

# Do Bad Targets Become Worse Targets? Evidence from Sequential Transfers of Control Blocks

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## Abstract

This study examines whether control block transactions, a dominant form of takeovers in emerging markets, is efficient in a neo-classical sense. Based on a large sample of control block transactions in Korea, we find that a key factor behind a takeover is financial distress in the target, not just for the initial takeover, but also for a series of subsequent takeovers. We also find that new equities are issued by the target during the control transfer process, the proceeds of which are used as capital infusions to the distressed target. Moreover, creditor banks effectively mediate control transfers between outgoing and incoming controlling shareholders, potentially with a lag. Despite this restructuring process, target's financial distress is further exacerbated as control block changes hands, especially multiple times.

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## 1. Introduction

It is fairly well established in the literature by now that the way firms are owned and controlled around the world are quite heterogeneous. Firms in better investor protection environment, e.g. U.S., are likely to be under dispersed ownership, while those that are not are generally under concentrated ownership tightly held by a controlling family (LLS 1999, LLSV 1997, 1998). Such differences in investor protection and ownership structure suggest further implications for the way in which firms are taken over.

In U.S. vast majority of takeovers are implemented through formal mergers, which implies a 100% acquisitions of target shares. Even tender offers, which may initially acquire less than 100%, ultimately end up in a merger, sometimes involving a squeeze out. In contrast, transfers of existing controlling blocks held by the incumbent family are much more common outside U.S. Burkart, Gromb, and Panunzi (1998, 2000) note that buyers under moral hazard would acquire as few shares as necessary to gain effective control, and as such would prefer a negotiated trade of the existing controlling block to a tender offer. Kim (2012) provides an empirical support for this assertion based on a large international sample.

Although there are numerous studies on U.S. type takeovers both in terms of theory and empirics, we still know very little about the economic implications of these non-U.S. type takeovers, or more specifically, control block transfers outside U.S. There are a few interesting characteristics of these control block transfers that make them very unique and distinct from conventional mergers in U.S.

First, controlling blocks generally stay intact even after multiple takeovers. This is in strict contrast to U.S. type takeovers, where the target is merged into the buyer so that any block, if any, do not continue to exist. Such characteristic of U.S. takeovers makes it technically impossible to examine what happens to the target after the takeover simply because it no longer exists. This institutional feature has actually led most studies in U.S. to focus on *pre*-takeover

characteristics of the target. For block transfers, however, the controlling block simply changes hands between old and new controlling shareholders. As such, we are able to track the identity of not only the *first* buyer but also all *subsequent* buyers. This allows us to examine the dynamics of the target firm characteristics as their previous controlling shareholders are sequentially replaced by the new ones multiple times.

Second, since the target firms remain as a separate legal entity, it may well issue new shares and create a new controlling block for the acquirer in the process of control transfers. Since new equity capital injected to the target immediately increases its cash reserves, while transfer of existing secondary shares do not, the choice of types of equities used in control transfers may further shed light on the potential motivation behind these types of takeovers. We typically do not observe new equity issues by the target firm in U.S. precisely because target ceases to exist following the takeover. Note that this new equity issuance by the ‘target’ to the new controlling shareholder in exchange for cash is completely different from - or rather opposite of - the conventional takeovers in U.S. where ‘acquirers’ issue new equity to all target shareholders in exchange for target’s existing shares.

Third, since the targets have a controlling shareholder, which may well be a parent firm within the same business group, takeover decision may not only reflect the target’s own financial and strategic situation, but also the parent’s. For example, controlling stake held in the target by the parent may be sold to a third party as a part of the parent’s decision to divest the subsidiary’s operations or simply to raise cash for the parent. Although this may seem similar to a typical parent-subsidary relationship observed in U.S., they are quite different since U.S. subsidiaries are typically owned 100% by the parent, while our subsidiaries are publicly traded. So, any impact of the decision to sell subsidiaries accrues only to the parent firm’ shareholders in U.S., while it accrues also to the subsidiaries’ shareholders in non-U.S. countries. This makes target shareholders in the latter vulnerable to potential value decreasing

takeovers, since control transfer decisions do not require target shareholders' approval as in mergers.

We take advantage of these three distinct characteristics of control transfers in non U.S. economies to answer the following fundamental research questions. First, we ask which target characteristics may trigger the initial and also subsequent takeovers. Existing studies in international corporate ownership suggests that controlling families in non-U.S. economies tend to enjoy high levels of private benefits (Dyck and Zingales, 2004; Nenova, 2003), so that they would avoid issuing equity and accompanying dilution that would undermine their control influence (Högfeldt and Oborenko, 2005; Cronqvist and Nilsson, 2005). Extending this argument, we expect that controlling families are unwilling to sell their controlling blocks or issue new equity even at a very high premium.

For example, if they enjoy a high level of subjective private benefits, or amenity benefits, e.g. carrying on family names etc., they will rarely sell their controlling block. This assertion is supported in Rossi and Volpin (2004), who report that the volume of M&A in Korean public firms is 4.81%, which is much lower than the world average of 23.54%.

However, when these firms are in (severe) financial distress, creditors and/or the stock exchange may require a sale of the existing block to a third party as a condition for further credit provision or retaining a publicly-traded status. That is, controlling shareholders of distressed firms may be forced to sell their controlling block by their creditors or stock exchange regulators. This implies that if we do observe a control block transfer, the target is likely to be under financial distress. When target firms are subsidiaries of another parent firm, not only the target's, but also the parent's financial distress may well lead to the sale of the target's controlling stake.

This argument also has a prediction for the types of equities transferred in control transactions. If financial distress in the target leads them to be taken over, the new controlling

block may not only consist of the existing shares but also include new equity issued by the target. Even though there is no direct pecuniary benefit to the outgoing controlling shareholder in case of new equity issues, new equity capital injected to the target can nevertheless be directly used to mitigate financial distress, which may be a prerequisite for additional credit provision or maintaining public status. Old controlling shareholders may also indirectly benefit from the new capital if it translates into increases in ultimate firm value. As such, they may actually prefer a massive dilution - in which they end up holding a much smaller stake than before - over liquidation - in which they end up holding nothing.

If new equities are issued to facilitate control transfers, an auxiliary prediction is that control transfers of distressed firms may be mediated through creditors, i.e. financial institutions. Kim, Ko, and Wang (2019) show that roughly 1/3 of new equities issued by public firms in Korea are actually debt-for-equity swaps issued to creditor banks. These creditor banks become the new controlling shareholder of distressed firms until they sell this new controlling block to a 3<sup>rd</sup> party typically through a formal bidding process.

We are ultimately interested in whether these control transfers are value increasing or decreasing. Theoretically, the block may be transferred over to either a more efficient manager, validating the disciplinary role of market for corporate control, or to a one who diverts more than the incumbent. To the best of our knowledge, we are not aware of any previous studies that examine the value implications of multiple control changes of a single target over time.

In this study, we utilize a large sample of control block transactions in Korea to test a series of empirical predictions outlined above. Specifically, we examine whether (1) financial distress leads to the initial as well as subsequent takeovers, (2) new equities are issued by the target during the control transfer process, (3) creditor banks effectively mediate control transfers between outgoing and incoming controlling shareholders, potentially with a lag, and (4) what happens to the value of the target firms as they go through multiple sequential control

transfers over time.

Takeover market in Korea a canonical example of the one considered in Burkart et al. (2000)'s model. Their model assumes firms with more than 50% shares held by dispersed shareholders while the remaining minority stake is held by a leading shareholder. Virtually all public firms in Korea fall into this category. Moreover, in their equilibrium, firms choose a negotiated block trade over a tender offer precisely because the former can be done with smaller shareholding and thus allows more private benefits. Consistent with their prediction, virtually all takeovers in Korea are done through negotiated block transfers, and tender offers, especially the hostile ones, are almost never observed even when they are legally allowed. Since the target continues to remain as a publicly traded entity even after the control transfer, we can examine their post-takeover characteristics, including any occurrences of subsequent takeovers by new buyers.

Traditionally, the Korean government played an important role in allocating resources across the whole economy, but its direct influence on the corporate sector has largely been mitigated since 1997 Asian Financial Crisis and subsequent reforms. However, the government still maintains a strong regulatory influence on the financial sector, through which it can indirectly influence the corporate sector. Since political incentives are more aligned with bailing out larger firms than smaller firms, we also expect to observe relatively more new equity issues and creditor mediated control transfers in larger targets.

Based on a large sample of control block transactions in Korea, we examine whether control block transactions, a dominant form of takeovers in emerging markets, is effectively relieving financial distress of the target. We first find that financial distress in the target indeed triggers not only the initial takeover, but also a series of subsequent takeovers.

In this process, new equities are typically issued by the target and the proceeds are used as capital infusions to the distressed target. This is very different from U.S. acquirers issuing

equity as a means of payment to the target shareholders.

In addition, creditor banks play an important role as a mediator of this process. Specifically, they become new controlling shareholders by exchanging debt for equity of a distressed target, and subsequently sell their controlling block to a 3<sup>rd</sup> party.

Unfortunately, these controlling block transactions are unsuccessful in relieving the financial distress of the target, even after a series of multiple transfers. Overall, these findings suggest that control block transfers in Korea are initiated by the target's financial distress to relieve that situation, but despite all efforts such as new equity issues including debt equity swaps, distress is seldom relieved.

The remainder of the paper is organized as follows. Section 2 describes the data and the sample. Section 3 presents the main empirical analysis. Section 4 reports post-takeover dynamics in financial distress. Section 5 provides a brief conclusion.

## **2. Data and Variables**

### **2.1. Data**

We manually assemble our control transfer data from KIND, a web-based disclosure platform maintained by the Korea Exchange (KIND). Specifically, we identify all disclosures of changes in the largest shareholders from 2004 to 2017. Panel A of Table 1 summarizes the sample selection procedure, where we apply various filters to assemble our final sample.

We first drop financial targets, whose takeover procedures are highly regulated. We also exclude control transfers between related parties which reflect non-arm's length transactions. Such takeovers mainly triggered by either inheritance within the controlling family or business group-level reorganization into a holding company structure. If the new shareholder is not an individual, we refer to its ultimate controlling shareholder to verify the

nature of the transaction.

Our definition of a takeover refers to a control transfer from a non-financial entity to another non-financial entity. As such, whenever a financial institution becomes the new largest shareholder, we do not count this as an independent observation, but rather wait until a non-financial entity becomes the new largest shareholder. This implies that a series of two transactions, - from a non-financial to a financial, and then from a financial to a non-financial – is counted as one takeover in our sample. We refer to these types of control transfers as “indirect-type” to distinguish them from the “direct-type”, where control transfer occurs between a non-financial and another non-financial, directly. In “indirect-types”, target characteristics are measured as of the first control transfer between a non-financial and a financial, since we are interested in characteristics that triggers being targeted. For those cases where the first control transfer between a non-financial and a financial occurs prior to our sample period, we extend our sample and identify the previous controlling shareholder and located the characteristics of the target as of then.

In addition, we exclude control changes that occur due to unilateral declines in the equity stakes of the previous largest shareholder, precisely because the new largest shareholder did not have an active intention to acquire control. We also exclude the cases where control block transactions are withdrawn after the initial disclosure, as well as miscellaneous cases such as SPAC listings where actual control remains unchanged.

Following Mitchell and Lehn (1990), we also exclude cases in which the value of the acquired stock is less than 5% of the market value. Cases where the new largest shareholder’s ownership is less than 5% are also excluded since acquired ownership is not large enough to reflect effective control. Finally, we exclude deals with less than 1 billion KRW, roughly 1 million USD, to rule out the effect of very small takeovers. The takeover size is calculated by multiplying the stock price at the reporting date and the increases in the number of shares held



by the new controlling shareholder.

Panel B reports the number of times the target was acquired during the sample period. Since most targets remain listed even after the acquisition, it is possible to observe the changes in control over time. Panel B of Table 1 indicates that almost half of the targets experience at least two control changes during the sample period. This is strictly different from U.S. where most takeover targets are merged in to the acquiring firm so that they no longer exist.

<Table 1>

Since the target remains as a separately traded entity, it may well issue new stocks to the acquirer in a private placement during the control transfer process. To reflect this possibility, we classify all our takeovers in to two types; namely, New-type and Old-type. New-type refers to the cases where new shares are privately issued by the target, which effectively creates a new controlling block, for which acquirers pay cash to obtain and become the new largest shareholder. Old-type refers to the transfer of existing control block held by the old largest shareholder to the new largest shareholder. In Old-type, secondary or old shares simply changes hands between outgoing controlling shareholder and incoming controlling shareholder.

Previous studies on methods of payments distinguish between cash and stock to be paid to target shareholders in exchange for the *existing* shares. In our sample, these are all classified as Old-type, regardless of the payment method, since new shares if any are issued by the acquirer, not the target. In contrast, New-type acquisitions, where targets issue new shares, have not been examined in previous studies since most U.S. targets disappear subsequent to the acquisition. One of our main contribution is to note that our New-type acquisitions, in which target issues new shares, may be used primarily in takeovers for financially distressed firms, since the proceeds from the new share issues imply a direct capital infusion. The existence of New-type suggests that takeovers and new share issues (in exchange for cash) by the target may occur simultaneously. In New-type takeovers, the old controlling shareholders of the

target typically lose control through massive dilution. In many cases, they do not have much choice but to accept this dilution, which is mandated by the creditor banks. In fact, dilution may turn out to be a better alternative than liquidation, if the target's financial distress is resolved and stock price is ultimately recovered.

Table 2 presents the frequency and the size of the four types (2 x 2) of takeover transactions, respectively. Takeovers are classified into *Direct* and *Indirect* types depending on whether a financial institution mediates the control transfer or not, and as *New* and *Old* types depending on whether the target issues new shares or not. Panel A of Table 2 indicates that New-type accounts for 33.4% in terms of number of takeovers. However, according to Panel B of Table 2, they account for 46.8% of the total takeover activity, in terms of dollar value. This result suggests that New-types are more likely in larger deals and they account for close to half of all takeover dollar volume.

Panel A of Table 2 also indicates that Direct-type, accounts for 87.6% of all takeovers in terms of numbers. But in terms of dollar value, as indicated in Panel B of Table 2, they account for 66.5%. This suggests that Indirect-types, where financial institutions are involved, are larger than direct types between two non-financials.

Among the four types, New, Indirect-types are the largest, whose average (median) size amounts up to 167.6 (18.1) billion KRW. This suggests that larger deals are more likely to involve new share issues by the target, and may also involve financial institutions. The large difference between average and median size also suggests that the distribution is highly skewed.

<Table 2>

Table 3 presents the distribution of ownership of the controlling shareholders before and after the takeover for each year during the sample period. We report the results separately for the New-type and the Old-type. In New (Old) -type control transfers, the incoming or new controlling shareholder's ownership stake is 23.7 (24.2) % of which 1.8 (2.3) % were held even

prior to the control transfer. In both types, the magnitudes of the post-takeover holdings of the new controlling shareholders are largely similar. In fact, the increases in proportional ownership relative to prior holding are 22% points for both types.

On the other hand, there is a larger difference in holdings of the *outgoing* controlling shareholders between New-type and the Old-type. Specifically, the former controlling shareholders of New-type only held 13.2% of shares, while the corresponding number for the Old-type amounts up to 25.8% before the takeover. The decreases in ownership following the control transfers are also considerably different between the two types. The decrease in Old-type amounts up to 20.7%, while the corresponding number for the New-type is only 5.6% points. This suggests that Old-type mostly consists of existing control blocks changing hands from one to another, while decreases in ownership of the old controlling shareholder in New-type is driven by dilution. The lower pre-takeover ownership of the old shareholders in New-type relative to Old-type, roughly half in size, also suggests that old shareholders may have experienced dilution even before the control transfer.

<Table 3>

## 2.2 Variables

Our first research question is which target characteristic triggers takeovers in our sample. More specifically, our key interest is in whether financial distress in the target triggers a takeover. Financial distress refers to a situation where a firm is unable to meet its debt obligations (Wruck, 1990; Gilson, 1989). In particular, Purnanandam (2008) separates financial distress from insolvency and defines the former as follows: “a low cash-flow state in which the firm incurs losses without being insolvent.” Opler and Titman (1994) also make a distinction between financial distress and default in a similar context.

Previous studies mostly resort to some financial indicators or statistical models to

proxy for financial distress. Indicators include interest coverage ratio (Bruyland and Maeseneire, 2016; Andrade and Kaplan, 1998; Bernanke and Gertler, 1995), leverage (Gilson, 1989), net profit (Ang and Nathan, 2011) and continuous deficits (Wu, 2004; Hertz and Smith, 1993). Statistical models for predicting financial distress include Altman's Z-score and Ohlson's O-score.

We resort to a variety of financial distress measures, including three continuous variables (ROA, Lnintcov, Kscore) and three dummy variables (Deficit, Caper, Dintcov). We consider four variables, ROA, Lnintcov, Deficit, and Dintcov, that are related to the firm's profitability. ROA is net income scaled by the book value of total assets. Lnintcov is the log value of interest coverage ratio plus 2, while Deficit is a dummy variable that takes a value of 1 if net income is negative for two consecutive years, or 0 otherwise. Dintcov is a dummy variable with a value of 1 if operating income is less than interest expenses, or 0 otherwise.

We consider another variable, Caper, designed to capture rather extreme levels of financial distress. When losses accumulate so that retained earnings are negative, we may consider the firm to be under severe financial distress. Specifically, we define a firm to be under capital erosion (Caper = 1) when paid-in-capital (book equity - retained earnings) is greater than or equal to book equity.

Finally, we also use Altman, Eom, and Kim (1995)'s K-score, a variant of Altman's Z-score applied to Korea, developed to predict the bankruptcy probability of Korean companies. The lower the index, the higher the risk of corporate insolvency. There are two versions of K-score. Kscore1 uses market value of equity, which may be applied to listed firms. Kscore2 uses book value of equity, which may also be applied to unlisted firms (see appendix for more details). Kscore1 below -2.00 or Kscore2 below -2.30 indicates severe distress potential, while Kscores above 0.75 are interpreted as distress-free for both Kscores.

Other variables that may affect the likelihood of takeover or the method of acquisition

as reported in previous studies are included as control variables. Hasbrouck (1985) uses a logit model to predict takeovers and includes size, q ratio (market to replacement value), liquidity, and leverage. Palepu (1986) uses logit estimates using sales growth, leverage, size, market-to-book ratio, price-earnings ratio, and liquidity. Schwert (2000) includes ROE, sales growth, liquidity, debt-to-equity ratio, market-to-book ratio, price-earnings ratio, and size in probit and regression models. Akhigbe, Martin, and Whyte (2007) provide logit estimates including size, institutional ownership, market-to-book ratio, free cash flow, leverage, performance, and fixed assets as the characteristics of the target. Chung (2015) controls for asset beta, a market-based measure of systematic risk, since bidders may take into consideration targets' sensitivity to business cycles.

The following is a summary of the relationship between various target characteristics that we consider and the likelihood of a takeover as reported in previous research. Target firm size is negatively correlated with takeovers due to transaction costs. Firms with a low market-to-book ratio are more likely to be targeted since they may be perceived to be undervalued. For free cash flow, predictions diverge. Smith and Kim (1994) argue that the higher the free cash flow, the more attractive the target candidate. Alternatively, if high free cash flow reflects excessive private benefits, it may reduce the probability of a successful takeover by increasing the offer premium.

There also seems to be less consensus on the effect of the largest shareholder ownership. Shleifer and Vishny (1986) suggest that a takeover becomes more likely as the proportion of the firm's shares held by the large shareholder rises. They argue that a large shareholder's decision may be pivotal in takeover offers, who may accept takeover offers even for a small increase in firm value. Alternatively, Stulz (1988) argues that an increase in the fraction of voting rights controlled by management decreases the probability of a successful tender offer. These seemingly inconsistent predictions may be reconciled by noting that

Shleifer and Vishny (1986)'s large shareholders are mostly outside institutional investors as in U.S. firms, while those envisioned in Stulz (1988) are mostly controlling families in non-U.S. firms.

Firms with a high tangible asset ratio may be attractive targets because they provide additional production capacity to the bidders. Clyde (1997) shows that acquisition is used more like a disciplinary mechanism under institutional ownership. Faleye (2004) shows that firms with excess cash are less likely to be a target of a takeover since they have the ability to defend themselves against an unwanted bid. Chung (2015) finds that during economic downturns (expansions), firms whose asset betas are relatively smaller (larger) are more likely to become a target. Lastly, we also include age as a proxy for a firm's information asymmetry.

### **3. Empirical Analysis**

#### **3.1 Descriptive Statistics**

We first report the summary statistics of the target characteristics by the types of takeovers. Panel A of Table 4 indicates that average values of distress dummies, namely Deficit, Caper, and Dintcov are all greater than 0.5. This suggests that more than half of the targets in our sample are in financial distress.

We also report the corresponding characteristics for non-targeted firm-years, taken from listed companies that have never been a target during the sample period. The univariate comparison indicates that targets are more likely to be in financial distress than non-targets. Targets have negative profitability (ROA) on average, and their average Kscore1 is way below  $-2.00$ , while non-targets have positive profitability and their average Kscore1 is way above  $0.75$ .

In addition, leverage, cash holdings, and asset betas are all significantly higher than

those of the non-targets. Targets exhibit lower age, size, sales growth, largest shareholder ownership, foreign ownership, free cash flows, and tangible assets over total assets than non-targets. These are generally consistent with expectations based on the previous research, except for market-to-book ratio.

We also note that there are substantial differences in characteristics across different types of takeovers. For example, the average financial distress of the New-type is greater than the Old-type. Specifically, Deficit, Caper, and Dintcov of the New-type takeovers are 0.73, 0.83, and 0.85, respectively, which means that 70%-80% of the targets are in financial distress. On the other hand, 40%-60% of Old-type targets are in financial distress.

In Panel B of Table 4, we report the target characteristics based on how many times the target has been taken over. For example, the first column with column heading '0' reflects non-targets, while the last column with column heading '4 or more' reflects targets that have been taken over at least 4 times. We measure the target characteristics for each column immediately before the last takeover within each column. For example, characteristics for column '3' are measured immediately before the 3<sup>rd</sup> takeover.

We first confirm that almost 50% of takeover targets are acquired more than once as was reported in Table 1. Our key interest is whether financial distress in the target is mitigated through multiple takeovers. The results from Panel B of Table 4 indicates that to the contrary, financial distress of target is exacerbated as the order of the takeover increases. As the order of the takeover increases, ROA and Kscore1 monotonically decrease, while Deficit, Caper and Dintcov monotonically increase.

<Table 4>

One of our research question is whether distress in the parent firm may be driving the sale of a subsidiary. We report the composition of the sellers and their characteristics in Table

5. We classify all sellers into three types; firms that are subject to mandatory disclosures or otherwise known as externally audited firms, firms that are not subject to disclosures, and individuals.<sup>1</sup>

For firms that are subject to mandatory disclosures, 369 cases, we are able to locate their financial information, even for private firms. We then filter out the firms in the financial industry or those with less than 10% ownership before the sale. Those firms with missing financial information are also dropped. This process yields 242 non-financial sellers with valid financial data.

Panel B reports the characteristics of the sellers as well as those for a comparison group of non-sellers. Non-sellers are non-financial parent firms of listed firms with at least 10% ownership which have not sold the shares in their subsidiary during the sample period.

We find that sellers are more financially distressed than non-sellers. Specifically, the sellers have negative values of ROA and Kscore2. 32% of them are in two consecutive years of deficits, 44% are in capital erosion, and 56% cannot cover interest costs with their operating income. On the other hand, the average ROA and Kscore2 of the non-sellers are both positive, and the level of financial distress proxied by other indicators is significantly lower than that of the sellers. The sellers have higher leverage and cash holdings and lower free cash flows and tangibility than the non-sellers. These results suggest that financial distress in the parent firm may also be a factor behind sale of a subsidiary.

<Table 5>

### 3.2 Determinants of Being Taken Over Multiple Times

In this section, we examine the factors that may affect the frequency of being a target. Our key specification is ordered logit where target's distress is one of the factors. The dependent

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<sup>1</sup> We were not able to identify the type of seller for 11 cases, which is less than 1% of the total sample.



variable is the number of times (never, first, second, third, fourth or more, in sequential order) of being targeted, which is the definition of “Order” in Panel B of Table 4. Explanatory variables include proxies for financial distress as well as variables known to affect the likelihood of being a target introduced in Section 2.2. One-unit increase in an explanatory variable would result in a change of log-odds of being targeted a higher number of times by its coefficient size, holding other variables constant.

Since financial distress variables are highly correlated among themselves, we include them one at a time in separate specifications. We also include 2-digit industry fixed effects to control for industry unobserved heterogeneity, and year fixed effects to control for unobserved time effects. We also employ standard errors clustered at 2-digit industry level to address concerns over potential biases from correlated residuals within an industry.

<Table 6>

Table 6 report the results of the ordered logit regressions. We find that financial distress is an important factor that affects the likelihood and the frequency of being a target even after controlling for other variables. More importantly, the number of times that a firm is targeted increases as financial distress becomes more severe. Specifically, lower ROA, and Kscore1 would result in an increase in the ordered log-odds of being targeted a higher number of times. Also, distressed firms (Deficit = 1, Caper = 1, or Dintcov = 1) are more likely to be targeted more often than non-distressed firms.

The results for other control variables are largely consistent with those reported in the previous literature. Firms whose asset betas are larger are more likely to be targeted, implying that bidders prefer targets whose value fluctuate more during business cycles. In addition, smaller companies are more likely to be targeted, which is consistent with previous studies. Higher leverage also would result in being targeted a higher number of times. A low ownership

share by the largest shareholder tends to increase the number of times being a target, which is consistent with Stultz (1988)'s argument that incumbent shareholders' pursuit of private benefits makes them avoid being targeted.

Overall, these results suggest that companies with severe financial distress face frequent changes in corporate control. They also imply that financial distress is not resolved, but rather exacerbated through multiple takeovers.

### 3.3 Determinants of Takeover Types

In this section, we implement multinomial logit analysis to explore whether financial distress affects the types of takeovers. The firms that have never been a target during the sample period are the baseline group against New-type targets and Old-type targets. The explanatory variables are the same as in the ordered logit model in the previous section. We also include 2-digit industry fixed effects and year fixed effects, and use industry clustered standard errors as in Table 6.

<Table 7>

Table 7 reports the estimates of multinomial regressions. Since non-target firms are used as the baseline, the coefficients can be interpreted as the impact on the probability of a firm being selected for a specific type of takeover relative to no takeover. As financial distress becomes more severe, the probability of both types of takeover tends to increase. However, the magnitude of the coefficient is greater in New-type than in Old-type. This indicates that firms with severe financial distress tend to be acquired more through New-type than Old-type. We conduct an additional chi-square test to examine whether the coefficients are significantly different between the two types. The results reported in the last two rows of Table 7 indicate that the two coefficients are significantly different, except for  $L_{\text{intcov}}$ . More specifically, the

coefficient of ROA and Kscore1 are significantly different at 95% confidence level, and Deficit, Caper, and Dintcov are significantly different at 99% levels. This implies that severe financial distress weakens the bargaining power of the incumbent shareholders, who may be obliged to accept dilution incurred by new share issues to the incoming controlling shareholder. Note that New-type takeover is generally less advantageous to incumbent shareholders than Old-type since there is no sale of the existing control block in the former so that they are not paid for the control transfer.

Among the remaining variables, the size of the potential targets affects both types of takeovers, while smaller firms are more likely to be acquired through Old-type. Although the largest shareholder's ownership of a firm also affects both types, firms with lower ownership tend to be acquired through New-type, which is consistent with the univariate result reported in Table 3. Interestingly, the proportion of property, plants and equipment contributes mainly to the possibility of an Old-type takeover. That is, the higher the proportion of property, plants and equipment, the greater the negotiating power of incumbent shareholders, which allows them to sell their existing control block.

### 3.4 Determinants of Being a Seller

In this section, we identify the factors that affect the probability of a subsidiary being sold. We are especially interested in whether the seller's own financial distress significantly affects the probability of a takeover. This analysis is limited to the sellers whose financial information is available through mandatory disclosures. Financial firms and firms with less than 10% ownership are also excluded.

The dependent variable is a dummy variable with a value of one if the firm is a seller or zero if a non-seller as defined in the previous subsection. Explanatory variables include the parent's financial distress, size, leverage, cash holdings, age, sales growth, free cash flow, and

tangible asset ratio. In this analysis, we use Kscore2, which can be applied not only to listed companies but also to unlisted companies since some parents are unlisted. The remaining financial distress measures other than Kscore are the same as in the previous analyses, but they indicate the financial distress of the incumbent parent, not that of the target itself (subsidiary being sold). We also include 2-digit industry fixed effects and year fixed effects, and use industry clustered standard errors as in the previous tables.

<Table 8>

Table 8 presents the results of the logit analysis. In general, the greater the financial distress of incumbent parent, the more likely the subsidiary is sold. Specifically, the coefficients of continuous variables among financial distress proxies are all negative, meaning that parent's own financial distress leads to the sale of a subsidiary. However, the effect of Lnintcov and Kscore2 on the probability of being a seller is not statistically significant, although the coefficient of ROA is significant. The coefficients of dummy variables among financial distress proxies are all positive and statistically significant. Overall, these results suggest that parent firms fail to maintain control due to their own financial distress, resulting in the transfer of control of the subsidiary.

#### **4. Estimates of Takeovers' Effect on Financial Performance**

We next estimate how financial distress may change after being taken over, controlling for other potentially relevant factors in Panel A of Table 9. One possibility behind multiple takeovers of distressed targets is that those which recover from the distress are no longer taken over. To examine this possibility, we separate targets into those that have been targeted only once and multiple times. Among the latter, we further separate them into the last takeover and earlier takeover(s) (Panel B of Table 9). In addition, we separate targets into two groups based

on the ownership level of the new controlling shareholder to examine whether larger ownership contributes to better financial performance. (Panel C of Table 9)

We estimate equations predicting financial distress similar to those used in Erel, Chang, and Weisbach (2015). Specifically, we estimate the following specification:

$$\text{Distress} = \alpha + b\text{After} + c\text{Controls} + e$$

where *AFTER* is a dummy variable that takes a value of one after the takeover. The dependent variables are financial distress proxies such as Roa, Lnintcov, and Kscores. Control variables are the same as the ordered logit model in the previous section. We also include 2-digit Industry fixed effects and year fixed effects, and use industry clustered standard errors. For discrete dependent variables such as Deficit, Caper, and Dintcov, we report the result from corresponding logit models. We assemble a dataset of five years around takeover and exclude the firm-year observations of the takeover year.

<Table 9>

The results from Panel A of Table 9 indicates that financial distress tends to increase following a takeover. The coefficients of AFTER are all significantly negative when the dependent variable is a continuous variable among financial distress proxies, and they are all significantly positive when the dependent variable is a dummy variable, except Dintcov. These results are in strict contrast to the findings in Erel et al (2015) who report that acquisitions relieve financial frictions of target firms in a way that improves the financial efficiency of the acquired subsidiary.

In Panels B and C of Table 9, we only report the coefficients for AFTER for brevity. The results from Panel B of Table 9 indicates that single targets and last targets experience less financial distress compared to earlier targets. These results suggest that sequential takeovers

may stop once the target recovers from financial distress.

The results from Panel C of Table 9 indicate that distress following a takeover is a bit more severe when the new controlling shareholder's ownership is low. This suggests that post-takeover financial performance may be affected by the degree of agency problem of the new controlling shareholder. This result is also consistent with Byun, Kim, Lee, and Park (2019) who report that post-takeover probability in Korean firms is higher when the size of the acquired control block is small.

To further test the causal effect of takeover on financial distress, we construct matched sample of non-targets among firms that have similar characteristics as the targets but have not been acquired during the sample period. Specifically, we use propensity score matching to select a control firm which has similar characteristics as the target at the year before the takeover. Matching is performed in two stages. First, we construct a logit model using variables that represent a firm's characteristics to obtain a propensity score. The probability of becoming a target is calculated for all companies regardless of whether it is an actual target. The next step is to divide all firms into targets and non-targets (or sellers and non-sellers), and then find and match the target and non-target pair with the closest propensity score. Matching is carried out by industry so that two firms in the matched pair are in the same industry. In addition, a Caliper method that places an upper limit on the propensity score distance was used to improve the quality of matching.

We use the following variables of the year before takeover to produce a propensity score: firm size, sales growth rate (growth opportunity), leverage (capital structure), age (information asymmetry), and cash holdings (liquidity). We match firms using propensity score in the same industry (KSIC 2-digit) with Caliper=0.05 without replacement. All targets in the sample are publicly traded, and their matched controls are also publicly traded. <Appendix 2> shows the results of a balance test to verify that the matching of target and non-target (or seller

and non-seller) was successful. Once we create a matched sample, the following equation is used to estimate difference-in-differences.

$$Y_{i,t} = \alpha + \beta_1 Target_{i,t}(Seller_{i,t}) + \beta_2 After_t + \beta_3 Target_{i,t}(Seller_{i,t}) * After_t + \gamma Controls_{i,t} + FE + \varepsilon_{i,t}$$

where *Target (Seller)* is a dummy variable with the value of 1 if the firm is a target (Seller). *AFTER* is a dummy variable that takes a value of one after the takeover. The dependent variables are financial distress proxies such as *Roa*, *Lntcov*, and *Kscores*. Control variables are the same as in the ordered logit model in the previous section. We also include 2-digit industry fixed effects and year fixed effects, and use industry clustered standard errors. We assemble a dataset of five years around takeover and exclude the firm-year observations of the takeover year.

<Table 10>

The results from Panel A of Table 10 indicate that financial performance generally deteriorates following a takeover in a difference-in-difference framework. Specifically, when the dependent variable is a continuous variable of financial distress proxies, the coefficients of *Target\*After* are all significantly negative, and when the dependent variable is a dummy variable, the coefficients of *Target\*After* are all significantly positive except for *Dintcov*. Again, these results are inconsistent with the findings of Erel, Jang, and Weisbach (2015) that acquisitions relieve financial frictions of target firms.

The results from Panel B of Table 10, on the other hands, indicates that financial performance of the seller do not change much following the sale of the subsidiary. This suggests that sale of a subsidiary is not particularly helpful nor detrimental to parents in financial distress.

## 5. Discussions

In this section, we further examine whether the size of the distressed target may affect the type of takeovers. It is well understood that a typical ‘too big to fail’ argument predicts potential bailout of distressed targets if they are large enough. In Korea, financial regulators may work closely with the government when a large firm enters financial distress for various political and social reasons. If so, we would expect a New, Indirect type, where new shares are issued to recapitalize the target and financial institutions play a crucial role, to occur more for large targets.

To test this conjecture, we implement a multinomial logit analysis. Specifically, we classify all takeovers in our sample into four types: Old-Direct (OD), Old-Indirect (OI), New-Direct (ND), and New-Indirect (NI) type. The targets of Old-Direct (OD) type takeovers are the base-line group. The explanatory variables are the same as in the ordered logit model in the previous section. We also include 2-digit Industry fixed effects and year fixed effects, and use industry clustered standard errors.

<Table 11>

Table 11 reports the estimates of multinomial regressions. Since OD-type targets are used as the baseline, the coefficients can be interpreted as the impact on the probability of being selected for a specific type of takeover relative to OD-type. Our focus is on the interaction term between financial distress variables and size. The coefficients of the interaction term for NI-type are statistically significant in three specifications. And the signs of the coefficients indicate that large firms with severe financial distress tend to be acquired through New and Indirect type. In New-type takeover, the acquirer injects new cash into the target firm which will become its partial subsidiary instead of paying to the shareholders of the target. Also, in many cases of Indirect-type takeovers, the creditor banks of the target may remain as the largest



shareholder for the time being when potential non-financial bidder does not arise. Large firms tend not to be liquidated due to concerns about the potential externalities including adverse impact on employment and suppliers. And NI type may be used as a potential bailout program for these large firms under severe financial distress.

## **6. Conclusions**

Despite extant literature on U.S. type takeovers or mergers to be specific, there have been very few studies on takeovers implemented through transfer of control between controlling shareholders. In this study, we examine a comprehensive sample of control transfers in Korea to examine the potential determinants and consequences of these control transfers.

Our first finding is that one of the most important determinant of a takeover in Korea is financial distress in the target. Firms in distress are targeted not only once, but repeatedly targeted multiple times by different acquirers at different times, sequentially. Our findings suggest that takeovers rarely occur in normal circumstances. This is presumably due to the high private benefits enjoyed by the controlling shareholders Korea who make every effort to retain their controlling stake and remain in control. But if a firm falls into financial trouble, its accompanying private benefits may shrink, and only then it may become a potential target.

At the same time, the target firm needs outside capital to resolve its financial distress. This is the reason that the New-type takeover is widely used as a solution in companies with severe financial distress. Sometimes, parent firms sell their subsidiaries since the parents themselves are in distress. Thus, the financial distress of a target or a seller can be a motive for a takeover.

Unfortunately, takeovers motivated by financial distress are not much successful in mitigating financial distress. Rather, financial performance seems to deteriorate following a

takeover. This may reflect bidders' empire building motivations rather than value maximization.

The contributions of this study can be summarized as follows: First, we suggest that financial distress of a target or its controlling shareholders is an important motive for corporate takeovers in Korea. We believe such motivation may be important in other emerging markets where ownership is concentrated and private benefits are high. Second, we introduce the New-type takeover where a transfer of control and capital raising occur simultaneously. This suggests that an important channel of equity issues in Korea is by distressed targets in takeovers and these two phenomenon cannot be analyzed independently. Finally, we question the validity of market for corporate control as a governance mechanism, since our takeovers are not successful but rather exacerbate financial distress.

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<Appendix 1> Definition of the Variables

| Name                       | Descriptions  |
|----------------------------|---|
| <i>Dependent variables</i> |   |
| Target                     | A dummy variable with a value of 1 if the firm is a target, and 0 otherwise   |
| Type                       | A variable with a value of 1 if the firm is a target of a New-type takeover, 2 if it is that of an Old-type takeover, and 3 if it is not a target   |
| <i>Distress variables</i>  |   |
| ROA                        | Net income scaled by the book value of total assets   |
| Lnintcov                   | Log value of 2 plus operating income divided by interest expense  |
|                            | Altman et al (1995) introduced the following model to predict the probability of bankruptcy in the Korean companies:  |
|                            | $Kscore1 = -17.862 + 1.472*(X1) + 3.041*(X2) + 14.839*(X3) + 1.516*(X4)$  |
|                            | $Kscore2 = -18.696 + 1.501*(X1) + 2.706(X2) + 19.760 (X3) + 1.146 (X4')$  |
| Kscore                     | X1: log(Total assets)<br>X2: log(Sales/Total assets)<br>X3: Retained earnings/Total assets<br>X4(KS2): Market value of equity/Total liabilities<br>X4'(KS2): Book value of equity/ Total liabilities                              |
| Deficit                    | A dummy variable with a value of 1 if net income is negative for two consecutive years, or 0 otherwise  |
| Caper                      | A dummy variable with a 1 if capital erosion occurs, or 0 otherwise. Capital erosion is considered to occur when the paid-in-capital (the total book equity-retained earnings) is greater than or equal to the total book equity. |
| Dintcov                    | A dummy variable with an value of 1 if operating income is less than interest expense or 0 otherwise  |
| <i>Control variables</i>   |   |
| Assetbeta                  | Unlevered beta, Estimated value using three-year average stock beta and Hamada equation   |
| Size                       | Log of total assets   |
| Lev                        | Total liabilities/Total assets  |
| Cash                       | Cash and cash equivalents/Total assets  |
| Age                        | Number of years from the established year   |
| Sgr                        | Sales growth rate   |
| Lown                       | The largest shareholder ownership   |
| Fown                       | The foreign investor ownership  |
| Mtb                        | Market value of equity/Book value of equity   |
| Fcf                        | Operating cash flow/Total assets  |
| Tang                       | Tangible assets/Total assets  |



<Appendix 2> Balance Tests

This table determines whether the observed characteristics are significantly different between the treated group and the control group used in Table 10. Propensity score matching is used to construct a control group similar to that of acquirer and target based on the year before the takeover. We use the observed characteristics from the previous year to calculate a propensity score such as firm size (log of total assets), sales growth rate (growth opportunity), leverage (capital structure), and cash holdings (liquidity), and match firms in the same industry(KSIC 2-digit) with Caliper=0.05 without replacement. If the acquirer is a publicly traded firm, it has performed matching with the publicly traded firm. Inversely, if the acquirer is a privately held firm, it has performed matching with the privately held firm. On the other hand, all targets in the sample are publicly traded, and their matched controls are also publicly traded. Panel A compares the characteristics of non-acquirers and acquirers after matching. Panel B compares the characteristics of non-targets and targets after matching.

| Panel A. Target and non-target controls |                     |                         |       |         |         |
|---|---------------------|-------------------------|-------|---------|---------|
|   | Target<br>(N=1,098) | Non-target<br>(N=1,098) | Diff  | t Value | Pr >  t |
| Size                                    | 17.77               | 17.72                   | 0.05  | -0.97   | 0.33    |
| Sales growth                            | 13.09               | 14.45                   | -1.36 | 0.50    | 0.62    |
| Leverage                                | 0.54                | 0.53                    | 0.00  | -0.14   | 0.89    |
| Age                                     | 21.91               | 21.70                   | 0.21  | -0.38   | 0.70    |
| Cash                                    | 0.09                | 0.09                    | 0.00  | -0.01   | 0.99    |
| Panel B. Seller and non-seller controls |                     |                         |       |         |         |
|   | Seller<br>(N=234)   | Non-seller<br>(N=234)   | Diff  | t Value | Pr >  t |
| Size                                    | 18.40               | 18.38                   | 0.03  | -0.19   | 0.85    |
| Sales growth                            | 0.27                | 0.44                    | -0.17 | 0.62    | 0.54    |
| Leverage                                | 0.54                | 0.52                    | 0.02  | -0.58   | 0.56    |
| Age                                     | 23.18               | 23.59                   | -0.41 | 0.27    | 0.78    |
| Cash                                    | 0.06                | 0.06                    | 0.00  | -0.17   | 0.87    |

<Table 1> Sample Selection Procedure

This table describes the sample selection procedure of control transfers of firms listed on Korea Exchange (KRX), including both KOSPI market and KOSDAQ market, between October 2004 and December 2017. We start from all disclosures of changes in the largest shareholder. Panel A outlines filters applied and the number of observations excluded at each stage. The size or amount of takeover is calculated by multiplying the stock price at the reporting date and incremental number of shares held by the new controlling shareholder. Panel B presents the distribution of the frequency of being targeted and the unique number of firms that correspond to each frequency.

| Panel A. Takeover Sample   |  |       |
|--|--|-------|
| Total disclosures of changes in the largest shareholder  |  | 4,029 |
| (1) Target is a financial firm   |  | 113   |
| (2) Deals between related parties  |  | 1,038 |
| (3) Deals between financial firms in Indirect-type takeovers   |  | 449   |
| (4) Previous controlling shareholders unilaterally reduce their shares   |  | 209   |
| (5) In case the contract is canceled after disclosure, financial statements are missing and miscellaneous such as SPAC listing |  | 252   |
| (6) If the amount purchased is less than 5% of market value  |  | 491   |
| (7) If the ownership of controlling shareholder after the takeover is less than 5%   |  | 60    |
| (8) If the amount purchased is less than 1 billion KRW   |  | 75    |
| Final sample   |  | 1,342 |

  

| Panel B. Frequency of Takeovers |                 |         |
|---------------------------------|-----------------|---------|
|                                 | Number of firms | (%)     |
| 1 time                          | 398             | (54.5)  |
| 2 times                         | 168             | (23.0)  |
| 3 times                         | 86              | (11.8)  |
| 4 times                         | 48              | ( 6.6)  |
| 5 times                         | 22              | ( 3.0)  |
| 6 times                         | 8               | ( 1.1)  |
| Total                           | 730             | (100.0) |

<Table 2> Different Types of Takeovers

This table presents the distribution of takeovers by four types (2 x 2). New-type refers to control transfers where new shares are issued by the target to form a new controlling block to be held by the acquirer. Old-type refers to transfers of existing control block of shares. Direct-type refers to transfers between two non-financial firms. Indirect-type refers to cases where a financial institution is involved as (temporary) largest shareholder between outgoing and incoming largest shareholders. Control transfer from a non-financial to a financial is not counted as a separate takeover. Panel A reports the numbers and Panel B reports the dollar amount by each type. Panel C reports the average and median dollar amounts for each type.

| Panel A. Frequency of Takeovers by Type |        |        |          |        |       |         |
|---|--------|--------|----------|--------|-------|---------|
|   | Direct |        | Indirect |        | Sum   |         |
|   | N      | (%)    | N        | (%)    | N     | (%)     |
| New                                     | 368    | (27.4) | 80       | (6.0)  | 448   | (33.4)  |
| Old                                     | 808    | (60.2) | 86       | (6.4)  | 894   | (66.6)  |
| Sum                                     | 1,176  | (87.6) | 166      | (12.4) | 1,342 | (100.0) |

  

| Panel B. Total Amounts of Takeovers (Units: KRW billions, %) by Type |        |        |          |        |        |         |
|--|--------|--------|----------|--------|--------|---------|
|  | Direct |        | Indirect |        | Sum    |         |
|  | New    | 13,191 | (23.2)   | 13,408 | (23.6) | 26,599  |
| Old  | 24,585 | (43.3) | 5,593    | (9.9)  | 30,177 | (53.2)  |
| Sum  | 37,776 | (66.5) | 19,000   | (33.5) | 56,776 | (100.0) |

  

| Panel C. Average [Median] Amounts (Unit: KRW billions) by Type |        |       |          |        |        |       |
|--|--------|-------|----------|--------|--------|-------|
|  | Direct |       | Indirect |        | All    |       |
|  | New    | 35.8  | [6.1]    | 167.6  | [18.1] | 59.4  |
| Old  | 30.4   | [7.4] | 65.0     | [11.7] | 33.8   | [7.5] |
| Sum  | 32.1   | [6.9] | 114.5    | [12.5] | 42.3   | [7.3] |

<Table 3> Ownership of Controlling Shareholder before and after Control Changes

This table shows the number of takeover deals between 2004 and 2017 and the average ownership of the former controlling shareholders and the new controlling shareholders before and after the takeover.

| Year | Num. of deals |          |          | Ownership(%)    |       |      |                 |       |      |                 |       |       |                 |       |      |
|------|---------------|----------|----------|-----------------|-------|------|-----------------|-------|------|-----------------|-------|-------|-----------------|-------|------|
|      | Sum           | New-type | Old-type | New-type        |       |      |                 |       |      | Old-type        |       |       |                 |       |      |
|      |               |          |          | Old-shareholder |       |      | New-shareholder |       |      | Old-shareholder |       |       | New-shareholder |       |      |
|      |               |          |          | Before          | After | Diff | Before          | After | Diff | Before          | After | Diff  | Before          | After | Diff |
| 2004 | 19            | 7        | 12       | 8.0             | 1.7   | -6.3 | 0.1             | 35.3  | 35.2 | 32.5            | 3.1   | -29.4 | 1.2             | 38.2  | 37.0 |
| 2005 | 94            | 26       | 68       | 12.8            | 6.2   | -6.6 | 2.7             | 22.0  | 19.4 | 26.8            | 7.4   | -19.5 | 1.6             | 24.9  | 23.2 |
| 2006 | 131           | 28       | 103      | 12.7            | 9.1   | -3.6 | 1.2             | 20.2  | 19.0 | 25.8            | 6.4   | -19.4 | 3.0             | 23.4  | 20.5 |
| 2007 | 210           | 60       | 150      | 12.7            | 7.0   | -5.8 | 1.7             | 21.1  | 19.4 | 23.5            | 4.2   | -19.2 | 2.1             | 20.9  | 18.8 |
| 2008 | 202           | 59       | 143      | 12.0            | 6.9   | -5.1 | 1.3             | 22.4  | 21.1 | 22.0            | 4.7   | -17.3 | 2.4             | 22.2  | 19.9 |
| 2009 | 137           | 54       | 83       | 12.4            | 7.4   | -5.0 | 1.6             | 26.0  | 24.4 | 23.3            | 4.3   | -18.9 | 3.4             | 25.7  | 22.3 |
| 2010 | 98            | 30       | 68       | 13.1            | 8.1   | -5.0 | 1.5             | 24.5  | 23.0 | 26.6            | 5.9   | -20.7 | 2.3             | 27.4  | 25.1 |
| 2011 | 48            | 13       | 35       | 16.6            | 13.0  | -3.6 | 3.8             | 34.8  | 31.0 | 30.4            | 7.2   | -23.2 | 3.6             | 25.3  | 21.8 |
| 2012 | 66            | 26       | 40       | 13.3            | 8.0   | -5.3 | 2.3             | 27.8  | 25.5 | 30.0            | 6.2   | -23.9 | 2.9             | 27.3  | 24.4 |
| 2013 | 43            | 17       | 26       | 19.0            | 9.3   | -9.7 | 1.5             | 28.7  | 27.2 | 25.7            | 4.7   | -21.1 | 1.4             | 23.8  | 22.3 |
| 2014 | 52            | 19       | 33       | 14.1            | 7.3   | -6.8 | 2.9             | 25.5  | 22.5 | 34.5            | 4.1   | -30.4 | 2.2             | 33.1  | 30.8 |
| 2015 | 79            | 35       | 44       | 15.9            | 7.7   | -8.2 | 2.8             | 26.0  | 23.2 | 29.9            | 4.5   | -25.4 | 0.9             | 27.0  | 26.1 |
| 2016 | 93            | 37       | 56       | 12.0            | 7.0   | -5.0 | 1.7             | 21.2  | 19.5 | 25.0            | 4.5   | -20.5 | 1.3             | 19.2  | 17.9 |
| 2017 | 78            | 29       | 49       | 12.3            | 8.2   | -4.0 | 0.9             | 18.6  | 17.7 | 29.4            | 3.8   | -25.5 | 1.4             | 25.2  | 23.8 |
| Sum  | 1,338         | 428      | 910      | 13.2            | 7.6   | -5.6 | 1.8             | 23.7  | 22.0 | 25.8            | 5.1   | -20.7 | 2.3             | 24.2  | 22.0 |

<Table 4> Summary Statistics for Targets

This table presents the summary statistics of takeover targets. Panel A shows the averages of the main variables for both target firms and non-targeted firms. Panel B shows the target firm characteristics by the order of takeover transactions. Variables are lagged by one year in both panels. Detailed definitions of all variables are presented in <Appendix 1>. \*\*\*, \*\* and \* denote statistical significance at the 1%, 5% and 10% levels, respectively.

| Panel A. Summary Statistics of Targets by Different Types |        |            |            |  |        |       |            |  |        |          |           |
|---|--------|------------|------------|--|--------|-------|------------|--|--------|----------|-----------|
|   | Target | Non-target | Diff       |  | New    | Old   | Diff       |  | Direct | Indirect | Diff      |
| N   | 1,342  | 35,550     |            |  | 467    | 916   |            |  | 1,176  | 166      |           |
| Roa   | -0.24  | 0.01       | -0.24 ***  |  | -0.40  | -0.17 | -0.24 ***  |  | -0.23  | -0.26    | 0.02      |
| Lnintcov  | 1.72   | 2.25       | -0.52 ***  |  | 0.94   | 2.03  | -1.09 ***  |  | 1.80   | 1.27     | 0.53 **   |
| Kscore1   | -4.30  | 5.07       | -9.37 ***  |  | -11.97 | -0.96 | -11.01 *** |  | -4.21  | -4.97    | 0.77      |
| Deficit   | 0.51   | 0.14       | 0.37 ***   |  | 0.73   | 0.42  | 0.31 ***   |  | 0.51   | 0.52     | 0.00      |
| Caper   | 0.60   | 0.21       | 0.39 ***   |  | 0.83   | 0.50  | 0.33 ***   |  | 0.59   | 0.67     | -0.08 **  |
| Dintcov   | 0.71   | 0.30       | 0.41 ***   |  | 0.85   | 0.64  | 0.21 ***   |  | 0.71   | 0.69     | 0.01      |
| Size  | 17.65  | 18.43      | -0.78 ***  |  | 0.71   | 0.47  | 0.23 ***   |  | 0.53   | 0.69     | -0.16 *** |
| Lev   | 0.55   | 0.50       | 0.05 ***   |  | 0.08   | 0.09  | -0.02 ***  |  | 0.09   | 0.08     | 0.00      |
| Cash  | 0.09   | 0.08       | 0.01 ***   |  | 23.60  | 21.13 | 2.47 ***   |  | 21.66  | 23.92    | -2.26 **  |
| Age   | 21.94  | 25.13      | -3.19 ***  |  | 17.62  | 17.65 | -0.02 ***  |  | 17.57  | 18.22    | -0.64 *** |
| Assetbeta   | 0.02   | 0.01       | 0.00 ***   |  | 0.01   | 0.02  | -0.01 ***  |  | 0.02   | 0.02     | 0.00      |
| Sgr   | 11.41  | 18.74      | -7.33 ***  |  | 8.45   | 12.82 | -4.37 ***  |  | 12.07  | 6.59     | 5.48      |
| Lown  | 26.72  | 40.31      | -13.58 *** |  | 19.08  | 29.87 | -10.79 *** |  | 26.83  | 25.97    | 0.86      |
| Fown  | 3.36   | 6.29       | -2.94 ***  |  | 2.45   | 3.78  | -1.33 ***  |  | 3.17   | 4.73     | -1.56 **  |
| Mtb   | 2.03   | 1.37       | 0.66 ***   |  | 2.19   | 1.94  | 0.25 **    |  | 2.12   | 1.39     | 0.72 ***  |
| Fcf   | -0.10  | 0.04       | -0.14 ***  |  | -0.21  | -0.04 | -0.17 ***  |  | -0.10  | -0.06    | -0.04     |
| Tang  | 0.26   | 0.32       | -0.05 ***  |  | 0.26   | 0.27  | -0.01      |  | 0.26   | 0.30     | -0.04 **  |

  

| Panel B. Targets by Order of Control Transfer (Mean) |        |       |       |        |           |
|--|--------|-------|-------|--------|-----------|
|  | 0      | 1     | 2     | 3      | 4 or more |
| N  | 35,550 | 730   | 332   | 164    | 116       |
| Roa  | 0.01   | -0.16 | -0.31 | -0.36  | -0.36     |
| Lnintcov   | 2.25   | 2.06  | 1.18  | 1.16   | 1.01      |
| Kscore1  | 5.07   | 0.11  | -7.72 | -10.39 | -13.55    |
| Deficit  | 0.14   | 0.42  | 0.59  | 0.68   | 0.70      |
| Caper  | 0.21   | 0.46  | 0.68  | 0.85   | 0.88      |
| Dintcov  | 0.30   | 0.61  | 0.78  | 0.85   | 0.88      |
| Size   | 0.50   | 0.53  | 0.59  | 0.54   | 0.56      |
| Lev  | 0.08   | 0.09  | 0.09  | 0.08   | 0.09      |
| Cash   | 25.13  | 21.24 | 22.14 | 22.54  | 24.95     |
| Age  | 10.78  | 10.36 | 11.68 | 12.45  | 14.59     |
| Assetbeta  | 18.43  | 17.84 | 17.49 | 17.39  | 17.31     |
| Sgr  | 0.01   | 0.02  | 0.02  | 0.02   | 0.02      |
| Lown   | 18.74  | 10.66 | 15.35 | 7.92   | 9.71      |
| Fown   | 40.31  | 30.70 | 24.54 | 19.76  | 17.90     |
| Mtb  | 6.29   | 4.36  | 2.18  | 1.65   | 2.83      |
| Fcf  | 1.37   | 1.80  | 2.22  | 2.30   | 2.53      |
| Tang   | 0.04   | -0.05 | -0.16 | -0.14  | -0.17     |

<Table 5> Summary Statistics for Sellers

This table reports the composition and characteristics of the sellers. Panel A presents the frequency of each types of sellers. Panel B presents the univariate comparison of firm characteristics between the sellers and the non-sellers. Non-sellers are the controlling shareholders of a non-financial listed company with at least 10% ownership and who have not transferred corporate control during the sample period. Variables are lagged by one year. Detailed definitions of all variables are presented in <Appendix 1>. \*\*\*, \*\* and \* denote statistical significance at the 1%, 5% and 10% levels, respectively.

| Panel A. Composition of the Sellers                 |                                     |            |            |
|---|-------------------------------------|------------|------------|
| Company   |                                     |            | 534        |
|   | Not subject to mandatory disclosure | 165        |            |
|   | Subject to mandatory disclosure     | 369        |            |
| Individual  |                                     |            | 797        |
| Unconfirmed   |                                     |            | 11         |
| Total   |                                     |            | 1,342      |
| Panel B. Characteristics of Sellers vs. Non-Sellers |                                     |            |            |
|   | Seller                              | Non-seller | Diff       |
| N   | 242                                 | 4,195      |            |
| Roa   | -0.08                               | 0.04       | -0.12 ***  |
| Lnintcov  | 4.65                                | 4.87       | -0.22 ***  |
| Kcore2  | -1.20                               | 10.68      | -11.88 *** |
| Deficit   | 0.32                                | 0.06       | 0.25 ***   |
| Caper   | 0.44                                | 0.12       | 0.32 ***   |
| Dintcov   | 0.56                                | 0.20       | 0.36 ***   |
| Size  | 18.45                               | 19.89      | -1.44 ***  |
| Lev   | 0.59                                | 0.39       | 0.20 ***   |
| Cash  | 0.06                                | 0.04       | 0.01 ***   |
| Age   | 23.75                               | 35.16      | -11.40 *** |
| Sgr   | 0.20                                | 0.15       | 0.05       |
| Fcf   | -0.02                               | 0.05       | -0.07 ***  |
| Tang  | 0.20                                | 0.22       | -0.02 *    |

<Table 6> Determinants of Order of Targets

This table presents coefficient estimates of multivariate ordered logit regressions in which the dependent variable is the number of times a firm has been a takeover target up to that point. All independent variables are lagged by one year. Detailed definitions of all variables are presented in <Appendix 1>. Standard errors (reported in parentheses) are clustered at the 2-digit industry level. \*\*\*, \*\* and \* denote statistical significance at the 1%, 5% and 10% levels, respectively.

| Dependent variable=Order of takeover |                      |                      |                      |                       |                       |                      |
|--------------------------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|----------------------|
|                                      | (1)                  | (2)                  | (3)                  | (4)                   | (5)                   | (6)                  |
| Roa                                  | -1.084***<br>(0.264) |                      |                      |                       |                       |                      |
| Lnintcov                             |                      | -0.065<br>(0.049)    |                      |                       |                       |                      |
| Kscore1                              |                      |                      | -0.009**<br>(0.004)  |                       |                       |                      |
| Deficit                              |                      |                      |                      | 0.620***<br>(0.072)   |                       |                      |
| Caper                                |                      |                      |                      |                       | 0.666***<br>(0.100)   |                      |
| Dintcov                              |                      |                      |                      |                       |                       | 0.736***<br>(0.081)  |
| Assetbeta                            | 2.409*<br>(1.255)    | 5.487**<br>(2.329)   | 3.922***<br>(1.159)  | 2.559**<br>(1.240)    | 2.540**<br>(1.247)    | 2.986**<br>(1.311)   |
| Size                                 | -0.655***<br>(0.066) | -0.632***<br>(0.078) | -0.678***<br>(0.072) | -0.659***<br>(0.0711) | -0.639***<br>(0.070)  | -0.662***<br>(0.074) |
| Lev                                  | 1.543***<br>(0.308)  | 1.874***<br>(0.409)  | 1.620***<br>(0.304)  | 1.548***<br>(0.281)   | 1.430***<br>(0.286)   | 1.404***<br>(0.315)  |
| Cash                                 | 0.888<br>(0.672)     | 0.970<br>(0.827)     | 0.880<br>(0.655)     | 0.873<br>(0.647)      | 0.954<br>(0.666)      | 0.738<br>(0.670)     |
| Age                                  | -0.005<br>(0.003)    | -0.009**<br>(0.004)  | -0.005<br>(0.003)    | -0.006*<br>(0.003)    | -0.00670**<br>(0.003) | -0.005*<br>(0.003)   |
| Sgr                                  | -0.000<br>(0.001)    | -0.000<br>(0.001)    | -0.000<br>(0.001)    | -0.000<br>(0.001)     | -0.000<br>(0.001)     | -0.000<br>(0.001)    |
| Lown                                 | -0.030***<br>(0.003) | -0.035***<br>(0.004) | -0.031***<br>(0.003) | -0.029***<br>(0.003)  | -0.027***<br>(0.003)  | -0.033***<br>(0.003) |
| Fown                                 | 0.007<br>(0.005)     | 0.014**<br>(0.005)   | 0.007<br>(0.005)     | 0.007<br>(0.005)      | 0.007<br>(0.005)      | 0.007<br>(0.006)     |
| Mtb                                  | -0.072***<br>(0.024) | -0.014<br>(0.039)    | -0.036*<br>(0.021)   | -0.051**<br>(0.02)    | -0.059***<br>(0.022)  | -0.038<br>(0.025)    |
| Fcf                                  | -0.411*<br>(0.242)   | -1.305***<br>(0.494) | -0.811***<br>(0.274) | -0.660**<br>(0.281)   | -0.754***<br>(0.277)  | -0.495**<br>(0.227)  |
| Tang                                 | 0.407**<br>(0.206)   | 0.077<br>(0.352)     | 0.404**<br>(0.203)   | 0.380*<br>(0.194)     | 0.456**<br>(0.193)    | 0.403**<br>(0.206)   |
| Industry FE                          | Yes                  | Yes                  | Yes                  | Yes                   | Yes                   | Yes                  |
| Year FE                              | Yes                  | Yes                  | Yes                  | Yes                   | Yes                   | Yes                  |
| Observations                         | 27,411               | 22,081               | 27,407               | 27,406                | 27,410                | 26,128               |
| Pseudo R <sup>2</sup>                | 0.195                | 0.170                | 0.192                | 0.197                 | 0.197                 | 0.205                |

<Table 7> Determinants of Takeover Types

This table presents coefficient estimates of multinomial logit regressions in which the dependent variable has a value of 1 if the firm is a target of a New-type takeover, 2 if it is that of an Old-type takeover, and 0 if it is not a target, which is the baseline case. All independent variables are lagged by one year. Detailed definitions of all variables are presented in <Appendix 1>. Standard errors (reported in parentheses) are clustered at the 2-digit industry level. \*\*\*, \*\* and \* denote statistical significance at the 1%, 5% and 10% levels, respectively.

|          | New                  | Old                  | New                  | Old                  | New                  | Old                  | New                  | Old                  | New                  | Old                  | New                  | Old                  |
|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Roa      | -1.378***<br>(0.260) | -0.759***<br>(0.278) |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |
| Lntcov   |                      |                      | -0.085<br>(0.118)    | -0.069*<br>(0.039)   |                      |                      |                      |                      |                      |                      |                      |                      |
| Kscore1  |                      |                      |                      |                      | -0.023***<br>(0.007) | -0.001<br>(0.004)    |                      |                      |                      |                      |                      |                      |
| Deficit  |                      |                      |                      |                      |                      |                      | 1.066***<br>(0.117)  | 0.414***<br>(0.083)  |                      |                      |                      |                      |
| Caper    |                      |                      |                      |                      |                      |                      |                      |                      | 1.186***<br>(0.150)  | 0.434***<br>(0.106)  |                      |                      |
| Dintcov  |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      | 1.070***<br>(0.140)  | 0.633***<br>(0.085)  |
| Asetbeta | 2.877<br>(3.562)     | 1.654<br>(1.451)     | 4.901<br>(7.127)     | 4.041*<br>(2.198)    | 6.479*<br>(3.655)    | 2.109<br>(1.287)     | 3.553<br>(3.610)     | 1.660<br>(1.355)     | 3.428<br>(3.455)     | 1.625<br>(1.403)     | 4.995<br>(3.253)     | 1.620<br>(1.687)     |
| Size     | -0.520***<br>(0.094) | -0.685***<br>(0.067) | -0.520***<br>(0.121) | -0.623***<br>(0.088) | -0.510***<br>(0.097) | -0.722***<br>(0.071) | -0.522***<br>(0.091) | -0.686***<br>(0.072) | -0.499***<br>(0.092) | -0.671***<br>(0.071) | -0.579***<br>(0.101) | -0.667***<br>(0.074) |
| Lev      | 2.997***<br>(0.413)  | 1.009***<br>(0.344)  | 4.443***<br>(0.745)  | 0.833**<br>(0.407)   | 2.991***<br>(0.483)  | 1.179***<br>(0.328)  | 2.996***<br>(0.422)  | 0.991***<br>(0.303)  | 2.806***<br>(0.395)  | 0.914***<br>(0.316)  | 3.133***<br>(0.440)  | 0.691**<br>(0.342)   |
| Cash     | 0.985<br>(0.747)     | 0.847<br>(0.738)     | 2.861*<br>(1.461)    | 0.272<br>(0.843)     | 0.973<br>(0.732)     | 0.834<br>(0.730)     | 1.065<br>(0.696)     | 0.834<br>(0.723)     | 1.125<br>(0.698)     | 0.889<br>(0.731)     | 1.065<br>(0.680)     | 0.576<br>(0.771)     |
| Age      | 0.005<br>(0.004)     | -0.011***<br>(0.003) | 0.003<br>(0.006)     | -0.015***<br>(0.004) | 0.004<br>(0.004)     | -0.011***<br>(0.003) | 0.003<br>(0.004)     | -0.012***<br>(0.003) | 0.001<br>(0.004)     | -0.012***<br>(0.003) | 0.005<br>(0.004)     | -0.012***<br>(0.003) |
| Sgr      | -0.000<br>(0.001)    | 0.000<br>(0.001)     | -0.001<br>(0.001)    | 0.000<br>(0.001)     | -0.001<br>(0.001)    | -0.000<br>(0.001)    | -0.001<br>(0.001)    | -0.000<br>(0.001)    | -0.001<br>(0.001)    | -0.000<br>(0.001)    | -0.001<br>(0.001)    | 0.000<br>(0.001)     |
| Lown     | -0.065***<br>(0.006) | -0.018***<br>(0.003) | -0.077***<br>(0.007) | -0.024***<br>(0.005) | -0.066***<br>(0.006) | -0.019***<br>(0.003) | -0.063***<br>(0.006) | -0.017***<br>(0.003) | -0.059***<br>(0.006) | -0.016***<br>(0.003) | -0.063***<br>(0.005) | -0.017***<br>(0.003) |



<Table 7> - continued

|                       |                               |                     |                              |                     |                              |                      |                               |                     |                               |                     |                               |                     |
|-----------------------|-------------------------------|---------------------|------------------------------|---------------------|------------------------------|----------------------|-------------------------------|---------------------|-------------------------------|---------------------|-------------------------------|---------------------|
| Fown                  | -0.004<br>(0.012)             | 0.008*<br>(0.005)   | 0.002<br>(0.015)             | 0.015***<br>(0.006) | -0.004<br>(0.011)            | 0.008*<br>(0.005)    | -0.002<br>(0.011)             | 0.008*<br>(0.005)   | -0.002<br>(0.011)             | 0.008<br>(0.005)    | 0.001<br>(0.012)              | 0.007<br>(0.006)    |
| Mtb                   | -0.088**<br>(0.044)           | -0.069**<br>(0.028) | -0.0221<br>(0.059)           | -0.0354<br>(0.045)  | -0.0432<br>(0.039)           | -0.050**<br>(0.025)  | -0.0605<br>(0.039)            | -0.057**<br>(0.025) | -0.067*<br>(0.039)            | -0.064**<br>(0.025) | -0.060<br>(0.044)             | -0.0375<br>(0.025)  |
| Fcf                   | -0.481<br>(0.355)             | -0.427*<br>(0.243)  | -1.865***<br>(0.697)         | -0.896*<br>(0.459)  | -0.735*<br>(0.418)           | -0.871***<br>(0.273) | -0.696*<br>(0.383)            | -0.576**<br>(0.283) | -0.857**<br>(0.358)           | -0.645**<br>(0.277) | -0.635**<br>(0.323)           | -0.315<br>(0.231)   |
| Tang                  | -0.378<br>(0.444)             | 0.631***<br>(0.238) | -0.188<br>(0.743)            | 0.113<br>(0.364)    | -0.368<br>(0.436)            | 0.652***<br>(0.237)  | -0.426<br>(0.429)             | 0.620***<br>(0.230) | -0.329<br>(0.415)             | 0.669***<br>(0.235) | -0.474<br>(0.442)             | 0.686***<br>(0.239) |
| Industry FE           | Yes                           |                     | Yes                          |                     | Yes                          |                      | Yes                           |                     | Yes                           |                     | Yes                           |                     |
| Year FE               | Yes                           |                     | Yes                          |                     | Yes                          |                      | Yes                           |                     | Yes                           |                     | Yes                           |                     |
| Observations          | 27,411                        |                     | 22,081                       |                     | 27,407                       |                      | 27,406                        |                     | 27,410                        |                     | 26,128                        |                     |
| Pseudo R <sup>2</sup> | 0.236                         |                     | 0.215                        |                     | 0.234                        |                      | 0.393                         |                     | 0.239                         |                     | 0.248                         |                     |
|                       | chi2=4.77<br>Prob>chi2= 0.029 |                     | chi2=0.02<br>Prob>chi2=0.876 |                     | chi2=8.07<br>Prob>chi2=0.005 |                      | chi2=30.77<br>Prob>chi2=0.000 |                     | chi2=37.94<br>Prob>chi2=0.000 |                     | chi2=13.76<br>Prob>chi2=0.000 |                     |

<Table 8> Determinants of Sellers

This table presents coefficient estimates of binary logit regressions in which the dependent variable is a dummy variable with a value of 1 if the firm is a seller, and 0 otherwise. All independent variables are lagged by one year. Detailed definitions of all variables are presented in <Appendix 1>. Standard errors (reported in parentheses) are clustered at the 2-digit industry level. \*\*\*, \*\* and \* denote statistical significance at the 1%, 5% and 10% levels, respectively.

|                       | (1)                  | (2)                  | (3)                  | (4)                  | (5)                  | (6)                  |
|-----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Roa                   | -2.125***<br>(0.802) |                      |                      |                      |                      |                      |
| Lnintcov              |                      | -0.415<br>(0.266)    |                      |                      |                      |                      |
| Kscore2               |                      |                      | -0.020<br>(0.018)    |                      |                      |                      |
| Deficit               |                      |                      |                      | 0.851***<br>(0.231)  |                      |                      |
| Caper                 |                      |                      |                      |                      | 1.173***<br>(0.266)  |                      |
| Dintcov               |                      |                      |                      |                      |                      | 0.533**<br>(0.266)   |
| Size                  | -0.572***<br>(0.100) | -0.654***<br>(0.095) | -0.572***<br>(0.109) | -0.588***<br>(0.104) | -0.577***<br>(0.098) | -0.610***<br>(0.102) |
| Lev                   | 0.162<br>(0.491)     | 0.708*<br>(0.418)    | 0.189<br>(0.751)     | 0.354<br>(0.462)     | 0.198<br>(0.469)     | 0.568<br>(0.398)     |
| Cash                  | 3.356***<br>(1.275)  | 3.573**<br>(1.544)   | 3.255**<br>(1.393)   | 3.637***<br>(1.343)  | 3.661**<br>(1.468)   | 3.813***<br>(1.458)  |
| Age                   | -0.010<br>(0.011)    | -0.010<br>(0.015)    | -0.010<br>(0.011)    | -0.009<br>(0.011)    | -0.007<br>(0.012)    | -0.010<br>(0.013)    |
| Sgr                   | 0.069<br>(0.058)     | 0.0431<br>(0.059)    | 0.024<br>(0.060)     | 0.043<br>(0.062)     | 0.020<br>(0.055)     | 0.063<br>(0.054)     |
| Fcf                   | -4.193***<br>(1.033) | -4.329***<br>(1.086) | -4.665***<br>(0.999) | -4.482***<br>(0.966) | -4.594***<br>(0.967) | -4.032***<br>(1.025) |
| Tang                  | 0.531<br>(0.596)     | 0.420<br>(0.580)     | 0.703<br>(0.630)     | 0.591<br>(0.607)     | 0.548<br>(0.601)     | 0.551<br>(0.598)     |
| Constant              | 8.732***<br>(2.029)  | 12.04***<br>(2.262)  | 8.877***<br>(2.118)  | 8.844***<br>(2.163)  | 8.584***<br>(2.029)  | 9.032***<br>(2.115)  |
| Industry FE           | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  |
| Year FE               | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  |
| Observations          | 4,134                | 3,778                | 4,118                | 4,134                | 4,127                | 3,796                |
| Pseudo R <sup>2</sup> | 0.28                 | 0.28                 | 0.27                 | 0.28                 | 0.29                 | 0.28                 |

<Table 9> Performance After Takeover

This table presents coefficient estimates of regressions in which the dependent variable in each column is a proxy for financial distress. *After* is a binary variable that has a value of one for the years after the takeover, and zeros otherwise. Detailed definitions of all variables are presented in <Appendix 1>. Panel A presents the effect of the takeover on financial distress of targets. Panel B presents the effect of the takeover on financial distress by the order of takeover. All takeovers are classified into one of three categories: once refers to cases with only a single takeover, last is the final takeover for firms that has been targeted multiple times, and mid represents takeovers that occurred between the first and the final takeover for firms that has been targeted multiple times. Panel C presents the effect of the takeover on financial distress by the ownership of new controlling shareholders. Low (High) represents transactions where the ownership of new controlling shareholder is lower (higher) than the sample median. Standard errors (reported in parentheses) are clustered at the 2-digit industry level. \*\*\*, \*\* and \* denote statistical significance at the 1%, 5% and 10% levels, respectively.

| Panel A. Performance after takeover     |           |           |           |           |           |           |
|---|-----------|-----------|-----------|-----------|-----------|-----------|
|   | (1)       | (2)       | (3)       | (4)       | (5)       | (6)       |
|   | Roa       | Lnintcov  | Kscore1   | Deficit   | Caper     | Dintcov   |
| <i>AFTER</i>                            | -0.026*   | -0.115*   | -2.427*** | 0.381***  | 0.756***  | -0.0369   |
|   | (0.014)   | (0.0644)  | (0.678)   | (0.101)   | (0.088)   | (0.108)   |
| Assetbeta                               | -0.528**  | 9.694***  | 113.8***  | 2.735     | 2.283     | 4.535**   |
|   | (0.225)   | (2.019)   | (24.61)   | (1.738)   | (1.922)   | (2.190)   |
| Size                                    | 0.113***  | 0.106*    | 6.340***  | -0.565*** | -0.784*** | -0.443*** |
|   | (0.017)   | (0.0563)  | (0.719)   | (0.0941)  | (0.085)   | (0.075)   |
| Lev                                     | -0.476*** | -2.562*** | -24.36*** | 2.436***  | 3.706***  | 2.718***  |
|   | (0.074)   | (0.295)   | (3.557)   | (0.213)   | (0.373)   | (0.332)   |
| Cash                                    | 0.006     | 1.401     | 7.377     | 0.514     | -0.106    | 0.460     |
|   | (0.083)   | (1.246)   | (5.819)   | (0.592)   | (0.770)   | (0.601)   |
| Age                                     | -0.000    | -0.010**  | -0.125*** | 0.016***  | 0.032***  | 0.004     |
|   | (0.001)   | (0.004)   | (0.039)   | (0.005)   | (0.008)   | (0.006)   |
| Sgr                                     | 0.000*    | 0.000     | 0.003*    | -0.000    | 0.000     | -0.000    |
|   | (0.000)   | (0.000)   | (0.002)   | (0.000)   | (0.000)   | (0.000)   |
| Lown                                    | 0.002**   | 0.009***  | 0.108***  | -0.021*** | -0.041*** | -0.017*** |
|   | (0.001)   | (0.002)   | (0.023)   | (0.003)   | (0.004)   | (0.003)   |
| Fown                                    | -0.003*** | 0.017***  | -0.0619   | -0.005    | 0.001     | -0.012    |
|   | (0.001)   | (0.005)   | (0.040)   | (0.009)   | (0.008)   | (0.010)   |
| Mtb                                     | -0.001    | 0.005     | 0.069**   | 0.001     | 0.069***  | 0.006     |
|   | (0.001)   | (0.003)   | (0.033)   | (0.005)   | (0.0262)  | (0.004)   |
| Fcf                                     | 1.170***  | 3.794***  | 32.05***  | -5.479*** | -6.032*** | -9.875*** |
|   | (0.074)   | (0.431)   | (5.912)   | (0.524)   | (0.399)   | (0.744)   |
| Tang                                    | -0.100    | -0.873**  | -3.729    | 1.127***  | 0.843***  | 0.858*    |
|   | (0.068)   | (0.347)   | (2.352)   | (0.370)   | (0.325)   | (0.452)   |
| Constant                                | -2.278*** | -0.064    | -106.2*** | 4.393**   | 2.440     | -1.195    |
|   | (0.282)   | (1.125)   | (13.68)   | (2.153)   | (2.039)   | (1.703)   |
| Year FE                                 | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       |
| Industry FE                             | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       |
| Observations                            | 4,443     | 2,312     | 4,442     | 4,398     | 4,410     | 4,207     |
| R <sup>2</sup> or Pseudo R <sup>2</sup> | 0.428     | 0.418     | 0.484     | 0.258     | 0.368     | 0.310     |

<Table 9> - *continued*

| Panel B. Coefficients of <i>AFTER</i> depending on Whether it's the Last or the Middle |                     |       |                |                    |      |                |                     |       |                |
|--|---------------------|-------|----------------|--------------------|------|----------------|---------------------|-------|----------------|
|  | ONCE                |       |                | LAST               |      |                | MID                 |       |                |
|  | Coef.               | Obs.  | R <sup>2</sup> | Coef.              | Obs. | R <sup>2</sup> | Coef.               | Obs.  | R <sup>2</sup> |
| Roa  | -0.008<br>(0.0141)  | 1,325 | 0.468          | -0.002<br>(0.0550) | 994  | 0.409          | -0.042<br>(0.0313)  | 2,142 | 0.446          |
| Lnintcov   | -0.125<br>(0.113)   | 877   | 0.473          | -0.085<br>(0.190)  | 478  | 0.478          | -0.093<br>(0.0846)  | 958   | 0.415          |
| Kscore1  | -2.486**<br>(1.040) | 1,325 | 0.522          | -2.626*<br>(1.338) | 993  | 0.506          | -2.827**<br>(1.215) | 2,142 | 0.487          |
| Deficit  | 0.093<br>(0.140)    | 1,299 | 0.268          | 0.181<br>(0.257)   | 948  | 0.254          | 0.676***<br>(0.175) | 2,091 | 0.257          |
| Caper  | 0.730***<br>(0.148) | 1,284 | 0.391          | 0.553**<br>(0.236) | 948  | 0.37           | 1.131***<br>(0.173) | 2,045 | 0.381          |
| Dintcov  | -0.228<br>(0.172)   | 1,213 | 0.317          | -0.277<br>(0.225)  | 908  | 0.353          | 0.063<br>(0.186)    | 1,988 | 0.302          |

  

| Panel C. Coefficients of <i>AFTER</i> depending on the ownership of new controlling shareholder |                     |       |       |                      |       |       |
|---|---------------------|-------|-------|----------------------|-------|-------|
|   | LOW                 |       |       | HIGH                 |       |       |
|   | Coef.               | Obs.  | R2    | Coef.                | Obs.  | R2    |
| Roa   | -0.037*<br>(0.021)  | 2,138 | 0.429 | -0.002<br>(0.019)    | 2,289 | 0.449 |
| Lnintcov  | -0.019<br>(0.100)   | 920   | 0.417 | -0.254***<br>(0.090) | 1,388 | 0.457 |
| Kscore1   | -2.907**<br>(1.348) | 2,137 | 0.490 | -1.884***<br>(0.577) | 2,289 | 0.514 |
| Deficit   | 0.679***<br>(0.204) | 2,120 | 0.264 | 0.152<br>(0.097)     | 2,244 | 0.259 |
| Caper   | 0.890***<br>(0.152) | 2,117 | 0.39  | 0.721***<br>(0.107)  | 2,259 | 0.351 |
| Dintcov   | -0.053<br>(0.132)   | 1,940 | 0.321 | 0.001<br>(0.108)     | 2,137 | 0.294 |

<Table 10> The Effects of Takeover for Targets and Sellers

This table reports the results from difference-in-differences estimation using a matched sample of non-targets. Specifically, we report the coefficient estimates from the following equation.

$$Y_{i,t} = \alpha + \beta_1 \text{Target}_{i,t}(\text{Seller}_{i,t}) + \beta_2 \text{After}_t + \beta_3 \text{Target}_{i,t}(\text{Seller}_{i,t}) * \text{After}_t + \gamma \text{Controls}_{i,t} + \text{FE} + \varepsilon_{i,t}$$

where Y is distress variable such as ROA, Lnintcov, Kscore1, Deficit, Capex, Dintcov. *After* is a dummy variable with the value of 1 if the year is later than the takeover year. Detailed definitions of all variables are presented in <Appendix 1>. Standard errors (reported in parentheses) are clustered at the 2-digit industry level. \*\*\*, \*\* and \* denote statistical significance at the 1%, 5% and 10% levels, respectively.

| Panel A. The Effects of Takeover for Targets |                      |                      |                      |                      |                      |                      |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|  | OLS                  | OLS                  | OLS                  | LOGIT                | LOGIT                | LOGIT                |
|  | Dep=ROA              | Dep=Lnintcov         | Dep=Kscore1          | Dep=Deficit          | Dep=Capex            | Dep=Dintcov          |
| Treatment                                    | -0.025<br>(0.015)    | -0.076<br>(0.085)    | -2.453**<br>(1.021)  | 0.791***<br>(0.140)  | 1.151***<br>(0.186)  | 0.889***<br>(0.130)  |
| <i>AFTER</i>                                 | -0.003<br>(0.006)    | 0.086<br>(0.066)     | 1.442***<br>(0.500)  | -0.120<br>(0.134)    | 0.109<br>(0.088)     | -0.032<br>(0.083)    |
| Treatment<br>* <i>AFTER</i>                  | -0.029*<br>(0.016)   | -0.215**<br>(0.096)  | -4.149***<br>(0.515) | 0.417**<br>(0.166)   | 0.587***<br>(0.134)  | -0.017<br>(0.130)    |
| Assetbeta                                    | -0.503***<br>(0.173) | 7.271***<br>(1.685)  | 148.2***<br>(48.10)  | 3.955***<br>(1.353)  | 2.702**<br>(1.344)   | 5.821***<br>(1.886)  |
| Size   | 0.080***<br>(0.014)  | 0.095***<br>(0.034)  | 4.522***<br>(0.659)  | -0.476***<br>(0.075) | -0.683***<br>(0.070) | -0.396***<br>(0.054) |
| Lev  | -0.400***<br>(0.054) | -3.374***<br>(0.300) | -23.87***<br>(3.819) | 3.006***<br>(0.214)  | 4.105***<br>(0.379)  | 3.396***<br>(0.233)  |
| Cash   | 0.031<br>(0.047)     | 2.085**<br>(0.946)   | 6.242*<br>(3.291)    | 0.172<br>(0.579)     | -0.409<br>(0.665)    | 0.207<br>(0.444)     |
| Age  | -0.001<br>(0.000)    | -0.007***<br>(0.002) | -0.162***<br>(0.024) | 0.017***<br>(0.004)  | 0.023***<br>(0.007)  | 0.005<br>(0.005)     |
| Sgr  | 0.000<br>(0.000)     | 0.000<br>(0.000)     | 0.002<br>(0.001)     | -0.000<br>(0.000)    | 0.000<br>(0.000)     | -0.000<br>(0.001)    |
| Lown   | 0.001***<br>(0.000)  | 0.006**<br>(0.002)   | 0.067***<br>(0.013)  | -0.022***<br>(0.004) | -0.041***<br>(0.003) | -0.017***<br>(0.003) |
| Fown   | -0.002**<br>(0.001)  | 0.022***<br>(0.005)  | -0.031<br>(0.046)    | -0.015*<br>(0.009)   | -0.005<br>(0.008)    | -0.018**<br>(0.009)  |
| Mtb  | -0.001**<br>(0.001)  | 0.007<br>(0.004)     | 0.081**<br>(0.039)   | -0.001<br>(0.004)    | 0.096<br>(0.062)     | 0.014<br>(0.015)     |
| Fcf  | 1.077***<br>(0.072)  | 3.544***<br>(0.299)  | 28.99***<br>(4.708)  | -5.660***<br>(0.417) | -5.281***<br>(0.394) | -9.348***<br>(0.582) |
| Tang   | -0.020<br>(0.039)    | -0.955***<br>(0.237) | -3.659**<br>(1.441)  | 0.735**<br>(0.317)   | 0.192<br>(0.400)     | 0.871***<br>(0.338)  |
| Constant                                     | -1.456***<br>(0.225) | 2.693***<br>(0.734)  | -64.18***<br>(11.40) | 6.275***<br>(1.363)  | 10.91***<br>(1.251)  | 6.982***<br>(0.897)  |
| Year FE                                      | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  |
| Industry FE                                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  |
| Observations                                 | 6,451                | 4,169                | 6,449                | 6,404                | 6,426                | 6,138                |
| R <sup>2</sup> or Pseudo R <sup>2</sup>      | 0.411                | 0.436                | 0.415                | 0.313                | 0.412                | 0.339                |

<Table 10> - *continued*

| Panel B. The Effects of Takeover for Sellers |                      |                      |                      |                      |                      |                      |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|  | OLS                  | OLS                  | OLS                  | LOGIT                | LOGIT                | LOGIT                |
|  | Dep=ROA              | Dep=Lnintcov         | Dep=Kscore2          | Dep=Deficit          | Dep=Caper            | Dep=Dintcov          |
| Treatment                                    | -0.060***<br>(0.011) | -0.310***<br>(0.088) | -3.724***<br>(0.913) | 0.610**<br>(0.289)   | 0.914***<br>(0.255)  | 0.599**<br>(0.272)   |
| <i>AFTER</i>                                 | -0.006<br>(0.007)    | 0.017<br>(0.075)     | -0.962<br>(0.678)    | -0.155<br>(0.206)    | 0.407***<br>(0.156)  | -0.296<br>(0.212)    |
| Treatment<br>* <i>AFTER</i>                  | -0.026<br>(0.016)    | -0.026<br>(0.083)    | -2.713***<br>(0.844) | 0.260<br>(0.227)     | 0.044<br>(0.188)     | 0.399<br>(0.249)     |
| Size   | 0.022***<br>(0.005)  | 0.056**<br>(0.023)   | 2.570***<br>(0.407)  | -0.211**<br>(0.087)  | -0.366***<br>(0.103) | -0.268***<br>(0.067) |
| Lev  | -0.206***<br>(0.031) | -0.157***<br>(0.049) | -22.14***<br>(1.508) | 1.085***<br>(0.309)  | 2.419***<br>(0.406)  | 1.544***<br>(0.256)  |
| Cash   | 0.157**<br>(0.067)   | 1.197**<br>(0.535)   | 4.833<br>(3.861)     | -1.519**<br>(0.753)  | -1.592<br>(1.065)    | -2.818***<br>(0.943) |
| Age  | -0.000<br>(0.000)    | -0.000<br>(0.002)    | 0.051*<br>(0.028)    | -0.004<br>(0.009)    | 0.005<br>(0.009)     | 0.000<br>(0.006)     |
| Sgr  | 0.006<br>(0.005)     | -0.012<br>(0.009)    | -0.288<br>(0.262)    | 0.057<br>(0.101)     | 0.053<br>(0.075)     | -0.047<br>(0.132)    |
| Fcf  | 0.322***<br>(0.058)  | 0.383**<br>(0.164)   | 12.91***<br>(2.771)  | -4.507***<br>(1.238) | -3.247***<br>(0.893) | -6.201***<br>(1.983) |
| Tang   | 0.0055<br>(0.028)    | -0.396***<br>(0.125) | -7.315**<br>(2.789)  | 0.755<br>(0.593)     | 0.773<br>(0.484)     | 0.610<br>(0.439)     |
| Constant                                     | -0.238**<br>(0.107)  | 4.803***<br>(0.341)  | -32.35***<br>(7.383) | -6.955***<br>(1.797) | 4.709***<br>(1.616)  | 3.627***<br>(1.404)  |
| Year FE                                      | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  |
| Industry FE                                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  | Yes                  |
| Observations                                 | 1,577                | 1,399                | 1,567                | 1,513                | 1,535                | 1,410                |
| R <sup>2</sup> or Pseudo R <sup>2</sup>      | 0.393                | 0.181                | 0.547                | 0.179                | 0.239                | 0.228                |

<Table 11> Determinants of Takeover Types by Size (Old-Direct vs Old-Indirect vs New-Direct vs New-Indirect)

This table presents coefficient estimates of multinomial logit regressions in which the dependent variable has a value of 0 (base-line group) if the firm is the target of Old-Direct type takeover, 1 if the firm is the target of Old-Indirect type takeover, 2 if it is that of New-Direct type takeover, and 3 if it is that of New-Indirect type takeover. All independent variables are lagged by one year. Detailed definitions of all variables are presented in <Appendix 1>. Standard errors (reported in parentheses) are clustered at the 2-digit industry level. \*\*\*, \*\* and \* denote statistical significance at the 1%, 5% and 10% levels, respectively.

|               | (1)               |                      |                     | (2)                |                       |                   | (3)                 |                       |                      | (4)                |                   |                    | (5)                |                   |                   | (6)               |                   |                   |
|---------------|-------------------|----------------------|---------------------|--------------------|-----------------------|-------------------|---------------------|-----------------------|----------------------|--------------------|-------------------|--------------------|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|               | OI                | ND                   | NI                  | OI                 | ND                    | NI                | OI                  | ND                    | NI                   | OI                 | ND                | NI                 | OI                 | ND                | NI                | OI                | ND                | NI                |
| Roa           | 2.404<br>(7.705)  | 15.14***<br>(5.595)  | 30.27**<br>(15.10)  |                    |                       |                   |                     |                       |                      |                    |                   |                    |                    |                   |                   |                   |                   |                   |
| Roa*Size      | -0.176<br>(0.447) | -0.946***<br>(0.327) | -1.823**<br>(0.884) |                    |                       |                   |                     |                       |                      |                    |                   |                    |                    |                   |                   |                   |                   |                   |
| Lnintcov      |                   |                      |                     | -0.544<br>(0.856)  | 3.341***<br>(1.159)   | -1.976<br>(4.317) |                     |                       |                      |                    |                   |                    |                    |                   |                   |                   |                   |                   |
| Lnintcov*Size |                   |                      |                     | 0.0204<br>(0.0450) | -0.187***<br>(0.0685) | 0.0975<br>(0.238) |                     |                       |                      |                    |                   |                    |                    |                   |                   |                   |                   |                   |
| Kscore1       |                   |                      |                     |                    |                       |                   | 0.238<br>(0.186)    | 0.226*<br>(0.135)     | 0.684*<br>(0.404)    |                    |                   |                    |                    |                   |                   |                   |                   |                   |
| Kscore1*Size  |                   |                      |                     |                    |                       |                   | -0.0151<br>(0.0112) | -0.0149*<br>(0.00811) | -0.0417*<br>(0.0234) |                    |                   |                    |                    |                   |                   |                   |                   |                   |
| Deficit       |                   |                      |                     |                    |                       |                   |                     |                       |                      | 0.647<br>(4.080)   | -0.781<br>(2.983) | -8.152<br>(5.668)  |                    |                   |                   |                   |                   |                   |
| Deficit*Size  |                   |                      |                     |                    |                       |                   |                     |                       |                      | -0.0398<br>(0.232) | 0.0788<br>(0.165) | 0.523*<br>(0.294)  |                    |                   |                   |                   |                   |                   |
| Caper         |                   |                      |                     |                    |                       |                   |                     |                       |                      |                    |                   |                    | 3.051<br>(3.397)   | -0.758<br>(2.901) | -3.241<br>(6.606) |                   |                   |                   |
| Caper*Size    |                   |                      |                     |                    |                       |                   |                     |                       |                      |                    |                   |                    | -0.147<br>(0.190)  | 0.0841<br>(0.164) | 0.248<br>(0.355)  |                   |                   |                   |
| Dintcov       |                   |                      |                     |                    |                       |                   |                     |                       |                      |                    |                   |                    |                    |                   |                   | -2.701<br>(4.508) | -4.297<br>(3.677) | -7.851<br>(6.786) |
| Dintcov *Size |                   |                      |                     |                    |                       |                   |                     |                       |                      |                    |                   |                    |                    |                   |                   | 0.142<br>(0.255)  | 0.269<br>(0.209)  | 0.432<br>(0.356)  |
| Size          | 0.222<br>(0.137)  | -0.0384<br>(0.0915)  | -0.132<br>(0.240)   | 0.167<br>(0.171)   | 0.415**<br>(0.176)    | -0.370<br>(0.424) | 0.355**<br>(0.145)  | 0.180*<br>(0.0937)    | 0.196<br>(0.187)     | 0.209<br>(0.167)   | 0.0441<br>(0.117) | -0.0467<br>(0.239) | 0.305**<br>(0.150) | 0.0470<br>(0.145) | 0.0386<br>(0.231) | 0.0639<br>(0.207) | -0.179<br>(0.139) | -0.309<br>(0.279) |
| Assetbeta     | 4.544             | -0.529               | 11.38               | 17.24***           | -3.613                | 36.62**           | 6.065               | 3.851                 | 14.81**              | 5.154              | -0.0800           | 10.44*             | 4.374              | -0.529            | 10.85             | 3.874             | 1.055             | 13.97*            |

<Table 11> - continued

|                       | (1)       |            |            | (2)       |             |            | (3)       |            |            | (4)       |            |            | (5)       |            |            | (6)        |            |            |
|-----------------------|-----------|------------|------------|-----------|-------------|------------|-----------|------------|------------|-----------|------------|------------|-----------|------------|------------|------------|------------|------------|
|                       | OI        | ND         | NI         | OI        | ND          | NI         | OI        | ND         | NI         | OI        | ND         | NI         | OI        | ND         | NI         | OI         | ND         | NI         |
|                       | (5.214)   | (3.726)    | (7.206)    | (6.336)   | (7.004)     | (16.85)    | (5.278)   | (4.401)    | (7.534)    | (5.138)   | (3.814)    | (5.575)    | (4.549)   | (3.753)    | (6.874)    | (4.826)    | (3.887)    | (7.470)    |
| Lev                   | 1.277*    | 1.937***   | 5.050***   | 0.933     | 3.344***    | 7.302**    | 0.550     | 1.634***   | 4.623***   | 1.536**   | 2.082***   | 4.951***   | 1.172*    | 1.984***   | 4.918***   | 1.323**    | 2.267***   | 5.897***   |
|                       | (0.693)   | (0.437)    | (1.800)    | (0.922)   | (0.835)     | (3.631)    | (0.743)   | (0.504)    | (1.740)    | (0.742)   | (0.435)    | (1.560)    | (0.628)   | (0.418)    | (1.746)    | (0.646)    | (0.448)    | (1.687)    |
| Cash                  | 2.182**   | -0.0802    | 1.995      | 5.090***  | 3.314*      | -6.601     | 2.092**   | -0.0194    | 1.584      | 2.218**   | -0.0521    | 1.578      | 2.325**   | 0.109      | 1.880      | 1.916**    | 0.200      | 2.306      |
|                       | (0.990)   | (0.733)    | (1.583)    | (1.624)   | (1.896)     | (4.477)    | (0.963)   | (0.732)    | (1.423)    | (0.987)   | (0.767)    | (1.427)    | (0.986)   | (0.725)    | (1.724)    | (0.824)    | (0.784)    | (1.540)    |
| Age                   | -0.0235** | 0.00751    | 0.0151     | -0.0140   | 0.00510     | 0.0451     | -0.0236** | 0.00415    | 0.0101     | -0.0242** | 0.00404    | 0.00995    | -0.0252** | 0.00201    | 0.00641    | -0.0231*** | 0.00584    | 0.0141     |
|                       | (0.00985) | (0.00606)  | (0.0226)   | (0.0121)  | (0.0152)    | (0.0523)   | (0.00980) | (0.00604)  | (0.0214)   | (0.00968) | (0.00624)  | (0.0207)   | (0.0105)  | (0.00584)  | (0.0220)   | (0.00895)  | (0.00591)  | (0.0216)   |
| Sgr                   | -0.00205  | -0.00168   | -0.000786  | -0.00397  | -0.00484*** | -0.00248   | -0.00213  | -0.00173   | -0.000789  | -0.00244  | -0.00193*  | -0.000960  | -0.00217  | -0.00215*  | -0.00131   | -0.00250   | -0.00191   | -0.00106   |
|                       | (0.00143) | (0.00121)  | (0.00284)  | (0.00244) | (0.00174)   | (0.00474)  | (0.00158) | (0.00122)  | (0.00289)  | (0.00154) | (0.00116)  | (0.00267)  | (0.00148) | (0.00118)  | (0.00275)  | (0.00159)  | (0.00122)  | (0.00306)  |
| Lown                  | -0.00332  | -0.0440*** | -0.0530*** | -0.0108   | -0.0658***  | -0.0984*** | -0.00279  | -0.0422*** | -0.0529*** | -0.00435  | -0.0455*** | -0.0561*** | -0.000671 | -0.0424*** | -0.0538*** | -0.00555   | -0.0447*** | -0.0573*** |
|                       | (0.00893) | (0.00599)  | (0.0129)   | (0.0132)  | (0.0103)    | (0.0286)   | (0.00945) | (0.00672)  | (0.0105)   | (0.00945) | (0.00641)  | (0.0113)   | (0.0101)  | (0.00650)  | (0.0102)   | (0.00991)  | (0.00626)  | (0.0111)   |
| Fown                  | 0.0195    | -0.00992   | 0.0369     | 0.0168    | -0.0239     | 0.0401     | 0.0242*   | -0.00803   | 0.0383     | 0.0190    | -0.0150    | 0.0414     | 0.0184    | -0.0128    | 0.0352     | 0.0266*    | -0.00338   | 0.0367     |
|                       | (0.0138)  | (0.0129)   | (0.0255)   | (0.0128)  | (0.0319)    | (0.0473)   | (0.0139)  | (0.0123)   | (0.0244)   | (0.0132)  | (0.0131)   | (0.0289)   | (0.0134)  | (0.0125)   | (0.0260)   | (0.0138)   | (0.0156)   | (0.0285)   |
| Mtb                   | -0.124    | -0.0266    | -0.279     | 0.0298    | 0.0968      | -0.341     | -0.0492   | 0.0187     | -0.230     | -0.115    | -0.0265    | -0.297*    | -0.130    | -0.0285    | -0.285*    | -0.125     | -0.0327    | -0.313*    |
|                       | (0.0904)  | (0.0697)   | (0.180)    | (0.0993)  | (0.0876)    | (0.249)    | (0.0888)  | (0.0682)   | (0.171)    | (0.0854)  | (0.0622)   | (0.167)    | (0.0883)  | (0.0621)   | (0.168)    | (0.0854)   | (0.0631)   | (0.174)    |
| Fcf                   | 0.377     | -0.737     | -3.535***  | -1.136    | -3.029***   | -1.929     | 0.428     | -0.511     | -3.553***  | 0.0794    | -0.672     | -3.298***  | 0.430     | -0.714     | -2.997***  | -0.184     | -0.766     | -3.302***  |
|                       | (0.619)   | (0.577)    | (1.139)    | (0.873)   | (1.173)     | (1.826)    | (0.490)   | (0.568)    | (1.306)    | (0.650)   | (0.571)    | (0.914)    | (0.538)   | (0.503)    | (0.856)    | (0.528)    | (0.504)    | (0.806)    |
| Tang                  | -0.578    | -1.408***  | -1.618     | 0.863     | -0.444      | 1.699      | -0.720    | -1.453***  | -1.617     | -0.465    | -1.409**   | -1.958*    | -0.493    | -1.323**   | -1.508     | -0.632     | -1.417**   | -1.399     |
|                       | (0.751)   | (0.533)    | (1.222)    | (1.043)   | (1.157)     | (2.508)    | (0.732)   | (0.553)    | (1.205)    | (0.782)   | (0.548)    | (1.136)    | (0.760)   | (0.540)    | (1.084)    | (0.775)    | (0.560)    | (1.143)    |
| Constant              | -20.27*** | -9.822***  | -21.89***  | -20.00*** | -18.89***   | -9.789     | -20.38*** | -11.78***  | -23.21***  | -15.66*** | -7.085**   | -15.23***  | -23.73*** | -13.46***  | -29.36***  | -17.54***  | -8.238**   | -19.96***  |
|                       | (3.209)   | (2.311)    | (4.695)    | (3.885)   | (3.432)     | (8.176)    | (3.103)   | (2.534)    | (4.288)    | (3.703)   | (2.800)    | (4.883)    | (3.432)   | (3.348)    | (4.617)    | (3.982)    | (3.439)    | (5.792)    |
| Year FE               |           | Yes        |            |           | Yes         |            |           | Yes        |            |           | Yes        |            |           | Yes        |            |            | Yes        |            |
| Industry FE           |           | Yes        |            |           | Yes         |            |           | Yes        |            |           | Yes        |            |           | Yes        |            |            | Yes        |            |
| Observations          |           | 1,202      |            |           | 595         |            |           | 1,202      |            |           | 1,202      |            |           | 1,202      |            |            | 1,156      |            |
| Pseudo R <sup>2</sup> |           | 0.233      |            |           | 0.324       |            |           | 0.233      |            |           | 0.231      |            |           | 0.232      |            |            | 0.222      |            |