitoring by others and thus exacerbate the entrenchment concern. Young et al. (2008) and Jameson et al. (2014) suggest that controlling shareholders presence in board representation is associated with more severe entrenchment problem, which further leads to more opportunistic behavior and decrease in valuation. Based on the above-mentioned arguments, the entrenchment

concern arising from controlling shareholders' corporate control is associated with potential value-decreasing behavior by controlling shareholders, and we conjecture that the value-enhancing effects of winner-picking and coinsurance practices of are weakened by the level of corporate control as the internal capital may be misused for controlling shareholders' self-interest rather than improving firms' valuation. Thus, the corresponding hypotheses are stated as:

Hypothesis 3a: the positive valuation effect of internal capital received among topperforming firms is weakened by controlling shareholders' corporate control over firms. *Hypothesis 3b*: the positive valuation effect of internal capital received among poorlyperforming firms is weakened by controlling shareholders' corporate control over firms.

3. Data and Methodology

3.1 Data and Model Specification

The data on non-financial firms' internal capital received via related-party borrowing, corporate governance and ownership structure variables, and other financial information are retrieved from Taiwan Economic Journal (TEJ) database. The sample period starts from 2007 to 2021, and only group-affiliated and active listed firms are included in our sample. The sample size is 18,665 firm/year observations. To mitigate the effects of extreme values, all variables are winsorized at the 1% and 99% percentiles. To examine the direct valuation effect of internal capital received via related-party borrowing, the following two Equations are constructed:

$$TobinsQ_{i,t} = a_{1} + \beta_{1}Borrower_{i,t-1} + C - Index_{i,t-1} + C$$

$$Control Variables Set_{i,t-1} + a_{i} + \beta_{t} + \varepsilon_{i,t}$$

$$TobinsQ_{i,t} = a_{1} + \beta_{1}RPT_Borrowing_{i,t-1} + C - Index_{i,t-1} + C$$

$$Control Variables Set_{i,t-1} + a_{i} + \beta_{t} + \varepsilon_{i,t}$$

$$(1)$$

In Equation (1), Borrower is an indicator which equals to 1 if firm reports positive value of related-party borrowing (*RPT_Borrowing*) variable, and 0 otherwise. In Equation (2), *RPT_Borrowing* denotes net amount of related-party borrowing, which is the difference between the amount of related-party borrowing from other affiliates and the amount of related-party lending and guarantees to other affiliates, scaled by total assets. Subscript i and t represent firm i and year t respectively, and α_i and β_t denote firm and yearly fixed effects respectively. $\varepsilon_{i,t}$ denotes error term.

We construct a control index (C-Index) to measure the extent of controlling shareholders' corporate control over firms, and higher value of C-index suggests exacerbated difficulty to monitor controlling shareholders and increased entrenchment concern. In this study, C-index is the summation of the following four indicators. The first indicator is CEO duality, which equals to 1 if CEO and chairman of the board are the same person, and 0 otherwise. This indicator is widely used in the studies on corporate governance, and board of directors are less likely to facilitate effective monitoring on managerial decisions when a person serves as CEO and chairman of the board simultaneously (e.g. Yeh, 2005; Chen et al., 2007; Cheung et al. 2009; Chen, 2014; Kuo, 2017). As Yeh and Woidtke (2005) suggest, when controlling shareholders occupy top management positions and the chair of board simultaneously, they can direct meeting agenda and discussions, and face less monitoring externally. Second, we construct low board independence indicator, which equals to 1 if the proportion of independent directors of board representation is below the median value, and 0 otherwise. As previous studies suggest, higher fraction of independent directors in board representation can strengthen monitoring mechanism on managerial decisions (e.g. Cheung et al., 2013; Chen, 2014). Moreover, Kuo and Hung (2012) suggest that independent directors in board representation can reduce the extent of controlling

shareholders' entrenchment by mitigating overinvestment and underinvestment problems. Thus, firms with lower fraction of independent directors tend to be associated with high level of corporate control and increased entrenchment concern.

The third variable is high excess control rights indicator, which equals to 1 if the extent of excess control rights is above the median value, and 0 otherwise. In line with Yeh et al. (2001), the extent of excess control rights is defined as the difference between controlling shareholders' voting rights and the critical control level suggested by Cubbin and Leech (1983) and Leech (1987a, b). Critical level of control is the required ownership level for controlling shareholders to exercise effective control over a firm.¹ Fourth, we incorporate high board control indicator, which equals to 1 if the percentage of controlling shareholders' board seat control is above the median level, and 0 otherwise. As Yeh et al. (2001), Yeh and Woidtke (2005) suggest, controlling shareholders with excess control in terms of voting rights and board seats are more difficult to be monitored and have more power in influencing managerial decisions.

As the calculation of the control index is the summation of the above-mentioned four indicators, the value of the index lies between 0 and 4. In addition, other control variables are also included in Equation (1) and (2). To mitigate the endogeneity concern arising from simultaneity, all the explanatory variables are lagged for 1 year. The estimation of Equation (1) and (2) involve the entire sample and the subsample of borrowers reporting positive value of related-party borrowing (*RPT_Borrowing*) variable respectively.

¹ In the literature, many studies measure excess control as the difference between voting rights and cashflow rights (e.g. Yeh and Woidtke, 2005; Kuo and Hung, 2012; Lepetit et al., 2015; Saghi-Zedek and Tarazi, 2015). In this study, we consider the difference between voting rights and critical control level as a more appropriate measurement as it indicates the excess voting rights over the required control level to win the vote. In our empirical analyses, the deviation of voting rights and cash-flow rights is treated as a control variable to measure the incentive misalignment between controlling and minority shareholders.

To estimate Equation (1) and (2), in addition to ordinary least square (OLS) regression, to address possible endogeneity concern arising from the simultaneity of firm value, related-party borrowing, and other explanatory variables more rigorously, we further employ propensity score matching (PSM) method to construct the matched samples. For Equation (1), the treated and control groups refer to borrower and non-borrower respectively, and the observations are matched in accordance with the values of the control variables. For Equation (2), the treated and control groups are the borrowers whose value of related-party borrowing ($RPT_Borrowing$) variable is above and below the median value respectively. All the observations are closely matched within each industry without replacement, and the detailed results of the balance tests between the treated and control groups are available in Appendix A.

To examine Hypothesis 1 and 2, we augment Equation (2) and (3) by interacting the indicators representing varying levels of profitability with borrower indicator and related-party borrowing variable, and include these interaction terms as explanatory variables in the following Equations:

$$TobinsQ_{i,t} = a_{1} + \beta_{1}Borrower_{i,t-1} \times TopProf_{t-1} + \beta_{2}Borrower_{i,t-1} \times BotProf_{t-1} + \beta_{3}Borrower_{i,t-1} \times MidProf_{t-1} + C - Index_{i,t-1} +$$

In Equation (3) and (4), we employ the partition approach suggested by Yip et al. (2007), and *TopProf, BotProf*, and *MidProf* are three mutually exclusive dummies representing varying levels of profitability. Regarding the cutoff points defining the levels of profitability, Gopalan et al. (2007) define negative and positive shock as the decrease in increase in profitability relative to previous year by more than 10%. In line with their study, we use 10% and 90% percentiles as the cutoff points in our analyses. Specifically, if firm's value of profitability variable is above (below) 90% (10%) percentile in each year, the value of *TopProf (BotProf)* equals to 1, and 0 otherwise. If the value of profitability variable lies between 10% and 90% percentile, *MidProf* equals to 1, and 0 otherwise. Regarding the measurements of profitability, we adopt returns on assets (*ROA*), and returns on equity (*ROE*) as the proxies for profitability in our analyses.

In Equation (3) and (4), our specification explicitly recognizes the co-existence of winner-picking and co-insurance practices. In line with Hypothesis 1 and 2, we expect that β_1 and β_2 are positive and significant in Equation (3) and (4), which means that internal capital received via related-party borrowing exerts positive effect on firm value for firms with top and bottom levels of profitability. In this part of analyses, we perform OLS regression analyses on whole sample and the matched samples constructed by PSM method.

To examine Hypotheses 3a and 3b, we further construct the following Equations:

$$TobinsQ_{i,t} = a_{1} + \beta_{1}Borrower_{i,t-1} \times TopProf_{i,t-1} \times HighControl_{i,t-1} + \beta_{2}Borrower_{i,t-1} \times TopProf_{i,t-1} \times LowControl_{i,t-1} + \beta_{3}Borrower_{i,t-1} \times BotProf_{i,t-1} \times HighControl_{i,t-1} + \beta_{4}Borrower_{i,t-1} \times BotProf_{i,t-1} \times LowControl_{i,t-1} + \beta_{5}Borrower_{i,t-1} \times MidProf_{i,t-1} \times HighControl_{i,t-1} + \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} + \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} + a_{i} + \beta_{t} + \varepsilon_{i,t}$$
(5)

$$TobinsQ_{i,t} = a_{1} + \beta_{1}RPT_Borrowing_{i,t-1} \times TopProf_{i,t-1} \times HighControl_{i,t-1} \\ + \beta_{2}RPT_Borrowing_{i,t-1} \times TopProf_{i,t-1} \times LowControl_{i,t-1} \\ + \beta_{3}RPT_Borrowing_{i,t-1} \times BotProf_{i,t-1} \times HighControl_{i,t-1} + \\ + \beta_{4}RPT_Borrowing_{i,t-1} \times BotProf_{i,t-1} \times LowControl_{i,t-1} + \\ + \beta_{5}RPT_Borrowing_{i,t-1} \times MidProf_{i,t-1} \times HighControl_{i,t-1} + \\ + \beta_{6}RPT_Borrowing_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} + \\ + \beta_{6}RPT_Borrowing_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} + \\ + (6)$$

In line with the partition approach suggested by Yip et al. (2007), in Equation (5) and (6), we further construct three-way interaction terms of related-party borrowing variables, the indicators representing varying levels of profitability, and indicators representing high and low levels of corporate control. Such specification allows us to examine the effects of related-party borrowing variables on Tobin's Q under different combinations of profitability and corporate control levels. Specifically, the indicators of high and low control *(HighControl, LowControl)* are constructed based on the four dimensions of our control index: CEO duality, board independence, excess control rights, and board control. The followings are four pairs of indicators.

- Duality versus separation: If a person serves as CEO and chairman of the board simultaneously, duality (high control) indicator equals to 1. On the contrary, if CEO and chairman of the board are separated, separation (low control) indicator equals to 1.
- Low versus high board independence: If the fraction of independent directors in board representation is below the median value, low board independence (high control) indicator equals to 1, and high board independence (low control) indicator equals to 1 otherwise.

- iii. High versus low excess control rights: If the extent of controlling shareholders' excess control rights is above the median value, high excess control rights (high control) indicator equals to 1, and low excess control rights (low control) indicator equals to 1 otherwise.
- iv. High versus low board control: If the proportion of board seats controlled is above the median value, high board control (high control) indicator equals to 1, and low board control (low control) indicator equals to 1 otherwise.

To estimate Equation (5) and (6), we employ each pair of indicators separately. Therefore, the regression analyses are performed by four times and the moderating roles of all four dimensions of corporate control are examined. As Hypothesis 3a and 3b predicts, we expect that the value-enhancing effects of winner-picking and coinsurance internal capital allocation practices are weakened by the level of managerial entrenchment. Thus, the magnitude of the expected positive coefficients on β_2 and β_4 would be larger than those of the coefficients on β_1 and β_3 in Equation (5) and (6), and we perform coefficient equality tests to examine these Hypotheses. The regression analyses will be performed on the matched samples constructed by PSM method.

3.2 Extended Analyses

We further extend our investigation by performing difference-in-differences (DID) regression analyses to examine whether firms receiving internal capital via related-party borrowing experience significant changes in Tobin's Q after the occurrence of the financial crisis in 2008. As Fig 1 displays, there is a significant drop in firms' average Tobin's Q in 2008, which underscores the value-decreasing impact caused by the financial crisis. Moreover, the financial crisis of 2008 is widely used as a negative shock to all firms in ICM studies (e.g. Santioni et al., 2020; Avramidis et al., 2021). During the crisis period, the access to external financing tends to be more limited, and the

importance of the internal capital received via ICM can be accentuated.

<Insert Fig 1about here>

To analyze whether borrowers of related-party borrowing experience significant increase in Tobin's Q after the financial crisis, we construct the following Equation:

$$TobinsQ_{i,t} = a_1 + \beta_1 Borrower_{i,t-1} \times Post + C - Index_{i,t-1} + Control Variables Set_{i,t-1} + a_i + \beta_t + \varepsilon_{i,t}$$

$$(7)$$

In Equation (7), *Post* is an indicator which equals to 1 in year 2009 and 0 otherwise. Rather than including *Borrower* and *Post* indicators separately as explanatory variables, we only include the interaction term of these two indicators as one explanatory variable.² In addition, we also construct the following Equation to examine whether borrowers exhibit significant increase in Tobin's Q after the financial crisis under varying levels of profitability.

 $TobinsQ_{i,t} = a_{1} + \beta_{1}Borrower_{i,t-1} \times TopProf_{t-1} \times Post + \beta_{2}Borrower_{i,t-1} \times BotProf_{t-1} \times Post + \beta_{3}Borrower_{i,t-1} \times MidProf_{t-1} \times Post + C - Index_{i,t-1} + Control Variables Set_{i,t-1} + a_{i} + \beta_{t} + \varepsilon_{i,t}$ (8)

If business groups' internal capital allocation decisions aim at facilitating topperforming members' investment and boosting their value during the financial crisis, we expect that borrowers with high profitability experience significant increase in Tobin's Q after the crisis. Likewise, business groups can also support poorly-

 $^{^2}$ Referring to the specification by Li (2021), the effects of two indicators are absorbed by firm and yearly fixed effects.

performing members to improve their financial positions during the crisis, and thus these poorly-performing firms' valuation would increase after the crisis. Based on the above-mentioned arguments, the coefficients on β_1 and β_2 are expected to be positive and significant in Equation (8).

Moreover, in the analyses of the impact of excess control on banks' profitability and risk by Saghi-Zedek and Tarazi (2015), they find that the detrimental effects of excess control rights on banks' profitability and risk are reversed during the financial crisis, which may suggest that ultimate owners postpone their opportunistic behavior and keep banks solvent to secure their benefits from banks' future profits during the crisis period. Likewise, during the financial crisis, instead of misusing the internal capital, controlling shareholders may be more inclined to use the internal capital to improve firms' valuation to secure their benefits from firms in the future. Thus, controlling shareholders' corporate control may instead strengthen the positive valuation effects of winner-picking and coinsurance practices. In this study, we also perform DID regression analyses for firms with different combinations of profitability and corporate control levels, and construct the following Equation:

 $TobinsQ_{i,t} = a_1$

$$\begin{split} &+ \beta_{1}Borrower_{i,t-1} \times TopProf_{i,t-1} \times HighControl_{i,t-1} \times Post \\ &+ \beta_{2}Borrower_{i,t-1} \times TopProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{3}Borrower_{i,t-1} \times BotProf_{i,t-1} \times HighControl_{i,t-1} \times Post \\ &+ \beta_{4}Borrower_{i,t-1} \times BotProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{5}Borrower_{i,t-1} \times MidProf_{i,t-1} \times HighControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times MidProf_{i,t-1} \times LowControl_{i,t-1} \times Post \\ &+ \beta_{6}Borrower_{i,t-1} \times Post \\ &+ \beta_{$$

(9)

Extending from Equation (5), we analyze if the post-crisis valuation effects of winnerpicking and coinsurance internal capital allocation practices are contingent upon the level of corporate control in Equation (9).

The above-mentioned DID regression analyses are performed on the matched sample from 2007 to 2009. Treated and control groups refer to borrowers and non-borrowers respectively, and all the observations are matched within each industry and year without replacement. In addition to the matched sample constructed around year 2008, we also treat year 2011 as a "pseudo crisis" and construct a matched sample from 2010 to 2012. By employing regression analyses on these two matched samples, we can confirm if the valuation effect of borrower indicator and the moderating role of controlling shareholders' entrenchment are accentuated during the financial crisis period. Moreover, the findings in the extended analyses can also complement those in main analyses.

3.3 Other Control Variables

The other corporate governance related variables and financial variables are briefly explained as follows. First, we include cash-flow right (*CashFlowRight*) and controlcash deviation (*Deviation*) in our control variables set. Previous studies primarily consider controlling shareholders' cash-flow right and the wedge between control and cash-flow right in group firms as the proxies for the degree of incentive alignment/misalignment between controlling and minority shareholders (e.g. La Porta et al., 1999, 2002; Johnson et al., 2000; Cheung et al., 2009; Bae et al., 2012; Fan et al., 2016). In emerging markets, controlling shareholders can acquire more voting rights by employing cross-shareholding and pyramidal structure to gain more control without increasing direct ownership (e.g. La Porta et al., 1999, 2002; Claessens et al., 2002; Baek et al., 2004; Fan et al., 2016), and such practices lead to the divergence between voting and cash-flow right. Firms with lower cash-flow right and higher control-cash deviation are likely to be associated with more severe controlling-minority shareholders incentive conflict, which makes them vulnerable to the wealth expropriation by controlling shareholders (Cheung et al., 2009; Kang et al., 2014). In our study, cashflow right is defined as the summation of controlling shareholders' cash-flow rights from all direct and indirect ownership chains, and control-cash deviation is the difference between controlling shareholders' voting right and cash-flow right.

Second, following Lee and Chuang (2009), we include insider ownership (*InsiderOwn*) and institutional ownership (*InstOwn*) as control variables in our analyses. As Lee and Chuang (2009) suggest, when insider ownership increases, the extent of incentive alignment between insider and shareholder increases as well. Nevertheless, when insider ownership level is excessively high, the concern of insiders' anti-takeover behavior to secure their positions may arise, and such behavior can be detrimental to firm value. In this study, insider ownership is defined as the proportion of shares owned by managers, directors, and supervisors. Turning to institutional ownership, Lee and Chuang (2009) suggest that various institutional investors have their own goals and thus exert different impact on firms. In this study, we do not explore the varying valuation effects of different institutional investors but only treat this factor as a control variable. In this study, institutional ownership is measured as the proportion of shares owned by all external institutional investors not affiliated with controlling shareholders.

The remaining control variables are as follows. To control the effect of firm's equity valuation, we include market-to-book ratio (*MBRatio*), which is the ratio of market value of equity to book value of equity. Regarding the valuation effect of investment activities, following Almeida et al. (2015), Lee (2022), we include investment (*Invest*) as a control variable, which is defined as the negative cashflow from investment activities, scaled by total assets. Finally, we also include firm size (*FSize*), leverage

(*Lever*), and cash holding (*CashHold*) to control the effects of financial characteristics on firm value. In this study, firm size is measured as the logarithm value of total assets, leverage is the ratio of total liabilities to total equity, and cash holding is the summation of cash and cash equivalent, scaled by total assets. The detailed variable definitions are summarized in Table 1.

<Insert Table 1 about here>

4. Empirical Findings

4.1 Descriptive Statistics and Correlation

The descriptive statistics of the variables are shown in Table 2. On average, the value of Tobin's Q is larger than 1, which indicates that average firm value is higher than its replacement cost during the sample period. Regarding RPTs variables, the average value of borrower variable suggests that approximately 28.01% of firm/year observations are the recipients of internal capital via RPTs. Among borrowers reporting positive value in related-party borrowing, the average amount of related-party borrowing is 4.81% of total assets.

<Insert Table 2 about here>

The correlations among Tobin's Q, borrower indicator, and profitability are shown in Table 3. The negative correlation between borrower indicator and Tobin's Q tentatively suggest that the recipients of internal capital via related-party borrowing are associated with lower firm value. The correlation coefficients between borrower indicator and profitability measures are insignificant, which do not suggest a clear internal capital allocation direction in accordance with group members' profitability.

<Insert Table 3 about here>

4.2 The Valuation Effects of Winner-Picking and Coinsurance Internal Capital Allocation Practices

The results of the effects of borrower indicator and the interaction terms between

borrower indicator and the indicators representing varying levels of profitability are presented in Table 4. In Column (1) and (3) of Table 4, we do not find a significant direct effect of borrower indicator on Tobin's Q. In Column (2) of Table 4, when profitability measurement is ROA, we find that the coefficient on the interaction term between borrower and top profitability indicator and that between borrower and bottom profitability indicator are positive and statistically significant. Among the firms whose ROA is above 90% percentile, borrowers' average value Tobin's Q is higher than nonborrowers by 5.78%, scaled by total assets. Similarly, Among the firms whose ROA is below 10% percentile, borrowers' average value Tobin's Q is higher than nonborrowers by 4.00% relative to total assets. In Column (2) of Table 4, when ROE is the proxy for profitability, the positive coefficient on the interaction term between borrower and top profitability indicator becomes insignificant, whereas the positive coefficient on the interaction term between borrower and bottom profitability indicator is still significant. Among the firms whose ROE is below 10% percentile, borrowers' average value Tobin's Q is increased by 3.63%, scaled by total assets. Collectively, our results provide supports for value-enhancing effects of both winner-picking and coinsurance allocation practices.

<Insert Table 4 about here>

Among 5,228 borrowers, we further investigate the effect of the volume of related party borrowing on Tobin's Q under varying levels of profitability, and the results are shown in Table 5. Contrary to the results in Table 4, we do not find statistically significant coefficients on variables of interest. Taken together, Hypothesis 1 and 2 are supported only in the analyses of the effects of the interaction terms of borrower and profitability indicators on Tobin's Q.

<Insert Table 5 about here>

The coefficients on other explanatory variables in Table 4and 5 are briefly discussed as follows. First, the coefficient on controlling shareholders' control index (*C-Index*) is negative but not significant, which suggest that the entrenchment concern may not exert direct value-destroying effect. The negative and significant coefficient on control-cash deviation (*Deviation*) supports the notion that the incentive misalignment between controlling and minority shareholders induce wealth expropriation behavior and destroy firm value. On the other hand, the positive and significant coefficient on insider ownership (*InsiderOwn*) is consistent with the notion of incentive alignment between insiders and minority shareholders. When insider ownership increases, their incentive to improve firm value also increases as their benefits are more closely tied to firms.

The positive coefficient on market-to-book ratio (*MBRatio*) in previous year suggests that firms' valuation in previous year is highly relevant to their current valuation. On the other hand, the negative coefficient on firm size (*FSize*) indicates that higher level of total assets mechanically reduces firms' Tobin's Q as the denominator of Tobin's Q is firms' total assets. Finally, the negative coefficient on leverage (*Lev*) and positive coefficient on cash holding (*CashHold*) may suggest that financially healthier firms are associated with better valuation in the markets.

4.3 Regression Analyses on Matched Samples

The results of the regression analyses on the matched samples constructed by employing PSM method are presented in Table 6. In Column (1) of Panel A of Table 6, when ROA is employed as the proxy for profitability, we find that the interaction terms between borrower indicator and top and bottom profitability indicators are positive and significant, which are consistent with the findings in Table 4. Nevertheless, In Column (1) of Panel B of Table 6, when profitability is measured as ROE, the coefficients on these interaction terms become insignificant. Turning to Panel B of Table 6, only the coefficient on the interaction term of related-party borrowing and bottom profitability indicator is positive and marginally significant, the remaining coefficients on the variables of interest are not significant. Collectively, the results in Table 6 are generally consistent with the findings in Table 4 and 5, and Hypothesis 1 and 2 receive supports only in the analyses of the effects of the interaction term between borrower indicator and the indicators representing varying profitability. In the subsequent analyses, we primarily use ROA as the proxy for profitability.

<Insert Table 6 about here>

The results of the moderating roles of controlling shareholders' corporate control indicators regarding the valuation effects of winner-picking and coinsurance practices are presented in Table 7 and 8. In Column (1) of Panel A of Table 7, when CEO duality and separation indicators are used, we find that the coefficients on the three-way interaction term of borrower, top and bottom profitability, and separation indicators is positive and significant. On the contrary, the interaction terms of borrower, top and bottom profitability, and separation indicators are positive but insignificant. Nevertheless, as the statistics of the corresponding coefficient equality tests are not significant, we do not find adequate evidence indicating that the entrenchment concern arising from CEO duality distorts the intended value-creating purposes of winner-picking and coinsurance allocation practices. Regarding the results of the volume of related-party borrowing presented in Column (2) of Panel A of Table 7, as most coefficients and statistics of coefficient equality tests are insignificant, we do not discuss them further.

<Insert Table 7 about here>

<Insert Table 8 about here>

Turning to Column (1) of Panel B of Table 7, when low and high board independence indicators are used, we find that the interaction terms of borrower and top profitability

indicators are positive and significant in the cases of both low and high board independence, and the result of the coefficient equality test is insignificant. These results suggest that the value-enhancing effect of winner-picking practice is not contingent upon the extent of board independence.

Nevertheless, the interaction term of borrower and bottom profitability indicators is positive and significant only in the presence of low board independence. Similarly, in Column (2) of Panel B of Table 7, we also find that the interaction of related-party borrowing and bottom profitability indicator is positive and significant only in the case of low board independence. Moreover, the corresponding coefficient equality test results are also significant. Taken together, among poorly-performing firms, our results suggest that high board independence does not provide an effective monitoring mechanism to safeguard the use of internal capital for value-enhancing purpose.

The results of the moderating roles of controlling shareholders' excess control rights and board control in relation to the valuation effects of winner-picking and coinsurance practices are presented in Table 8. In Column (1) of Panel A of Table 8, the interaction terms of borrower and top profitability indicators are positive and significant regardless of the levels of excess control rights, which suggest that the value-enhancing effect of winner-picking allocation practice is not contingent upon the entrenchment concern arising from excess control rights. On the other hand, we find that the interaction of borrower and bottom profitability indicators is significant only when the level of excess control rights is low. Similarly, in Column (2) of Panel A of Table 8, the interaction of related-party borrowing and bottom profitability indicator is positive and significant only in the case of low excess control rights, and the result of the coefficient equality test is significant as well. Taken together, our results may suggest that the valueenhancing effect of coinsurance practice is weakened when the entrenchment concern arising from excess control rights by controlling shareholders.

Regarding the moderating role of board control, in Column (1) of Panel B of Table 8, among top-performing firms, we find that the interaction of borrower and top profitability indicators is positive and significant only when board control level is high, and the coefficient equality test result is also significant. Contrary to our expectation, these results suggest that the value-enhancing effect of winner-picking allocation practice is weakened when the entrenchment concern arising from controlling shareholders' board seat control is less severe. The possible explanation is that utilizing the internal capital to enhance top-performing firms' value is consistent with controlling shareholders' interests. In the literature, Xu (2021) finds that dual-class firms take lower risks than single-class firms, which suggests that corporate insiders who gain excess control rights arising from dual-class shares tend to maximize firms' survival probability so that their long-term private benefits can be secured. Returning to our study, as controlling shareholders already reap benefits from top-performing firms' operations, they may be more inclined exert their corporate control to direct the internal capital to improve these firms' performance and their private benefits.

Nevertheless, among poorly-performing firms, the results are opposite. We find that the interaction of borrower and bottom profitability indicators is positive and significant only in the case of low board control level, and the corresponding coefficient equality result is also significant. For poorly-performing firms, controlling shareholders are less likely to benefit from these firms' operations. Thus, the value-enhancing effect of coinsurance practice can only be found among firms with lower entrenchment concern arising from controlling shareholders' high board control. Taken together, the level of board seats control plays different moderating roles regarding the valuation effects of winner-picking and coinsurance practices.

Turning to Column (2) of Panel B of Table 8, we find that among firms whose profitability lies between 10% and 90% percentiles, based on the result of coefficient equality test, when the level of controlling shareholders' board control is low, the volume of related-party borrowing negatively affects firm value. For most borrowers without considerably high or low profitability, when controlling shareholders do not control sufficient seats in board, it seems that they are unable to exert power to direct the internal capital for value-creating purposes.

To synthesize the findings in Table 7 and 8, we find that controlling shareholders' corporate control moderates the effect of internal capital received on firm value differently for top-performing and poorly-performing firms. Among top-performing firms, our results do not suggest that the value-enhancing effect of winner-picking allocation practices is weakened by the degree of corporate control. Instead, we find that controlling shareholders' board control strengthens the value-enhancing effect of winner-picking practice. Collectively, Hypothesis 3a is not supported. On the other hand, among poorly-performing firms, some results that the value-enhancing effect of consurance allocation practice is pronounced only when the levels of controlling shareholders' excess control rights and board control are low. Hypothesis 3b receives partial supports.

4.4 DID Regression Analyses

The results of DID regression analyses on the matched samples with the sample period of 2007 to 2009 and 2010 to 2012 are presented in Table 9. In Panel A of Table 9, the negative and insignificant coefficients on borrower and post-crisis indicator suggest that borrowers do not exhibit significant increase in Tobin's Q in the aftermath of the crisis. Turning to Column (1) of Panel B of Table 9, the three-way interaction term of borrower, top profitability, and post-crisis indicators is positive and significant, suggesting that among top-performing firms, receiving internal capital via related-party borrowing during the financial crisis of 2008 increases their firm value in the aftermath of the crisis. Nevertheless, in Column (2) of Panel B of Table 9, when the analyses are performed on the subsample of 2010 to 2012, the coefficient on the same interaction is not significant. Taken together, the results in Panel B of Table 9 underscore the importance of the access to ICMs for top-performing firms to facilitate investment and thus create value during the crisis period, which echo the similar findings in previous studies (e.g. Almeida et al., 2015; Santioni et al., 2020; Lee, 2022).

<Insert Table 9 about here>

The results of DID regression analyses for firms with different combinations of profitability and corporate control levels are shown in Table 10 and 11. In Column (1) of Panel A of Table10, among top-performing firms, winner-picking practice significantly increases firm value in the aftermath of the financial crisis only in the case of CEO duality, and the corresponding coefficient equality test result is also significant. During the financial crisis of 2008 with poor economic prospect and limited access to external financing, controlling shareholders may increase reliance on top-performing firms to gain their private benefits. Thus, they may be more inclined to use the internal capital for value-creating purposes among these firms during the crisis period. When CEO serves as the chair of board, controlling shareholders may have more power to direct the internal capital to value-creating activities during the crisis period, and thus boost firm value after the crisis.

Turning to Column (1) of Panel B of Table 10, we find that for top-performing firms, winner-picking practice significantly enhances firm value after the crisis only when the proportion of independent directors in board representation is high. Despite the insignificant result of the corresponding coefficient equality test, our results may

suggest that independent directors play active role in monitoring the use of internal capital among top-performing firms during the crisis period. Regarding the results of the DID analyses on the matched sample constructed around the "pseudo crisis" of 2011, as Column (2) of Table 10 shows, none of the coefficients on the variables of interest is statistically significant.

<Insert Table 10 about here>

<Insert Table 11 about here>

In Column (1) of Panel A and B of Table 11, we further find that among top-performing firms, the value-enhancing effect of winner-picking practice in the aftermath of the financial crisis of 2008 is pronounced when controlling shareholders have higher levels of excess control rights and board control over firms. These results collectively suggest that during the crisis period, the increased corporate control enables ultimate owners to exert their power to direct the internal capital for value-creating purposes and thus further improve firm value after the crisis. In Column (2) of Panel B of Table 11, when the regression analyses on performed on the matched sample of 2010 to 2012, we also find that among top-performing firms, the value-enhancing effect of winner-picking practice is found in the presence of high board control level.

To synthesize the findings in Table 10 and 11, in the financial crisis of 2008, the valueenhancing effect of winner-picking practice is found in the case of high level of controlling shareholders' corporate control in terms of CEO duality, excess voting rights, and board control. During the crisis period, as controlling shareholders can still gain private benefits from these top-performing firms, they are more likely to leverage their power to direct the internal capital to further boost these firms' performance. Nevertheless, to realize such value-enhancing effect, our results suggest that the monitoring from independent directors to ensure the proper use of internal capital may also be necessary.

4.5 Robustness Check

Following Petersen (2009), we further adopt the double-cluster robust standard error of coefficients to account for the residual correlation across firms and time, and rerun all the regression analyses. For the sake of brevity, the results are unreported but available upon request. In the unreported results, we still document positive and significant coefficients on the interaction terms of borrower indicator, top and bottom profitability indicators, thus Hypothesis 1 and 2 remain supported. Nevertheless, in the subsequent analyses of three-way interaction terms of borrower indicator, profitability indicators, and corporate control indicators, when double-cluster robust standard error is used, some of the coefficients become statistically insignificant. Thus, we acknowledge the caveat that some or our results lose statistical significance after considering the residual correlation across firms and time.

5. Conclusion

Extending the extant studies on internal capital allocation directions (e.g. Gertner et al., 1994; Stein. 1997; Gopalan et al., 2007; Jia et al., 2013), this study recognizes the coexistence of winner-picking and coinsurance allocation approaches, and we find that both practices increase group-affiliated firms' value. Moreover, such value-enhancing effects are contingent upon the degree of controlling shareholders' corporate control over firms. Among top-performing firms, higher level of corporate control does not necessarily distort the intended purpose of winner-picking practice. Instead, some results suggest that the value-enhancing effect of winner-picking practice is pronounced only when controlling shareholders have greater corporate control. On the other hand, among poorly-performing firms, some results suggest that the value-enhancing effect of coinsurance practice is pronounced in the case of low level of corporate control. These results imply that the entrenchment concern arising from controlling shareholders' increased corporate control weakens the positive effect of coinsurance practice on poorly-performing firms' value.

Our explanation for the divergent moderating role of corporate control is relevant to controlling shareholders' private benefits. In the literature, a few studies have documented the evidence that ultimate owners with greater corporate control reduce risk-taking to ensure firms' survival and their long-term private benefits (e.g. Byrd et al., 2012; Xu, 2021). Similarly, as controlling shareholders can gain benefits from top-performing firms' business operations, they may be incentivized to use their power to direct the internal capital to boost these firms' performance, and such inclination can be more accentuated during the crisis period characterized as poor economic prospect and impaired access to external capital. On the contrary, for poorly-performing firms, controlling shareholders may not benefit from these firms' business operations. When they have greater corporate control, their incentive to properly utilize the internal capital to improve these firms' financial positions may be weakened. Collectively, the extent of controlling shareholders' private benefits from firms' business operations may determine how corporate control moderates the valuation effects of internal capital allocation practices.

Our results yield the following implications. First, for firms with high profitability, controlling shareholders' increased corporate control over these firms may not raise the entrenchment concern, and their influence on these firms may instead enable them to direct the internal capital for value-creating purposes. Second, capital markets regulators and investors may need to pay attention to firms with poor profitability in combination with high level of corporate control by controlling shareholders. In this case, controlling shareholders may misuse the internal capital transferred from other

firms, and the intended value-enhancing purpose of coinsurance practice maybe weakened. To ensure that the internal capital is properly used to improve these poorlyperforming firms' financial positions, the regulators may need to scrutinize the usage of the internal capital transfer to these firms. Moreover, for these firms, they may need to establish appropriate compensation schemes to better align the interests of controlling and minority shareholders to incentivize controlling owners to properly use the internal capital to improve these firms' valuation.

The recommendations for future research are explained as follows. First, although Taiwan's capital market is characterized as a market with low level of investor protection, which is similar with other emerging markets, we must acknowledge the considerable heterogeneity among different markets regarding institutional environments, regulations, and the degree of investor protection. A cross-country analysis to reveal the varying moderating factors regarding the valuation effects of winner-picking and coinsurance practices can be a promising avenue for future research. Second, Harris and Bromiley (2007) suggest that incentive compensation schemes are relevant to firms' performance and financial misrepresentation. Likewise, the compensation schemes can also influence the managerial incentive regarding the use of internal capital. Thus, the moderating role of insider compensation schemes regarding the valuation effects of internal capital allocation practices is worth further investigation.

Appendix A: The Results of Balance Tests

The detailed results of balance tests between the treated and control groups in the construction of the matched samples are presented in Table A-1 to Table A-4.

<Insert Table A-1 about here> <Insert Table A-2 about here> <Insert Table A-3 about here> <Insert Table A-4 about here>

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Fig 1 The Trend of average Tobin's Q during the Sample Period

| Table 1 | Variable Definitions |
|---------|----------------------|
|---------|----------------------|

| Variables | Definitions |
|------------------------|---|
| Panel A: Firm' Valua | tion |
| TahingO | Tobin's Q: the summation of market value of total equity and book value of total |
| TobinsQ | liabilities, divided by book value of total assets |
| Panel B: ICMs variab | les |
| | Borrower indicator: the variable takes the value of 1 if firm's amount of related- |
| Borrower | party borrowing from other group members exceeds that of related-party lending |
| | to other group members, and 0 otherwise. |
| RPT Borrowing | Related-party borrowing: the difference between the amount of related-party |
| | borrowing and that of related- party lending, scaled by total assets. |
| Panel C: Profitability | |
| Profitability | Profitability: two proxies for profitability are used: returns on assets (<i>ROA</i>), returns on equity (<i>ROE</i>) |
| TonProf | Top profitability indicator: if firm's value of profitability variable is greater than |
| 10/11/0j | 90% percentile in each year, the value equals to 1, and 0 otherwise. |
| BotProf | Bottom profitability indicator: if firm's value of profitability variable is smaller |
| | than 10% percentile in each year, the value of equals to 1, and 0 otherwise. |
| MidProf | Middle profitability indicator: if firm's value of profitability variable lies between |
| | 10% to 90% percentile, the value equals to 1, and 0 otherwise. |
| Panel D: Controlling | Shareholders' Corporate Control |
| C-Index | Control Index: The summation of the values of the following indicators. |
| Duality | 0 otherwise. |
| I owInden | Low board independence: If the proportion of independent directors in board |
| Lowindep | representation is below the median value, the value equals to 1, and 0 otherwise. |
| | High excess control rights: If the extent of excess control rights, which is defined |
| HighExCon | as the difference between controlling shareholders' voting rights and the critical |
| | control level, is above the median value, the value equals to 1, and 0 otherwise. |
| HighBoard | High board control: If the proportion of controlling shareholders board seat control |
| | is above the median value, the value equals to 1, and 0 otherwise. |
| Panel E: Other Contro | ol Variables |
| CashFlowRight | Cash flow right: the summation of all cash-flow rights from controller |
| | shareholder's all direct and indirect ownership chains in focal firm. |
| Deviation | control-cash deviation: the difference between controlling shareholder's voting |
| | Ingite and cash-flow fight in local fifth. |
| InsiderOwn | supervisors |
| | Institutional ownership: the proportion of stocks owned by external institutional |
| InstOwn | investors not affiliated with controlling shareholders. |
| MBRatio | Market-to-book ratio: the ratio of market value of equity to book value of equity. |
| | Investment: the ratio of the negative value of net cash outflow from investment |
| Invest | activities to total assets. |
| Size | Firm size: the logarithm value of total assets |
| Lever | Leverage: the ratio of total liabilities to total equity. |
| CashHold | Cash holding: the summation of cash and cash equivalent, scaled by total assets. |

| Variable | Mean | Med | S.D. | Min | Max |
|-------------------------------|---------|---------|--------|---------|---------|
| $TobinsQ_t$ | 1.1753 | 0.9400 | 0.7670 | 0.3500 | 4.9500 |
| Borrower _{t-1} | 0.2801 | 0.0000 | 0.4491 | 0.0000 | 1.0000 |
| RPT_Borrowing _{t-1} | 0.0481 | 0.0099 | 0.0930 | 0.0000 | 0.4048 |
| ROA_{t-1} | 0.0228 | 0.0177 | 0.0636 | -0.2293 | 0.2129 |
| ROE_{t-1} | 0.0339 | 0.0316 | 0.1225 | -0.5723 | 0.3312 |
| C -Index $_{t-1}$ | 1.8032 | 2.0000 | 1.0852 | 0.0000 | 4.0000 |
| CashFlowRight _{t-1} | 0.2731 | 0.2279 | 0.1974 | 0.0023 | 0.8322 |
| $Deviation_{t-1}$ | 0.0718 | 0.0175 | 0.1232 | 0.0000 | 0.5623 |
| InsiderOwn _{t-1} | 0.2522 | 0.2149 | 0.1508 | 0.0392 | 0.7363 |
| InstOwn _{t-1} | 0.1107 | 0.0820 | 0.1053 | 0.0000 | 0.4587 |
| <i>MBRatio</i> _{t-1} | 2.1370 | 1.7799 | 1.3835 | 0.5532 | 8.8068 |
| Invest _{t-1} | 0.0335 | 0.0211 | 0.0545 | -0.1710 | 0.2316 |
| Size _{t-1} | 15.3963 | 15.2100 | 1.4262 | 12.6304 | 19.8460 |
| <i>Lever</i> _{t-1} | 0.9237 | 0.7056 | 0.8423 | 0.0597 | 5.3291 |
| CashHold _{t-1} | 0.1789 | 0.1465 | 0.1367 | 0.0069 | 0.6711 |

Table 2Descriptive Statistics

a. Variable definitions are specified in Table 1.

b. The descriptive statistics of related-party borrowing (*RPT_Borrowing*) are calculated based on the subsample of 5,228 borrowers.

Table 3 Correlation Coefficients among Tobin's Q, Borrower Indicator, and Profitability

| Variables | $TobinsQ_t$ | Borrower _{t-1} | ROA _{t-1} | ROE _{t-1} |
|-------------------------|-------------|-------------------------|--------------------|--------------------|
| Borrower _{t-1} | -0.0235*** | 1.0000 | | |
| ROA_{t-1} | 0.1829*** | -0.0054 | 1.0000 | |
| ROE_{t-1} | 0.1212*** | -0.0089 | 0.9352*** | 1.0000 |

Note: ******* indicates statistical significance at the 1% level.

| | | Profitability | variable: ROA | |] | Profitability | variable: <i>ROE</i> | |
|---|------------|---------------|----------------------------|---------|------------|---------------|----------------------|--------|
| | Colum | n (1) | Colur | nn (2) | Colum | n (3) | Colum | ı (4) |
| Variable | Dependent | Variable: | iable: Dependent Variable: | | Dependent | Variable: | Dependent Variable: | |
| | Tobin | sQ_t | Tobii | isQ_t | Tobin | sQ_t | Tobins | Q_t |
| | Coeff. | S.D. | Coeff. | S.D. | Coeff. | S.D. | Coeff. | S.D. |
| Constant | 3.1163*** | 0.2058 | 3.0891*** | 0.2059 | 3.1205*** | 0.2065 | 3.1020*** | 0.2067 |
| Borrower _{t-1} | 0.0067 | 0.0088 | | - | 0.0072 | 0.0088 | | - |
| Borrower _{t-1} × TopProf _{t-1} | | - | 0.0578*** | 0.0212 | | - | 0.0280 | 0.0199 |
| Borrower _{t-1} \times BotProf _{t-1} | | - | 0.0400* | 0.0206 | | - | 0.0363* | 0.0203 |
| Borrowert-1 × MidProft-1 | | - | -0.0049 | 0.0094 | | - | -0.0005 | 0.0095 |
| ROA _{t-1} | 0.4434*** | 0.0630 | 0.4387*** | 0.0679 | | - | | - |
| ROE _{t-1} | | - | | - | 0.1671*** | 0.0315 | 0.1757*** | 0.0343 |
| C-Index _{t-1} | -0.0022 | 0.0035 | -0.0023 | 0.0035 | -0.0022 | 0.0035 | -0.0023 | 0.0035 |
| CashFlowRight _{t-1} | -0.0160 | 0.0185 | -0.0162 | 0.0185 | -0.0165 | 0.0185 | -0.0167 | 0.0185 |
| Deviation _{t-1} | -0.0655** | 0.0270 | -0.0639** | 0.0270 | -0.0661** | 0.0270 | -0.0654** | 0.0270 |
| InsiderOwn _{t-1} | 0.1049** | 0.0421 | 0.1038** | 0.0421 | 0.1067** | 0.0422 | 0.1048** | 0.0422 |
| InstOwn t-1 | -0.0318 | 0.0294 | -0.0312 | 0.0293 | -0.0322 | 0.0294 | -0.0318 | 0.0294 |
| $MBRatio_{t-1}$ | 0.2764*** | 0.0039 | 0.2753*** | 0.0039 | 0.2789*** | 0.0038 | 0.2782*** | 0.003 |
| Invest _{t-1} | 0.0670 | 0.0663 | 0.0742 | 0.0663 | 0.0589 | 0.0664 | 0.0620 | 0.0664 |
| Size t-1 | -0.1289*** | 0.0093 | -0.1274*** | 0.0093 | -0.1288*** | 0.0093 | -0.1278*** | 0.0094 |
| Lever _{t-1} | -0.2288*** | 0.0074 | -0.2284*** | 0.0074 | -0.2302*** | 0.0075 | -0.2308*** | 0.0075 |
| CashHold _{t-1} | 0.2850*** | 0.0394 | 0.2856*** | 0.0394 | 0.2945*** | 0.0393 | 0.2956*** | 0.0393 |
| Firm Fixed Effects | Yes | | Yes | | Yes | | Yes | |
| Year Fixed Effects | Yes | | Yes | | Yes | | Yes | |
| F-Test | 34.38* | *** | 34.37* | *** | 34.32* | *** | 34.29* | *** |
| Adj. R-square | 0.744 | 19 | 0.745 | 51 | 0.744 | -6 | 0.744 | 17 |

Table 4The Effect of Borrower Indicator on Tobin's Q

Notes:

a. Variable definitions are specified in Table 1.
b. The regression analyses are performed on the whole sample with 18,665 firm/year observations.
c. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| | | Profitability | variable: ROA | |] | Profitability | variable: <i>ROE</i> | |
|---|----------------------|-------------------------|---------------|-------------|------------------------------|-------------------------|----------------------|--------|
| - | Colum | n (1) | Colur | nn (2) | Colum | n (3) | Colum | n (4) |
| Variable | Dependent Variable: | | Dependen | t Variable: | Dependent | Variable: | Dependent Variable: | |
| | Tobin | sQ_t | Tobii | nsQ_t | Tobin | sQ_t | Tobins | Q_t |
| | Coeff. | S.D. | Coeff. | S.D. | Coeff. | S.D. | Coeff. | S.D. |
| Constant RPT Borrowing ₁₋₁ | 3.3131*** -0.0890 | 0.5328 0.1144 | 3.2927*** | 0.5328 | 3.3006*** - 0.0769 | 0.5347 0.1147 | 3.2908*** | 0.5348 |
| RPT Borrowing _{t-1} × TopProf _{t-1} | | - | -0.1455 | 0.3011 | | - | -0.2640 | 0.2072 |
| RPT Borrowing _{t-1} × BottomProf _{t-1} | | - | 0.1170 | 0.1665 | | - | 0.0792 | 0.1555 |
| $RPT_Borrowing_{t-1} \times MiddleProf_{t-1}$ | | - | -0.1577 | 0.1221 | | - | -0.1336 | 0.131 |
| ROA _{t-1} | 0.8564*** | 0.1298 | 0.9463*** | 0.1429 | | - | | - |
| ROE _{t-1} | | - | | - | 0.2850*** | 0.0600 | 0.3391 | 0.069 |
| C-Index _{t-1} | 0.0003 | 0.0070 | -0.0002 | 0.0070 | 0.0007 | 0.0070 | 0.0003 | 0.007 |
| CashFlowRight _{t-1} | -0.0065 | 0.0361 | -0.0056 | 0.0361 | -0.0091 | 0.0362 | -0.0092 | 0.036 |
| Deviation _{t-1} | -0.0559 | 0.0517 | -0.0539 | 0.0517 | -0.0589 | 0.0518 | -0.0584 | 0.051 |
| InsiderOwn _{t-1} | 0.3204*** | 0.0885 | 0.3218*** | 0.0885 | 0.3130*** | 0.0888 | 0.3130** | 0.088 |
| InstOwn t-1 | 0.0141 | 0.0599 | 0.0143 | 0.0600 | 0.0120 | 0.0601 | 0.0111*** | 0.060 |
| MBRatio _{t-1} | 0.1934*** | 0.0077 | 0.1915*** | 0.0078 | 0.1984*** | 0.0077 | 0.1972* | 0.007 |
| Invest _{t-1} | 0.1655 | 0.1343 | 0.1803 | 0.1351 | 0.1288 | 0.1344 | 0.1286*** | 0.134 |
| Size t-1 | -0.1254*** | 0.0194 | -0.1244*** | 0.0194 | -0.1241*** | 0.0195 | -0.1236 | 0.019 |
| Lever _{t-1} | -0.1748*** | 0.0142 | -0.1755*** | 0.0143 | -0.1783*** | 0.0145 | -0.1785 | 0.014 |
| CashHold _{t-1} | 0.2027** | 0.0853 | 0.2036** | 0.0853 | 0.2142** | 0.0854 | 0.2108 | 0.085 |
| Firm Fixed Effects Year Fixed Effects | Yes Yes | 1 | Yes Yes | | Yes Yes | | Yes Yes | 5 |
| F-Test | 15.35* | ** | 15.32* | ** | 15.25* | ** | 15.23 | *** |
| Adi. R-square | 0.730 |)4 | 0.730 |)5 | 0.729 | 1 | 0.729 | 91 |

Table 5 The Effect of Net Amount of Related-Party Borrowing on Tobin's Q

Notes:

a. Variable definitions are specified in Table 1.
b. The regression analyses are performed on borrower subsample with 5,228 firm/year observations.
c. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| Panel A: the matched sample of | Profitability variable: ROA | | | | Profitability variable: ROE | | | |
|---|-----------------------------|---------------|---------------|--------|-----------------------------|---------------|-----------------|--------|
| borrowers and non-borrowers | (N=9,654) | | | | (N=9,622) | | | |
| Variable | Coeff. | S.D. | Coeff. | S.D. | Coeff. | S.D. | Coeff. | S.D. |
| Borrower _{t-1} | 0.0045 | 0.0112 | | - | 0.0027 | 0.0113 | | - |
| $Borrower_{t-1} \times TopProf_{t-1}$ | | - | 0.0600** | 0.0245 | | - | 0.0287 | 0.0242 |
| $Borrower_{t-1} \times BotProf_{t-1}$ | | - | 0.0531** | 0.0242 | | - | 0.0293 | 0.0244 |
| $Borrower_{t-1} \times MidProf_{t-1}$ | | - | -0.0105 | 0.0118 | | - | -0.0046 | 0.0118 |
| F-Test | 19.23 | *** | 19.25 | *** | 19.3 | 8*** | 19.37 | 7*** |
| Adj. R-square | 0.74 | 43 | 0.74 | 47 | 0.74 | 452 | 0.74 | 53 |
| Panel B: the matched sample of | | | | | | | | |
| borrowers with the amount of net | | Profitability | variable: ROA | | | Profitability | v variable: ROE | |
| related party borrowing above and | | (N= | 2,804) | | | (N= | =2,832) | |
| below the median value | | | | | | | | |
| Variable | Coeff. | S.D. | Coeff. | S.D. | Coeff. | S.D. | Coeff. | S.D. |
| RPT Borrowing _{t-1} | -0.1184 | 0.2049 | | - | -0.1382 | 0.2165 | | - |
| $RPT_Borrowing_{t-1} \times TopProf_{t-1}$ | | - | -0.3324 | 0.4955 | | - | -0.4823 | 0.4297 |
| $RPT_Borrowing_{t-1} \times BotProf_{t-1}$ | | - | 0.6834* | 0.4058 | | - | -0.0175 | 0.3679 |
| $RPT_Borrowing_{t-1} \times MidProf_{t-1}$ | | - | -0.2863 | 0.2208 | | - | -0.1216 | 0.2410 |
| F-Test | 9.60* | *** | 9.60* | *** | 9.03 | *** | 9.01 | *** |
| Adj. R-square | 0.71 | 98 | 0.72 | 03 | 0.7 | 052 | 0.70 |)50 |

Table 6 The Effects of Borrower Indicator and Net Amount of Related-Party Borrowing on Tobin's Q: Matched Sample Analyses

The detailed results of the coefficients on other variables are available upon request. a.

b. The balance test results of the matching procedures are presented in Appendix A.
c. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| | | Profitability | variable: ROA | | | |
|---|-----------------------------|---------------|----------------|------------|--|--|
| | Colum | n (1) | Colum | n (2) | | |
| Panel A: CEO duality | ICMs Va | riable: | ICMs Variable: | | | |
| | Borro | wer | RPT_Borrowing | | | |
| | (N=9,6 | 54) | (N=2,8 | 804) | | |
| Variable | Coeff. | S.D. | Coeff. | S.D. | | |
| ICMs Variable _{t-1} \times TopProf _{t-1} \times Duality | 0.0575 | 0.0393 | -0.5228 | 1.3004 | | |
| ICMs Variable _{t-1} \times TopProf _{t-1} \times Separation | 0.0609** | 0.0278 | -0.9834* | 0.5900 | | |
| ICMs Variable _{t-1} \times BotProf _{t-1} \times Duality | 0.0289 | 0.0346 | 0.9553 | 0.5746 | | |
| ICMs Variable _{t-1} \times BotProf _{t-1} \times Separation | 0.0670** | 0.0288 | 0.6629 | 0.6044 | | |
| ICMs Variable _{t-1} \times MidProf _{t-1} \times Duality | -0.0178 | 0.0176 | -0.4281 | 0.3659 | | |
| ICMs Variable _{t-1} \times MidProf _{t-1} \times Separation | -0.0073 | 0.0131 | 0.0458 | 0.2240 | | |
| Coefficient Equality Tests: | | | | | | |
| (1) Coefficient on <i>ICMs Variable</i> _{t-1} \times <i>TopProf</i> _{t-} | | | | | | |
| x Duality = Coefficient on ICMs | 0.0 | 1 | 0.1 | 1 | | |
| Variable x TopProf x Separation | | | | | | |
| (2) Coefficient on ICMa Variable V BetDuef | | | | | | |
| (2) Coefficient on <i>ICMs variable</i> _{t-1} X <i>Boil roj</i> _{t-1} | 0.0 | 0 | 0.1 | 2 | | |
| $x \ Duality = \text{Coefficient on } ICMs \ Variable_{t-1}$ | 0.9 | 0 | 0.1 | .5 | | |
| $x BotProf_{t-1} \times Separation$ | | | | | | |
| (3) Coefficient on $ICMs Variable_{t-1} \times MidProf_{t-1}$ | 0.0 | | 1.0 | 0 | | |
| $_{1} \times Duality = Coefficient on ICMs$ | 0.31 | | 1.38 | | | |
| Variable _{t-1} × MidProf _{t-1} × Separation | | | | | | |
| F-Test | 19.19*** | | 9.55*** | | | |
| Adj. R-square | 0.7447 | | 0.7203 | | | |
| | Profitability variable: ROA | | | | | |
| Den al D. De and Inden and an ar | Colum | n (1) | Colum | ın (2) | | |
| Panel B: Board Independence | ICMs Va | riable: | ICMs Variable: | | | |
| | Borro | wer (54) | RPT_Borrowing | | | |
| Variable | (N-9, | <u>(),4)</u> | Caaff | <u>8 D</u> | | |
| ICMs Variable , x TonProf , x LowInden | 0.0552* | <u>5.D.</u> | 0.9707 | 5.D. | | |
| ICMs Variable , × TopProf , × HighInden | 0.0552* | 0.0288 | -0.8/9/ | 0.0891 | | |
| $ICMs$ Variable , \times RotProf , \times LowInden | 0.0700** | 0.0348 | -0.9900 | 0.6223 | | |
| $ICMs$ Variable , χ BotProf , χ HighInden | 0.0914 | 0.0303 | 1.8/4/** | 0.0729 | | |
| ICMs Variable - × MidProf - × LowInder | 0.0084 | 0.0313 | 0.2979 | 0.3269 | | |
| $ICMs$ Variable , \times MidProf , \times HighInden | -0.0113 | 0.0130 | -0.2073 | 0.2823 | | |
| Coefficient Equality Tests: | -0.0090 | 0.0141 | 0.0100 | 0.2287 | | |
| (1) Coefficient on ICMa Variable V TenDuct | | | | | | |
| (1) Coefficient on $ICMs$ variable _{t-1} x Topproj _{t-} | 0.1 | 5 | 0.0 | 1 | | |
| $_{1} \times Lowindep = Coefficient on ICMs$ | 0.1 | 3 | 0.0 | /1 | | |
| Variable _{t-1} X TopProf _{t-1} X HighIndep | | | | | | |
| (2) Coefficient on <i>ICMs Variable</i> _{t-1} \times <i>BotProf</i> _{t-1} | | | | | | |
| x LowIndep = Coefficient on ICMs | 4.75 | ** | 3.5 | 9* | | |
| Variable _{t-1} x BotProf _{t-1} x HighIndep | | | | | | |
| (3) Coefficient on <i>ICMs Variable</i> _{t-1} \times <i>MidProf</i> _{t-1} | | | | | | |
| x LowIndep = Coefficient on ICMs Variable ₁ | 0.0 | 2 | 0.5 | 52 | | |
| \times MidProf _{i-1} \times HighIndep | | | | | | |
| F-Test | 19.21 | *** | 9.60 | *** | | |
| Adi, R-square | 0.74 | 49 | 0.72 | 214 | | |

Table 7The Moderating Roles of CEO Duality and Board Independence in Relationto the Effects of ICMs Variables on Tobin's Q: Matched Sample Analyses

Notes:

a. The detailed results of the coefficients on other variables are available upon request.

b. In Panel A, *Duality (Separation)* equals to 1 when CEO and chairman of board are (not) the same person. In Panel B, *LowIndep* and *HighIndep* equal to 1 for firms whose proportion of independent directors in board representation is below and above the median value respectively.

c. The balance test results of the matching procedures are presented in Appendix A.

d. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| | | Profitability | variable: ROA | | | |
|---|-----------------------------|---------------|-------------------------------|-----------|--|--|
| | Column | (1) | Column | (2) | | |
| Panel A: Excess Control Rights | ICMs Var | iable: | ICMs Var | iable: | | |
| | Borrov | ver 54) | RPT_Borrowing | | | |
| Variable | (N=9,034) | | Coeff | <u>50</u> | | |
| ICMs Variable , × TonProf , × HighErCon | 0.0574* | 0.0315 | -1 6409* | 0.0287 | | |
| ICMs Variable, 1 x TopProf. 1 x LowExCon | 0.0574 | 0.0313 | -0.6160 | 0.5287 | | |
| ICMs Variable _{t-1} x BotProf _{t-1} x HighExCon | 0.0267 | 0.0305 | -0.1559 | 0.6781 | | |
| $ICMs Variable_{t,1} \times BotProf_{t,1} \times LowExCon$ | 0.0788** | 0.0313 | 1.5054*** | 0.5259 | | |
| ICMs Variable ₁₋₁ × MidProf ₁₋₁ × HighExCon | -0.0199 | 0.0141 | 0.0102 | 0.2537 | | |
| ICMs Variable _{t-1} × MidProf _{t-1} × LowExCon | -0.0014 | 0.0142 | -0.1631 | 0.2470 | | |
| Coefficient Equality Tests: | | | | | | |
| (1) Coefficient on <i>ICMs Variable</i> _{t-1} \times <i>TopProf</i> _{t-} | | | | | | |
| $_{1} \times HighExCon = Coefficient on ICMs$ | 0.03 | 3 | 0.86 | 5 | | |
| Variable _{t-1} x TopProf _{t-1} x LowExCon | | | | | | |
| (2) Coefficient on <i>ICMs Variable</i> _{t,1} \times <i>BotProf</i> _{t,1} | | | | | | |
| \times HighExCon = Coefficient on ICMs | 1.8 | 5 | 3.96* | * | | |
| Variable _{t-1} × BotProf _{t-1} × LowExCon | | | | | | |
| (3) Coefficient on <i>ICMs Variable</i> _{$t-1 × MidProf_{t-1}$} | | | | | | |
| $_{1} \times HighExCon = Coefficient on ICMs$ | 1.40 |) | 0.33 | ; | | |
| $Variable_{t-1} \times MidProf_{t-1} \times LowExCon$ | | | | | | |
| F-Test | 19.20 ³ | *** | 9.61*** | | | |
| Adj. R-square | 0.744 | 48 | 0.721 | .6 | | |
| | Profitability variable: ROA | | | | | |
| | Colum | n (1) | Column (2) | | | |
| Panel B: Board Control | ICMs Va | riable: | ICMs Variable: | | | |
| | Borrower | | $RPI_Borrowing$ (N=2.804) | | | |
| Variable | Coeff | <u>SD</u> | Coeff | <u>SD</u> | | |
| ICMs Variable, 1 x TonProf. 1 x HighRoard | 0.0975*** | 0.0300 | -1 0267* | 0.6061 | | |
| ICMs Variable _{t-1} × TopProf _{t-1} × LowBoard | 0.0180 | 0.0315 | -0.5234 | 0.9390 | | |
| $ICMs Variable_{1-1} \times BotProf_{1-1} \times HighBoard$ | 0.0135 | 0.0301 | 0.4538 | 0.7237 | | |
| $ICMs Variable_{t-1} \times BotProf_{t-1} \times LowBoard$ | 0.0930** | 0.0309 | 1.0077** | 0.5046 | | |
| ICMs Variable _{t-1} × MidProf _{t-1} × HighBoard | -0.0122 | 0.0139 | 0.3722 | 0.2787 | | |
| ICMs Variable _{t-1} \times MidProf _{t-1} \times LowBoard | -0.0099 | 0.0136 | -0.3915* | 0.2261 | | |
| Coefficient Equality Tests: | | | | | | |
| (1) Coefficient on <i>ICMs Variable</i> _{t-1} \times <i>TopProf</i> _{t-} | | | | | | |
| $_{1} \times HighBoard = Coefficient on ICMs$ | 4.60* | ** | 0.24 | ł | | |
| Variable _{t-1} × TopProf _{t-1} × LowBoard | | | | | | |
| (2) Coefficient on <i>ICMs Variable</i> _{t-1} \times <i>BotProf</i> _{t-1} | | | | | | |
| x HighBoard = Coefficient on ICMs | 4.55* | ** | 0.42 | 2 | | |
| $Variable_{t-1} \times BotProf_{t-1} \times LowBoard$ | | | | | | |
| (3) Coefficient on <i>ICMs Variable</i> _{t-1} \times <i>MidProf</i> _{t-1} | | | | | | |
| × HighBoard= Coefficient on ICMs | 0.03 | 3 | 6.49* | ** | | |
| $Variable_{t-1} \times MidProf_{t-1} \times LowBoard$ | | | | | | |
| F-Test | 19.21* | *** | 9.60* | ** | | |
| Adi, R-square | 0.744 | 49 | 0.721 | 5 | | |

Table 8The Moderating Roles of Excess Control and Board Control in Relation to
the Effect of Borrower Indicator on Tobin's Q: Matched Sample Analyses

Notes:

a. The detailed results of the coefficients on other variables are available upon request.

b. In Panel A, *HighExCon* and *LowExCon* equal to 1 for firms whose excess control is above and below the median value respectively. In Panel B, *HighBoard* and *LowBoard* equal to 1 for firms whose proportion of board seat control is below and above the median value respectively.

c. The balance test results of the matching procedures are presented in Appendix A.

d. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| Panel A: :Borrower Indicator | Column (1) matched sample constructed around year 2008 (N=1,284) | | Column (2): m of constructed 2011 (N | atched sample d around year =1,492) | |
|---|--|--|--|--|--|
| Variable | Coeff. | S.D. | Coeff. | S.D. | |
| $Borrower_{t-1} \times Post$ | -0.0404 | 0.0569 | -0.0166 | 0.0413 | |
| F-Test | 5.70 | *** | 7.89 | *** | |
| Adj. R-square | 0.72 | 211 | 0.7865 | | |
| Panel B: Borrower Indicator under varying levels of profitability | Column (1) m constructed 2008 (N | Column (1) matched sample constructed around year 2008 (N=1,284) | | hatched sample ad around year J=1,492) | |
| Variable | Coeff. | S.D. | Coeff. | S.D. | |
| <i>RPT Borrowing</i> _{t-1} \times <i>TopProf</i> _{t-1} \times <i>Post</i> | 0.3051** | 0.1270 | 0.0767 | 0.0789 | |
| $RPT_Borrowing_{t-1} \times BottomProf_{t-1} \times Post$ | -0.0512 | 0.1386 | -0.0216 | 0.0804 | |
| $RPT_Borrowing_{t-1} \times MiddleProf_{t-1} \times Post$ | -0.0084 | 0.0615 | -0.0356 | 0.0388 | |
| F-Test | 5.73 | *** | 7.88 | *** | |
| Adj. R-square | 0.72 | 230 | 0.7866 | | |

Table 9 DID Regression Analyses on Matched Samples

Notes:

a.

The detailed results of the coefficients on other variables are available upon request. In Column (1) and (2), the analyses are performed on the matched samples from 2007 to 2009 and .2010 to 2012 respectively. The balance test results of the matching procedures are presented b. in Appendix A.

c. In Column (1) and (2), *Post* is post-crisis indicator, which equals to 1 in the year of 2009 and 2012 respectively.
d. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| | Column (1) | matched | Column (2): matched | | |
|--|--------------------|-------------|-----------------------|---------------|--|
| Panel A: CEO Duality | sample constru | cted around | sample of constructed | | |
| 2 | year 2008 (N | N=1,284) | around year 20 | 11 (N=1,492) | |
| Variable | Coeff. | S.D. | Coeff. | S.D. | |
| Borrower _{t-1} \times TopProf _{t-1} \times Duality \times Post | 0.6468*** | 0.1870 | 0.1282 | 0.1441 | |
| Borrower _{t-1} \times TopProf _{t-1} \times Separation \times Post | 0.0567 | 0.1602 | 0.0642 | 0.0908 | |
| Borrower _{t-1} \times BotProf _{t-1} \times Duality \times Post | -0.2225 | 0.2806 | -0.0390 | 0.1153 | |
| Borrower _{t-1} \times BotProf _{t-1} \times Separation \times Post | -0.0126 | 0.1505 | -0.0185 | 0.1039 | |
| Borrower _{t-1} \times MidProf _{t-1} \times Duality \times Post | 0.0013 | 0.0894 | -0.0001 | 0.0556 | |
| Borrower _{t-1} \times MidProf _{t-1} \times Separation \times Post | -0.0159 | 0.0672 | -0.0503 | 0.0429 | |
| Coefficient Equality Tests: | | | | | |
| (1) Coefficient on <i>Borrower</i> _{<i>t</i>-1} \times <i>TopProf</i> _{<i>t</i>-1} \times <i>Duality</i> | | | | | |
| \times Post = Coefficient on Borrower _{t-1} \times TopProf _{t-1} \times | 6.30* | * | 0.1 | 5 | |
| Separation Post | | | | | |
| (2) Coefficient on Borrower _{t-1} \times BotProf _{t-1} \times Duality | | | | | |
| \times Post = Coefficient on Borrowert-1x BotProf_{t-1} x | 0.48 | | 0.0 | 2 | |
| Separationx Post | | | | | |
| (3) Coefficient on <i>Borrowertal x MidProf</i> _{tal} x <i>Duality</i> | | | | | |
| $\times Post = Coefficient on Borrowert 1 \times MidProf_{t1} \times$ | 0.04 | | 0.7 | '5 | |
| Separation × Post | | | | | |
| F-Test | 5.72*** | | 7.82*** | | |
| Adi. R-square | 0.7241 | | 0.7863 | | |
| | Column (1) matched | | Column (2): matched | | |
| Panel B: Board Independence | sample construe | cted around | sample of constructed | | |
| - | year 2008 (N | V=1,284) | around year 20 | 011 (N=1,492) | |
| Variable | Coeff. | S.D. | Coeff. | S.D. | |
| Borrower _{t-1} \times TopProf _{t-1} \times LowIndep \times Post | 0.4329** | 0.1680 | 0.0116 | 0.1113 | |
| Borrower _{t-1} \times TopProf _{t-1} \times HighIndep \times Post | 0.1597 | 0.1792 | 0.1286 | 0.1048 | |
| <i>Borrower</i> _{t-1} \times <i>BotProf</i> _{t-1} \times <i>LowIndep</i> \times <i>Post</i> | 0.1353 | 0.1790 | -0.0776 | 0.0985 | |
| Borrower _{t-1} \times BotProf _{t-1} \times HighIndep \times Post | -0.2845 | 0.1931 | 0.0753 | 0.1245 | |
| Borrower _{t-1} \times MidProf _{t-1} \times LowIndep \times Post | 0.0028 | 0.0764 | -0.0189 | 0.0473 | |
| Borrower _{t-1} \times MidProf _{t-1} \times HighIndep \times Post | -0.0205 | 0.0733 | -0.0546 | 0.0471 | |
| Coefficient Equality Tests: | | | | | |
| (1) Coefficient on Borrower _{t-1} \times TopProf _{t-1} \times | | | | | |
| Lowindep \times Post = Coefficient on Borrowert-1 x | 1.34 | | 0.6 | 53 | |
| TopProf _{t-1} \times HighIndep \times Post | | | | | |
| (2) Coefficient on <i>Barrower</i> , χ <i>BatProf.</i> χ | | | | | |
| $LowInden \times Post = Coefficient on Borrower + X$ | 2 90* | < | 1.0 | 12 | |
| $BotProf \times HighInden \times Post$ | 2.90 | | 1.0 | 12 | |
| $Bott roj_{t-1} \times Intennuep \times Tost$ | | | | | |
| (3) Coefficient on Borrower _{t-1} \times MidProf _{t-1} \times LowInde | | | | | |
| \times Post = Coefficient on Borrower _{t-1} \times MidProf _{t-1} \times | 0.07 | | 0.4 | 4 | |
| HighIndepx Post | | | | | |
| F-Test | 5.69*** | | 7.81*** | | |
| 1 1000 | 5.69** | ** | 7.81 | *** | |
| Adj. R-square | 5.69** 0.722 | ** 9 | 7.81 0.78 | *** 360 | |

Table 10DID Regression Analyses on Matched Sample Analyses: The ContingentRoles of CEO Duality and Board Independence

Notes:

a. The detailed results of the coefficients on other variables are available upon request.

b. In Column (1) and (2), the analyses are performed on the matched samples from 2007 to 2009 and .2010 to 2012 respectively. The balance test results of the matching procedures are presented in Appendix A.

c. In Column (1) and (2), Post is post-crisis indicator, which equals to 1 in the year of 2009 and 2012 respectively.

d. In Panel A, *Duality (Separation)* equals to 1 when CEO and chairman of board are (not) the same person. In Panel B, *LowIndep* and *HighIndep* equal to 1 for firms whose proportion of independent directors in board representation is below and above the median value respectively.

e. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| Danal A: Excase Control Dights | Column (1) | matched | Column (2): matched | | |
|---|--|--|---|--|--|
| Fallel A. Excess Collutor Rights | vear 2008 (N | V=1.284) | around year 201 | 11 (N=1.492) | |
| Variable | Coeff. | S.D. | Coeff. | S.D. | |
| Borrower _{t-1} x TopProf _{t-1} x HighExCon x Post | 0.5158*** | 0.2098 | 0.1251 | 0.1082 | |
| Borrower _{t-1} × TopProf _{t-1} × LowExCon × Post | 0.2012 | 0.1512 | 0.0362 | 0.1083 | |
| Borrower _{t-1} × BotProf _{t-1} × HighExCon × Post | -0.2408 | 0.1740 | -0.1183 | 0.0942 | |
| $Borrower_{t-1} \times BotProf_{t-1} \times LowExCon \times Post$ | 0.2097 | 0.1978 | 0.1592 | 0.1386 | |
| Borrower _{t-1} × MidProf _{t-1} × HighExCon × Post | -0.0306 | 0.0757 | -0.0313 | 0.0473 | |
| Borrower _{t-1} × MidProf _{t-1} × LowExCon × Post | 0.0085 | 0.0758 | -0.0394 | 0.0480 | |
| Coefficient Equality Tests: | | | | | |
| (1) Coefficient on $Borrower_{t-1} \times TopProf_{t-1} \times$ | | | | | |
| $HighExCon \times Post = Coefficient on Borrower_{t-1}x$ | 1.59 | | 0.3 | 6 | |
| $TopProf_{t-1} \times LowExCon \times Post$ | | | | | |
| (2) Coefficient on $Borrower_{t-1} \times BotProf_{t-1} \times$ | | | | | |
| $HighExCon \times Post = Coefficient on Borrower_{t-1}x$ | 3.36* | | 2.97 | 7* | |
| $BotProf_{t-1} \times LowExCon \times Post$ | | | | | |
| (3) Coefficient on $Borrower_{t-1} \times MidProf_{t-1} \times$ | | | | | |
| $HighExCon \times Post = Coefficient on Borrower_{t-1}x$ | 0.20 | | 0.02 | | |
| MidProf _{t-1} × LowExCon × Post | | | | | |
| F-Test | 5.70*** | | 7.85*** | | |
| Adj. R-square | 0.723 | 2 | 0.78 | 70 | |
| | Column (1) matched | | Column (2): matched | | |
| Panel B: Board Control | sample construct | ted around $(-1, 284)$ | sample of constructed | | |
| X7 11 | year 2008 (N | -1,204) SD | Coeff | SD | |
| | 0.5901*** | 0.1952 | 0.20(4** | 0.1029 | |
| Borrower _{t-1} X TopProj _{t-1} X HighBoard X Post | 0.5801*** | 0.1855 | 0.2064** | 0.1038 | |
| Powershaw , V Ton Prot , V Low Poard V Dost | 0.1072 | 0.1020 | -0.0773 | 0.1120 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post | 0.2848 | 0 1817 | 0.0151 | 0.0035 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower × BotProf × LowBoard × Post | -0.2848 | 0.1817 | -0.0151 | 0.0935 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower _{t-1} × BotProf _{t-1} × LowBoard × Post Borrower _{t-1} × MidProf _{t-1} × HighBoard × Post | -0.2848 0.2078 | 0.1817 0.1891 0.0823 | -0.0151 -0.0485 -0.0622 | 0.0935 0.1429 0.0436 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower _{t-1} × BotProf _{t-1} × LowBoard × Post Borrower _{t-1} × MidProf _{t-1} × HighBoard × Post Borrower _{t-1} × MidProf _{t-1} × LowBoard × Post | -0.2848 0.2078 -0.0709 0.0280 | 0.1817 0.1891 0.0823 0.0697 | -0.0151 -0.0485 -0.0622 0.0139 | 0.0935 0.1429 0.0436 0.0531 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower _{t-1} × BotProf _{t-1} × LowBoard × Post Borrower _{t-1} × MidProf _{t-1} × HighBoard × Post Borrower _{t-1} × MidProf _{t-1} × LowBoard × Post Coefficient Equality Tests: | -0.2848 0.2078 -0.0709 0.0280 | 0.1817 0.1891 0.0823 0.0697 | -0.0151 -0.0485 -0.0622 0.0139 | 0.0935 0.1429 0.0436 0.0531 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower _{t-1} × BotProf _{t-1} × LowBoard × Post Borrower _{t-1} × MidProf _{t-1} × HighBoard × Post Borrower _{t-1} × MidProf _{t-1} × LowBoard × Post Coefficient Equality Tests: (1) Coefficient on Borrower + × TopProf + × | -0.2848 0.2078 -0.0709 0.0280 | 0.1817 0.1891 0.0823 0.0697 | -0.0151 -0.0485 -0.0622 0.0139 | 0.0935 0.1429 0.0436 0.0531 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower _{t-1} × BotProf _{t-1} × LowBoard × Post Borrower _{t-1} × MidProf _{t-1} × HighBoard × Post Borrower _{t-1} × MidProf _{t-1} × LowBoard × Post Coefficient Equality Tests: (1) Coefficient on Borrower _{t-1} × TopProf _{t-1} × Lowinden × Post = Coefficient on Borrower _{t-1} × | -0.2848 0.2078 -0.0709 0.0280 | 0.1817 0.1891 0.0823 0.0697 | -0.0151 -0.0485 -0.0622 0.0139 | 0.0935 0.1429 0.0436 0.0531 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower _{t-1} × BotProf _{t-1} × LowBoard × Post Borrower _{t-1} × MidProf _{t-1} × HighBoard × Post Borrower _{t-1} × MidProf _{t-1} × LowBoard × Post Coefficient Equality Tests: (1) Coefficient on Borrower _{t-1} × TopProf _{t-1} × Lowindep × Post = Coefficient on Borrower _{t-1} × TopProf _{t-1} × HighInden × Post | -0.2848 0.2078 -0.0709 0.0280 4.01* | 0.1817 0.1891 0.0823 0.0697 | -0.0151 -0.0485 -0.0622 0.0139 2.1 | 0.0935 0.1429 0.0436 0.0531 5 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower _{t-1} × BotProf _{t-1} × LowBoard × Post Borrower _{t-1} × MidProf _{t-1} × HighBoard × Post Borrower _{t-1} × MidProf _{t-1} × LowBoard × Post Coefficient Equality Tests: (1) Coefficient on Borrower _{t-1} × TopProf _{t-1} × Lowindep × Post = Coefficient on Borrower _{t-1} × TopProf _{t-1} × HighIndep × Post (2) Coefficient on Borrower × RotProf × X | -0.2848 0.2078 -0.0709 0.0280 4.01* | 0.1817 0.1891 0.0823 0.0697 | -0.0151 -0.0485 -0.0622 0.0139 2.1 | 0.0935 0.1429 0.0436 0.0531 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower _{t-1} × BotProf _{t-1} × LowBoard × Post Borrower _{t-1} × MidProf _{t-1} × HighBoard × Post Borrower _{t-1} × MidProf _{t-1} × LowBoard × Post Coefficient Equality Tests: (1) Coefficient on Borrower _{t-1} × TopProf _{t-1} × Lowindep × Post = Coefficient on Borrower _{t-1} × TopProf _{t-1} × HighIndep × Post (2) Coefficient on Borrower _{t-1} × BotProf _{t-1} × LowInden × Post = Coefficient on Borrower _{t-1} × | -0.2848 0.2078 -0.0709 0.0280 4.01* | 0.1817 0.1891 0.0823 0.0697 | -0.0151 -0.0485 -0.0622 0.0139 2.1 | 0.0935 0.1429 0.0436 0.0531 5 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower _{t-1} × BotProf _{t-1} × LowBoard × Post Borrower _{t-1} × MidProf _{t-1} × HighBoard × Post Borrower _{t-1} × MidProf _{t-1} × LowBoard × Post Coefficient Equality Tests: (1) Coefficient on Borrower _{t-1} × TopProf _{t-1} × Lowindep × Post = Coefficient on Borrower _{t-1} × TopProf _{t-1} × HighIndep × Post (2) Coefficient on Borrower _{t-1} × BotProf _{t-1} × LowIndep × Post = Coefficient on Borrower _{t-1} × RotProf × HighIndep × Post | -0.2848 0.2078 -0.0709 0.0280 4.01* 3.99* | 0.1817 0.1891 0.0823 0.0697 | -0.0151 -0.0485 -0.0622 0.0139 2.1 0.0 | 0.0935 0.1429 0.0436 0.0531 5 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower _{t-1} × BotProf _{t-1} × LowBoard × Post Borrower _{t-1} × MidProf _{t-1} × HighBoard × Post Borrower _{t-1} × MidProf _{t-1} × LowBoard × Post Coefficient Equality Tests: (1) Coefficient on Borrower _{t-1} × TopProf _{t-1} × Lowindep × Post = Coefficient on Borrower _{t-1} × TopProf _{t-1} × HighIndep × Post (2) Coefficient on Borrower _{t-1} × BotProf _{t-1} × LowIndep × Post = Coefficient on Borrower _{t-1} × BotProf _{t-1} × HighIndep × Post | -0.2848 0.2078 -0.0709 0.0280 4.01* 3.99* | 0.1817 0.1891 0.0823 0.0697 * | -0.0151 -0.0485 -0.0622 0.0139 2.1 0.0 | 0.0935 0.1429 0.0436 0.0531 5 2 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower _{t-1} × BotProf _{t-1} × LowBoard × Post Borrower _{t-1} × MidProf _{t-1} × HighBoard × Post Borrower _{t-1} × MidProf _{t-1} × LowBoard × Post Coefficient Equality Tests: (1) Coefficient on Borrower _{t-1} × TopProf _{t-1} × Lowindep × Post = Coefficient on Borrower _{t-1} × TopProf _{t-1} × HighIndep × Post (2) Coefficient on Borrower _{t-1} × BotProf _{t-1} × LowIndep × Post = Coefficient on Borrower _{t-1} × BotProf _{t-1} × HighIndep × Post (3) Coefficient on Borrower _{t-1} × MidProf _{t-1} × LowInde | -0.2848 0.2078 -0.0709 0.0280 4.01* 3.99* | 0.1817 0.1891 0.0823 0.0697 * | -0.0151 -0.0485 -0.0622 0.0139 2.1 0.0 | 0.0935 0.1429 0.0436 0.0531 5 2 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × Post Borrower _{t-1} × BotProf _{t-1} × HighBoard × Post Borrower _{t-1} × BotProf _{t-1} × LowBoard × Post Borrower _{t-1} × MidProf _{t-1} × LowBoard × Post Coefficient Equality Tests: (1) Coefficient on Borrower _{t-1} × TopProf _{t-1} × Lowindep × Post = Coefficient on Borrower _{t-1} × TopProf _{t-1} × HighIndep × Post (2) Coefficient on Borrower _{t-1} × BotProf _{t-1} × LowIndep × Post = Coefficient on Borrower _{t-1} × BotProf _{t-1} × HighIndep × Post (3) Coefficient on Borrower _{t-1} × MidProf _{t-1} × LowInde × Post = Coefficient on Borrower _{t-1} × MidProf _{t-1} × LowInde | -0.2848 0.2078 -0.0709 0.0280 4.01* 3.99* 1.26 | 0.1817 0.1891 0.0823 0.0697 | -0.0151 -0.0485 -0.0622 0.0139 2.1 0.0 1.7 | 0.0935 0.1429 0.0436 0.0531 5 2 2 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × PostBorrower _{t-1} × BotProf _{t-1} × HighBoard × PostBorrower _{t-1} × BotProf _{t-1} × LowBoard × PostBorrower _{t-1} × MidProf _{t-1} × LowBoard × PostBorrower _{t-1} × MidProf _{t-1} × LowBoard × PostCoefficient Equality Tests:(1) Coefficient on Borrower _{t-1} × TopProf _{t-1} × Lowindep × Post = Coefficient on Borrower _{t-1} × TopProf _{t-1} × HighIndep × Post(2) Coefficient on Borrower _{t-1} × BotProf _{t-1} × BotProf _{t-1} × HighIndep × Post(3) Coefficient on Borrower _{t-1} × MidProf _{t-1} × LowInde × Post = Coefficient on Borrower _{t-1} × MidProf _{t-1} × HighIndep × Post(3) Coefficient on Borrower _{t-1} × MidProf _{t-1} × MidProf _{t-1} × HighIndep × Post | -0.2848 0.2078 -0.0709 0.0280 4.01* 3.99* 1.26 | 0.1817 0.1891 0.0823 0.0697 | -0.0151 -0.0485 -0.0622 0.0139 2.1 0.0 | 0.0935 0.1429 0.0436 0.0531 5 2 2 | |
| Borrower _{t-1} × TopProf _{t-1} × LowBoard × PostBorrower _{t-1} × BotProf _{t-1} × HighBoard × PostBorrower _{t-1} × BotProf _{t-1} × LowBoard × PostBorrower _{t-1} × MidProf _{t-1} × LowBoard × PostBorrower _{t-1} × MidProf _{t-1} × LowBoard × PostCoefficient Equality Tests:(1) Coefficient on Borrower _{t-1} × TopProf _{t-1} × Lowindep × Post = Coefficient on Borrower _{t-1} × TopProf _{t-1} × HighIndep × Post(2) Coefficient on Borrower _{t-1} × BotProf _{t-1} × BotProf _{t-1} × HighIndep × Post(3) Coefficient on Borrower _{t-1} × MidProf _{t-1} × LowInde × Post = Coefficient on Borrower _{t-1} × MidProf _{t-1} × HighIndep × Post(3) Coefficient on Borrower _{t-1} × MidProf _{t-1} × HighIndep × Post(3) Coefficient on Borrower _{t-1} × MidProf _{t-1} × HighIndep × Post(3) Coefficient on Borrower _{t-1} × Fortest | -0.2848 0.2078 -0.0709 0.0280 4.01* 3.99* 1.26 5.75** | 0.1817 0.1891 0.0823 0.0697 * * | -0.0151 -0.0485 -0.0622 0.0139 2.1 0.0 1.7 7.88* | 0.0935 0.1429 0.0436 0.0531 5 2 2 2 | |

Table 11DID Regression Analyses on Matched Sample Analyses: The ContingentRoles of Excess Control and Board Control

a. The detailed results of the coefficients on other variables are available upon request.

b. In Column (1) and (2), the analyses are performed on the matched samples from 2007 to 2009 and .2010 to 2012 respectively. The balance test results of the matching procedures are presented in Appendix A.

c. In Column (1) and (2), Post is post-crisis indicator, which equals to 1 in the year of 2009 and 2012 respectively.

d. In Panel A, *HighExCon* and *LowExCon* equal to 1 for firms whose excess control is above and below the median value respectively. In Panel B, *HighBoard* and *LowBoard* equal to 1 for firms whose proportion of board seat control is below and above the median value respectively

e. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

| Variable | Profitability variable: ROA | | | Profitability variable: ROE | | |
|------------------------------|-----------------------------|----------------------|--------|-----------------------------|----------------------|--------|
| | Treated (N=4,827) | Control (N=4,827) | t-test | Treated (N=4,811) | Control (N=4,811) | t-test |
| ROA _{t-1} | 0.0228 | 0.0234 | -0.50 | - | - | - |
| ROE_{t-1} | - | - | - | 0.0336 | 0.0354 | -0.71 |
| C-Index _{t-1} | 1.8127 | 1.8117 | 0.05 | 1.8106 | 1.8111 | -0.02 |
| CashFlowRight _{t-1} | 0.2781 | 0.2773 | 0.19 | 0.2779 | 0.2778 | 0.02 |
| Deviation _{t-1} | 0.0730 | 0.0729 | 0.05 | 0.0731 | 0.0745 | -0.55 |
| InsiderOwn _{t-1} | 0.2628 | 0.2597 | 0.98 | 0.2627 | 0.2615 | 0.38 |
| InstOwn t-1 | 0.1095 | 0.1081 | 0.66 | 0.1096 | 0.1082 | 0.69 |
| MBRatio _{t-1} | 2.1969 | 2.2246 | -0.96 | 2.1924 | 2.2038 | -0.40 |
| Invest _{t-1} | 0.0338 | 0.0338 | -0.01 | 0.0334 | 0.0336 | -0.22 |
| Size t-1 | 15.5820 | 15.6090 | -0.93 | 15.5780 | 15.5930 | -0.54 |
| Lever _{t-1} | 1.0018 | 1.0095 | -0.43 | 1.0014 | 1.0129 | -0.65 |
| CashHold _{t-1} | 0.1671 | 0.1646 | 0.95 | 0.1674 | 0.1646 | 1.04 |

 Table A-1
 Balance Tests of the Matched Sample: Borrower versus Non-Borrower

a. Variable definitions are specified in Table 1.

b. Treated and control groups refer to borrowers and non-borrowers respectively.

Table A-2Balance Tests of the Matched Sample: Borrowers with the Amount of netRelated-Party Borrowing above and below the Median Value

| | Profitability variable: ROA | | | Profitability variable: ROE | | |
|------------------------------|-----------------------------|----------------------|--------|-----------------------------|----------------------|--------|
| Variable | Treated (N=1,402) | Control (N=1,402) | t-test | Treated (N=1,416) | Control (N=1,416) | t-test |
| ROA _{t-1} | 0.0274 | 0.0243 | 1.39 | - | - | - |
| ROE_{t-1} | - | - | - | 0.0434 | 0.0407 | 0.62 |
| C-Index _{t-1} | 1.8138 | 1.7974 | 0.41 | 1.7973 | 1.8263 | -0.72 |
| CashFlowRight _{t-1} | 0.2801 | 0.2782 | 0.25 | 2.1316 | 2.1369 | -0.11 |
| Deviation _{t-1} | 0.0747 | 0.0769 | -0.46 | 0.2608 | 0.2626 | -0.29 |
| InsiderOwn _{t-1} | 0.2594 | 0.2632 | -0.65 | 0.1080 | 0.1105 | -0.65 |
| InstOwn t-1 | 0.1060 | 0.1087 | -0.72 | 0.2738 | 0.2786 | -0.64 |
| MBRatio _{t-1} | 2.1395 | 2.1057 | 0.68 | 0.0770 | 0.0755 | 0.31 |
| <i>Invest</i> _{t-1} | 0.0366 | 0.0366 | 0.01 | 0.0365 | 0.0360 | 0.23 |
| Size $_{t-1}$ | 15.7260 | 15.638 | 1.59 | 15.7150 | 15.6120 | 1.87* |
| Lever _{t-1} | 0.9498 | 0.9310 | 0.64 | 0.9465 | 0.9212 | 0.88 |
| CashHold _{t-1} | 0.1721 | 0.1704 | 0.35 | 0.1716 | 0.1720 | -0.08 |

Notes:

b. Treated and control groups refer to borrowers whose value of related-party borrowing variable is above and below the median value respectively.

c. * indicates statistical significance at 10% levels.

a. Variable definitions are specified in Table 1.

| Panel A: year 2007 | | | |
|------------------------------|-----------------|----------|--------|
| Variable | Treated | Control | t-test |
| variable | (N=223) | (N=223) | |
| ROA_{t-1} | 0.0544 | 0.0595 | -0.72 |
| C-Index _{t-1} | 2.1749 | 2.2332 | -0.61 |
| $CashFlowRight_{t-1}$ | 0.2679 | 0.2759 | -0.48 |
| $Deviation_{t-1}$ | 0.0425 | 0.0387 | 0.55 |
| InsiderOwn _{t-1} | 0.2969 | 0.2849 | 0.72 |
| InstOwn t-1 | 0.0978 | 0.0962 | 0.17 |
| $MBRatio_{t-1}$ | 2.4806 | 2.4494 | 0.23 |
| Invest _{t-1} | 0.0426 | 0.0442 | -0.27 |
| Size t-1 | 15.4400 | 15.5560 | -0.91 |
| Lever _{t-1} | 1.0344 | 1.0473 | -0.17 |
| CashHold _{t-1} | 0.1212 | 0.1200 | 0.12 |
| Panel B: year 2008 | | | |
| Variable | Treated | Control | t-test |
| | (N=220) | (N=220) | 0.52 |
| ROA _{t-1} | 0.0586 | 0.0548 | 0.53 |
| C-Index _{t-1} | 2.1182 | 2.1182 | 0.00 |
| CashFlowRight _{t-1} | 0.2742 | 0.2665 | 0.42 |
| Deviation _{t-1} | 0.0542 | 0.0582 | -0.42 |
| InsiderOwn _{t-1} | 0.2793 | 0.2757 | 0.23 |
| InstOwn t-1 | 0.1023 | 0.0948 | 0.79 |
| MBRatio _{t-1} | 2.3225 | 2.3253 | -0.02 |
| Invest _{t-1} | 0.0381 | 0.0377 | 0.07 |
| Size t-1 | 15.4860 | 15.6310 | -1.11 |
| Lever _{t-1} | 0.9682 | 1.0430 | -0.96 |
| CashHold _{t-1} | 0.1398 | 0.1380 | 0.16 |
| Panel C: year 2009 | | <u> </u> | |
| Variable | Treated (N-100) | Control | t-test |
| DO 4 | (N=199) | (N=199) | 0.54 |
| ROA _{t-1} | 0.0173 | 0.0222 | -0.34 |
| C-Index _{t-1} | 2.1038 | 2.1508 | 0.14 |
| CashFlowRight _{t-1} | 0.2679 | 0.2/14 | -0.18 |
| $Deviation_{t-1}$ | 0.0019 | 0.0301 | 0.39 |
| InstaerOwn _{t-1} | 0.2037 | 0.2008 | 0.52 |
| InstOwn t-1 | 0.0933 | 0.0894 | 0.43 |
| MBKatio _{t-1} | 1.4020 | 1.41/3 | 0.5/ |
| Invest _{t-1} | 0.03/4 | 0.040/ | -0.61 |
| Size t-1 | 15.60/0 | 15./6/0 | -1.08 |
| Lever _{t-1} | 1.0470 | 0.9995 | 0.59 |
| CashHold _{t-1} | 0.1450 | 0.1472 | -0.16 |

Table A-3Balance Tests of the Matched Sample from 2007 to 2009

a. Variable definitions are specified in Table 1.b. Treated and control groups refer to borrowers and non-borrowers respectively.

| Panel A: year 2010 | | | |
|------------------------------|---------|---------|--------|
| Variable | Treated | Control | t-test |
| | (N=239) | (N=239) | 0.75 |
| ROA_{t-1} | 0.0233 | 0.0289 | -0.75 |
| C-Index _{t-1} | 2.1172 | 2.0460 | 0.74 |
| CashFlowRight _{t-1} | 0.2762 | 0.2572 | 1.11 |
| $Deviation_{t-1}$ | 0.0619 | 0.0687 | -0.67 |
| InsiderOwn _{t-1} | 0.2531 | 0.2678 | -1.11 |
| InstOwn t-1 | 0.0944 | 0.0823 | 1.46 |
| MBRatio _{t-1} | 2.3617 | 2.3592 | 0.02 |
| Invest _{t-1} | 0.0273 | 0.0260 | 0.30 |
| Size t-1 | 15.4740 | 15.5170 | -0.34 |
| Lever _{t-1} | 0.9839 | 0.9729 | 0.13 |
| CashHold _{t-1} | 0.1620 | 0.1715 | -0.74 |
| Panel B: year 2011 | | | |
| Variable | Treated | Control | t-test |
| | (N=256) | (N=256) | 0.24 |
| ROA_{t-1} | 0.0461 | 0.0439 | 0.34 |
| C-Index _{t-1} | 2.1094 | 2.0586 | 0.55 |
| $CashFlowRight_{t-1}$ | 0.2833 | 0.2835 | -0.01 |
| $Deviation_{t-1}$ | 0.0636 | 0.0535 | 1.10 |
| InsiderOwn _{t-1} | 0.2496 | 0.2628 | -1.02 |
| InstOwn t-1 | 0.0931 | 0.0961 | -0.33 |
| $MBRatio_{t-1}$ | 2.2757 | 2.2712 | 0.04 |
| Invest _{t-1} | 0.0352 | 0.0361 | -0.20 |
| Size _{t-1} | 15.4800 | 15.5520 | -0.60 |
| Lever _{t-1} | 0.9609 | 1.0186 | -0.72 |
| CashHold _{t-1} | 0.1665 | 0.1756 | -0.74 |
| Panel B: year 2012 | | | |
| Variable | Treated | Control | t_test |
| | (N=251) | (N=251) | t test |
| ROA_{t-1} | 0.0327 | 0.0307 | 0.30 |
| C-Index _{t-1} | 1.9641 | 1.9203 | 0.49 |
| $CashFlowRight_{t-1}$ | 0.2848 | 0.2769 | 0.41 |
| Deviation _{t-1} | 0.0890 | 0.0957 | -0.52 |
| InsiderOwn _{t-1} | 0.2449 | 0.2504 | -0.46 |
| InstOwn t-1 | 0.0949 | 0.0924 | 0.29 |
| MBRatio _{t-1} | 1.7703 | 1.7918 | -0.23 |
| Invest _{t-1} | 0.0362 | 0.0386 | -0.46 |
| Size _{t-1} | 15.5720 | 15.6720 | -0.78 |
| Lever _{t-1} | 0.9551 | 0.9885 | -0.46 |
| $CashHold_{t-1}$ | 0.1740 | 0.1739 | 0.01 |

| Table A-4 | Balance Tests | of the Matched | Sample from | 2010 to 2012 |
|-----------|---------------|----------------|-------------|--------------|
|-----------|---------------|----------------|-------------|--------------|

a. Variable definitions are specified in Table 1.b. Treated and control groups refer to borrowers and non-borrowers respectively.