Board structure and intragroup propping

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Board Structure and Intragroup Propping: Evidence from Family Business Groups in Hong Kong

ABSTRACT

Using earnings announcement events made by group member firms in Hong Kong, this study examines the governance role of boards of directors in curbing propping activities within family business groups. We find that earnings released by group member firms carry nontrivial valuation implications on the stock prices of their non-announcing group peers, suggesting the existence of intragroup propping. More importantly, our findings suggest that intragroup propping activities are *less* pronounced when the announcing firms have a board with larger size and a higher proportion of independent directors, but *more* pronounced when they have an executive director from their controlling families acting as board chairperson. We also take advantage of an *exogenous* regulation change on boards of directors in Hong Kong, and find that the monitoring effect of boards of directors is strengthened for firms that are subject to the new regulation, highlighting the causal effect of board governance. Our study contributes to the literature on propping and international corporate governance with respect to family business groups.

Keywords: family business groups; intragroup propping; board structure

Board Structure and Intragroup Propping: Evidence from Family Business Groups in Hong Kong

I. Introduction

Family business groups play an important role in many economies around the world, and typically consist of a number of legally independent firms under the common control of the same family (e.g., La Porta, Lopez-De-Silanes, and Shleifer, 1999; Claessens, Fan, and Lang, 2006).[1] One justification for the prevalence of family business groups is that member firms' resources could be transferred by their controlling families to prop up their financially troubled group peers (Friedman, Johnson, and Mitton, 2003; Bae, Cheon, and Kang, 2008; Riyanto and Toolsema, 2008). Such intragroup propping can be undertaken in both direct and indirect ways. On the one hand, the controlling families may transfer funds directly through various forms of related party transactions from the healthier member firms to the financially distressed ones (Cheung, Rau, and Stouraitis, 2006; Gopalan, Nanda, and Seru, 2007; Jian and Wong, 2010). Such outright expropriation of firm resources by the controlling families directly impairs the interests of minority shareholders of the healthier member firms. On the other hand, the controlling families can inject their share of retained earnings (distributed as dividends) from the healthier member firms into other member firms in financial distress or with better investment opportunities (Gopalan, Nanda, and Seru, 2011). The interests of minority shareholders would be undermined if the (over) distribution of retained earnings impaired the ability of the healthier member firms to pursue value-increasing investment opportunities. Therefore, the controlling families' intragroup propping may benefit the aggregate value of their business groups as a whole or their own welfare at the expense of the minority shareholders of member firms from which resources have been siphoned off.

[1] Following Claessens, Djankov, and Lang (2000) and Claessens, Djankov, Fan, and Lang (2002), this study defines family as a group of people related by blood or marriage and focuses on total ultimate ownership held by each family, but does not consider ownership held by individual family members separately. Accordingly, we measure cash flow rights of the controlling family in individual member firms as the sum of direct and indirect ownership held by all family members.

Following Bae, Cheon, and Kang (2008), we measure intragroup propping potential based on the stock price reactions of non-announcing member firms to earnings announcements of member firms within family business groups.

Good news regarding earnings released by member firms indicates a potential increase in the resources available for intragroup propping, while bad news regarding earnings may signal fewer resources available to share, or even the need for reverse propping by non-announcing member firms.
Thus, the market reactions of non-announcing member firms to earnings announcements made by their group peers can be considered as the market's *ex ante* valuation of intragroup propping, and are expected to be positively associated with those of announcing member firms to the extent of propping (Bae, Cheon, and Kang, 2008). In a narrow sense, this captures "negative tunneling" activities. This study utilizes earnings announcement events because they have some advantages over other propping-related events that lead to dramatic increases in firm value, as follows. Earnings announcements are common to all public group member firms where detailed information on resource changes is available; this provides us with sufficient sample observations to ensure the statistical power of our tests. The observed intragroup propping effect manifested in earnings announcements could also be easily generalized to other cases, since earnings announcements tend to render more conservative tests on propping behavior than other sizable events (Bae, Cheon, and Kang, 2008).

The board of directors is introduced as the highest internal control mechanism responsible for curbing agency conflicts between a firm's insiders and outsiders (Fama and Jensen, 1983). However, little is known about the role of boards of directors in mitigating the agency conflicts underlying intragroup propping between controlling families and minority shareholders. This study aims to fill this void. Given that the effectiveness of boards of directors is principally determined by board structure, this study

focuses on three fundamental characteristics of board structure in group member firms: (i) board size, (ii) board independence, and (iii) board leadership (whether board chairperson comes from the controlling family), and examines the role that these board characteristics play in curbing intragroup propping activities.

A larger board could constrain the intragroup propping ability of controlling families because a larger board is able to commit more time and effort to overseeing insiders and might be optimal for firms with higher levels of private benefits to insiders (Monks and Minow, 1995; Raheja, 2005; Harris and Raviv, 2008). Thus, we hypothesize that stock prices of non-announcing member firms react *less* to earnings announcements made by their group peers with a larger board. The introduction of independent directors would accentuate board effectiveness in disciplining insiders, as independent directors contribute stronger independence and objectivity than their inside counterparts due to human capital development and reputation concerns (e.g., Byrd and Hickman, 1992; Gillette, Noe, and Rebello, 2003). A board with stronger independence would work more effectively to discourage controlling families from undertaking intragroup propping. Thus, we hypothesize that the stock prices of non-announcing member firms react *less* to earnings announcements made by member firms with a board composed of a higher proportion of independent directors. Among board members, the chairperson plays a more influential role than other directors in corporate governance activities. Seizing the position of board chairperson helps controlling families to enlarge their scope to undertake intragroup propping activities. We thus hypothesize that the stock price reactions of non-announcing member firms are *more* pronounced to earnings announcements made by member firms with a person related to their controlling families serving as board chairperson.

We test our hypotheses based on a sample of member firms of family business groups listed on the Hong Kong Stock Exchange (HKSE) over the period 2002–2008. The Hong Kong market provides an ideal research setting to address our research questions, for the following reasons. First, family business groups dominate the Hong Kong economy and many of them control two or more member firms publicly traded on the HKSE. Ownership and control structures are publicly disclosed in annual reports, which

enable researchers to identify listed group member firms and their group membership. Second, controlling families in Hong Kong are actively involved in making strategic and resource allocation decisions among member firms under Chinese *Guanxi* culture, which is characterized by a personal networking system (Carney, 2008). The active involvement by controlling families in management makes their member firms vulnerable to propping behavior. Third, corporate governance practices in Hong Kong have been influenced by the Anglo-American paradigm due to Hong Kong's history as a former British colony; these practices place special emphasis on boards of directors in protecting outside investors (Allen, 2000; Cheung, Rau, and Stouraitis, 2006).

We construct our sample of family business groups through manual collection of ownership data as of the end of fiscal year 2005 from annual reports for all public firms listed on HKSE. A single-country study could be more advantageous than cross-country analyses in studying the intragroup propping phenomenon. Firms in the same country face the same legal institutions, corporate control market, accounting standards, tax codes, and other country-level factors, which are likely to affect the propensity of controlling families to undertake intragroup propping activities. Thus, a within-country sample highlights the effect of firm-level variation in corporate governance arrangements, while holding all country-level latent factors constant for all sample firms.[2]

Our empirical analyses reveal that the stock price reactions of non-announcing member firms are positively associated with those of their announcing group peers around the latter's earnings announcements, suggesting the existence of intragroup propping; this result is consistent with Bae, Cheon, and Kang (2008). More importantly, the positive association between the market reactions of non-announcing and announcing member firms is *less* pronounced to earnings announcements made by member firms that have a larger board and a board with a higher proportion of independent directors. This suggests that boards with larger size and stronger independence in member firms work more effectively to

[2] In addition, single-country analysis can avoid the endogeneity problems between corporate governance mechanisms adopted by firms and regulatory institutions. Prior literature shows that the underlying system of corporate laws and regulations, to a great extent, determines firm choices of corporate governance mechanisms within a given country (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998, 2000; Denis and McConnell, 2003). It would be difficult for a cross-country analysis to clearly disentangle the effect of firm-level corporate governance choices from that of country-level regulatory institutions.

deter controlling families from undertaking intragroup propping activities. Our findings are consistent with the theoretical proposition that boards with larger size and stronger independence are demanded by firms with higher level of private benefits to insiders (Raheja, 2005; Harris and Raviv, 2008). In contrast, the positive association between the market reactions of non-announcing and announcing member firms is *more* pronounced to earnings announcements made by member firms with board chairperson coming from their controlling families, suggesting that securing the power of the board chairperson facilitates intragroup propping activities undertaken by controlling families. Overall, our results suggest that boards characterized by larger size, greater independence, and leadership independent from controlling families mitigate agency problems (proxied by intragroup propping) within family business groups and are more effective in protecting minority shareholders of group member firms.

In this study, we also take advantage of a regulation change in 2004, which requires all listed firms in Hong Kong to include at least three independent non-executive directors, to examine the causal effect of boards of directors on curbing intragroup propping activities. We find that the governance effect of independent boards is strengthened for firms that are subject to this new regulation. Furthermore, we observe intensified intragroup propping activities during the 2007 global financial crisis and accentuated monitoring efforts from boards of directors during this financially difficult period. We perform a battery of robustness tests, such as controlling for effects of equity-linkage, timing of earnings announcements, performance, financial characteristics of non-announcing member firms, as well as using alternative portfolio approach and different event windows for returns. Our results survive all these analyses.

This study contributes to the literature in several ways. First, it extends the seminal work of Bae, Cheon, and Kang (2008) on intragroup propping to the governance role of boards of directors in disciplining propping activities within family business groups. To our best knowledge, this is the first study to examine the governance effects of member firms' board structure on intragroup propping activities. Our findings suggest that a board with larger size, a higher proportion of independent directors, and independent leadership is beneficial to minority shareholders. Our results also corroborate Dahya, Dimitrov, and McConnell (2008) which finds that boards with a higher proportion of independent

directors help prevent the dominant shareholder from expropriating minority shareholders. Thus, this study contributes to the literature of propping and corporate governance on family business groups. Second, our evidence that the governance effect of board independence on curbing intragroup propping activities is strengthened for firms that are subject to the new regulation on boards of directors in Hong Kong complements Black and Kim (2012), which examines the effect of board regulation change on firm value in Korea. This finding strengthens the causal effect of board governance. Third, our evidence on the impact of the 2007 global financial crisis provides further support to the proposition that propping is more evident when there is a negative shock to the macro-economy, and extends Friedman, Johnson, and Mitton (2003) to the analysis of the governance effects of boards of directors on propping during the financial crisis.

The remainder of this paper is organized as follows: Section II develops the research hypotheses. Section III addresses research design. Section IV discusses the sample and data sources. Section V provides the empirical results, and Section VI reports robustness checks. Section VII concludes.

II. Hypothesis development

Prior literature shows that controlling families are inclined to divert member firm's resources to prop up other financially troubled member firms as long as they expect benefits from doing so in the future larger than the associated costs (Friedman, Johnson, and Mitton, 2003; La Porta, Lopez-de-Silanes, and Zamarripa, 2003; Cheung, Rau, and Stouraitis, 2006; Gopalan, Nanda, and Seru, 2007; Bae, Cheon, and Kang, 2008; Riyanto and Toolsema, 2008; Jian and Wong, 2010). As a key indicator of firm performance, earnings released by member firms convey information about changes in available resources that can be used to support operations of other group peers. Thus, earnings announcements made by member firms are expected to affect not only their own stock prices but also those of other non-announcing group peers. Good news regarding earnings would incur a positive market reaction by non-announcing member firms because of the increase in resources available for intragroup propping, while bad news regarding earnings would have a negative effect on the stock prices of non-announcing member firms because of the

decrease in resources available for intragroup propping, or even the increase in the need of announcing member firms to be propped up. Thus, the stock price reactions of non-announcing member firms are expected to be positively related to those of announcing group peers around the latter's earnings announcements given intragroup propping.

The interests of member firms' minority shareholders may be impaired if their resources are diverted by their controlling families directly or indirectly to prop up other member firms within business groups. Intragroup propping activities may be an important manifestation of agency conflicts between controlling families and minority shareholders of particular member firms. In this paper, we focus on the governance role of member firms' board of directors in deterring intragroup propping activities. Board structure, to a great extent, determines board efficacy in monitoring insiders' self-serving actions. More specifically, this study investigates the governance effect of three board structure characteristics on member firm's intragroup propping potential: (i) how many directors sit on the board; (ii) what proportion of the directors are independent from their controlling families; and (iii) whether controlling families secure board leadership. In the following section, we develop three testable hypotheses on each board structure characteristic.

A. Board size and intragroup propping

The literature shows that board size is an important determinant of board effectiveness in constraining insider pursuit of private benefits at the expense of outsiders. A board's capability to curtail agency conflicts between insiders and outsiders may increase with the number of directors because a larger number of directors are able to commit more time and effort to assuming committee assignments and to sharing monitoring tasks (Monks and Minow, 1995). For instance, audit committee independence increases with board size (Klein, 2002a), and various types of opportunistic earnings management activities are negatively related to board size (Larcker, Richardson, and Tuna, 2007).

More importantly, it is theoretically documented that boards with larger numbers of directors are optimal for firms with higher levels of private benefits to insiders (Raheja, 2005; Harris and Raviv, 2008). Empirical analyses find that board size is positively related to the level of private benefits available to

insiders in U.S. firms (Boone, Casaresfield, Karpoff, and Raheja, 2007). A large body of literature shows that group member firms are conducive to self-dealing transactions and that controlling families have strong incentives and enjoy plentiful channels to divert wealth from or between their member firms for their own private benefit (Johnson, La Porta, Lopez-de-Silanes, and Shleifer, 2000; Bae, Kang, and Kim, 2002; Bertrand, Mehta, and Mullainathan, 2002; Morck, Wolfenzon, and Yeung, 2005; Baek, Kang, and Lee, 2006; Cheung, Rau, and Stouraitis, 2006; among others). It is reasonable to conjecture that boards with larger size function more effectively to discourage controlling families from undertaking intragroup propping activities, which may harm the interests of minority shareholders of member firms from which resources are siphoned off. Thus, we predict that the association between the stock price reactions of announcing and non-announcing member firms will be less pronounced to earnings announcements made by member firms with a larger board. The above discussion leads to our first (alternative) hypothesis:

H1: Stock price reactions of non-announcing member firms are *less* pronounced to earnings news released by their group peers with a larger board.

B. Board independence and intragroup propping

The inclusion of independent directors helps strengthen the viability of boards of directors as an internal control mechanism (Fama and Jensen, 1983; Byrd and Hickman, 1992; Gillette, Noe, and Rebello, 2003). For instance, firms with a higher proportion of their boards composed of independent directors are more likely to replace their CEO after a period of poor performance (Weisbach, 1988). Boards with stronger independence play a more effective role in deterring top management from extracting excessive levels of compensation (Core, Holthausen, and Larcker, 1999; Hwang and Kim, 2009). The likelihood of financial statement fraud and opportunistic earnings manipulation are also found to decrease with the proportion of independent directors (Beasley, 1996; Dechow, Sloan, and Sweeney, 1996; Klein, 2002b).

Boards with a high proportion of independent directors are important especially for firms with high levels of private benefits available to insiders (Raheja, 2005; Harris and Raviv, 2008). Linck, Netter, and Yang (2008) find that board independence increases with the magnitude of private benefits enjoyed by insiders among U.S. firms. Dahya, Dimitrov, and McConnell (2008) provide cross-country evidence that a

higher proportion of independent directors reinforces a board's ability to curb diversion of firm resources by dominant shareholders and provides better protection for minority shareholders, even though dominant shareholders can replace undesirable independent directors as easily as appoint them. We expect that boards with higher percentage of independent directors function more effectively in prohibiting controlling families from conducting intragroup propping activities. Thus, the stock prices of non-announcing member firms are likely to react less to earnings news released by their group peers with a board comprised of a higher proportion of independent directors. This leads to our second (alternative) hypothesis:

> **H2**: Stock price reactions of non-announcing member firms are *less* pronounced to earnings news released by member firms with a board comprised of a higher percentage of independent directors.

C. Board leadership and intragroup propping

The board chairperson plays a more influential role than other directors since he/she is primarily responsible for formulating and determining firm strategies and policies, setting board agenda, scheduling stockholder meetings, and monitoring board committees. This leadership role endows the board chairperson with considerable power in disciplining management actions (Sundaramurthy, Mahoney, and Mahoney, 1997). Without the support of an independent leader, it is difficult for the board to perform its duty of protecting the interests of outside shareholders (Jensen, 1993). For example, boards with CEO serving as chairperson are less likely to remove poorly performing managers (Goyal and Park, 2002).

Securing the position of board chairperson gives controlling families greater say in board decision-making processes, and undoubtedly would compromise the ability of the board to effectively monitor their intragroup diversion of corporate resources at the expense of minority shareholders in particular member firms. To the extent outside investors perceive that the grip on power of the board chairperson amplifies the discretion of controlling families over member firm resources and facilitates intragroup propping activities, the stock prices of non-announcing member firms are expected to react more to earnings news released by member firms with a person from their controlling families acting as board chairperson. This leads to our third (alternative) hypothesis:

H3: Stock price reactions of non-announcing member firms are *more* pronounced to earnings news released by member firms with a person from their controlling families serving as board chairperson.

III. Research design

A. Measuring stock price reactions of announcing and non-announcing member firms

Following Bae, Cheon, and Kang (2008), we capture intragroup propping potential using the relation between abnormal returns for announcing and non-announcing member firms around the former's earnings announcements. For each pair of announcing member firm *i* and non-announcing member firm *j* within the same family business group, we estimate two three-day cumulative abnormal returns around firm *i*'s earnings announcement date, one for firm *i* itself (Car_i) and the other for firm *j* ($Resp_{ij}$). We employ the market model residuals approach to estimate daily abnormal returns with event window [-1, 1],[3] where day 0 is firm *i*'s earnings announcement day, and the estimation period spans 150 trading days from day -160 to day -11 relative to day 0. The Hang Sang Index is used as the market index. The variables *Car* and *Resp* are expected to be positively correlated because *Car* captures the information contained in earnings announcements about the announcing firm's ability to prop up the performance of non-announcing firms (Bae, Cheon, and Kang, 2008).

To ensure that the variable *Resp* is not contaminated by firm *j*'s own performance information contained in its earnings announcement, we require that firm *i*'s earnings announcement date precede firm *j*'s earnings announcement date by at least five calendar days. For example, the Li Ka-shing conglomerate, the largest family business group in Hong Kong, has eight member firms listed on the HKSE, as illustrated in Figure I. Each member firm's earnings announcement date is given in parentheses. They released their earnings for fiscal year 2005 on March 8, 9, 10, 16, 17, 21, and 23, 2006, respectively. For the first announcing member firm, Hutchison Harbour Ring, its non-announcing group peers include

[3] We skip non-trading days when estimating returns over the earnings announcement window. For example, the three-day event window is from Monday to Wednesday if a firm releases its earnings report on Tuesday, but the event window will be from last Friday to Tuesday if the firm announces its earnings between Friday and Tuesday.

Cheung Kong Infrastructure, CK Life Science, TOM Group, Hutchison Whampoa, and Cheung Kong, but not Hong Kong Electric or Hutchison Telecommunications, because their earnings announcement dates are no later than five days of the announcement date of Hutchison Harbour Ring. Thus, we obtain five announcing versus non-announcing pair observations with respect to Hutchison Harbour Ring within the Li Ka-shing conglomerate for fiscal year 2005.

[Insert Figure I around here]

B. Research model

To test our hypotheses, we specify the following regression equation to examine the impact of member firm's board structure on the intragroup propping activities undertaken by controlling families.

$$\begin{aligned} Resp_{ijt} = {} & \alpha_0 + \beta_1 Car_{it} + \beta_2 Log(Boardsize)_{it}*Car_{it} + \beta_3 Independence_{it}*Car_{it} + \\ & \beta_4 Familychair_{it}*Car_{it} + \beta_5 Log(Boardsize)_{it} + \beta_6 Independence_{it} + \beta_7 Familychair_{it} + \\ & \beta_8 Lowercash_{ij}*Car_{it} + \beta_9 Lag_{ijt}*Car_{it} + \beta_{10} Largersize_{ijt}*Car_{it} + \\ & \beta_{11} Industry\_same_{ij}*Car_{it} + \beta_{12} MB_{it}*Car_{it} + \beta_{13} Lev_{it}*Car_{it} + \beta_{14} Lowercash_{ij} + \\ & \beta_{15} Lag_{ijt} + \beta_{16} Largersize_{ijt} + \beta_{17} Industry\_same_{ij} + \beta_{18} MB_{it} + \beta_{19} Lev_{it} + \text{Industry} \\ & \text{Dummies} + \text{Year Dummies} + \varepsilon_i \end{aligned} \quad (1)[4]$$

where the dependent variable, $Resp_{ijt}$ is three-day cumulative abnormal returns for non-announcing member firm *j* around member firm *i*'s earnings announcement date for fiscal year *t*. The independent variable, Car_{it}, is the three-day cumulative abnormal returns for member firm *i* around its own earnings announcement date. We winsorize both *Resp* and *Car* at the 1st and 99th percentiles, respectively, to alleviate the undue influence of outliers. The coefficient on *Car*, β_1, is expected to be positive because the information content of a member firm's earnings announcements reflects its ability to prop up the performance of other member firms within the same family business group.

[4] We also introduce into our regression non-announcing member firm characteristics, such as market-to-book ratio, leverage ratio, and a dummy variable indicating whether the non-announcing member firm reported losses in two consecutive years. Our results about board structure variables remain unaffected. See, for details, Section VI.E and Table VII.

To investigate the monitoring impact of announcing member firms' board structure on intragroup propping potential, we introduce three board variables (both the level and interaction with *Car*), *Log(Boardsize)*, *Independence*, and *Familychair*, into regression model (1). To be consistent with prior research (e.g., Yermack, 1996; Anderson, Mansi, and Reeb, 2004), we measure *Log(Boardsize)* as the natural log of the total number of directors sitting on firm *i*'s board. *Independence* captures the degree of firm *i*'s board independence from the controlling family, and is defined as the proportion of independent non-executive directors on firm *i*'s board.[5] If H1 and H2 hold, the coefficients on *Log(Boardsize)*Car*, β_2 and *Independence*Car*, β_3 are expected to be negative, because announcing member firms' board with larger size and stronger independence is perceived to better constrain the ability of controlling families to channel announcing member firms' resources to prop up other member firms. *Familychair* is constructed to capture announcing member firm *i*'s board leadership, and is defined as a dummy variable, which takes the value of 1 if firm *i*'s board chairperson is an executive director from the controlling family, and zero, otherwise. H3 predicts the coefficient on *Familychair*Car*, β_4 to be positive if the controlling families' securing the power of board chairperson is perceived to strengthen their ability to prop up other group member firms.

In addition, we include in regression model (1) several control variables that may affect controlling families' propensity to undertake intragroup propping activities. A variety of studies provide evidence that controlling families are more inclined to transfer wealth from lower- to higher-cash-flow-rights member firms (Bae, Kang, and Kim, 2002; Bertrand, Mehta, and Mullainathan, 2002; Baek, Kang, and Lee, 2006), while other research shows that higher cash flow rights in one member firm are more likely to provide controlling families more resources to prop up other member firms (Bae, Cheon, and Kang, 2008). To control for the effect of controlling families' relative cash flow rights stake in their member firms, we introduce in regression model (1) a dummy variable, *Lowercash*, which takes the value of 1 if cash flow

[5] Independent non-executive directors refer to directors who have no past or present business or familial ties to the firm or executives, nor own large blocks of company stock, and satisfy the requirements listed in "Rules governing the listing of securities on the Stock Exchange of Hong Kong Limited" (http://www.hkex.com.hk/eng/rulesreg/listrules/rulesandguidelines.htm).

rights of announcing member firm *i* in the hands of its controlling family are lower than those of its non-announcing group peer *j*, and zero, otherwise. Following Claessens, Djankov, Fan, and Lang (2002), we measure cash flow rights of controlling families in individual member firms as the sum of the direct and indirect equity shares owned by controlling families.[6] Given that announcing member firms with larger size have more resources available for intragroup propping (Bae, Cheon, and Kang, 2008), we include the dummy variable *Largersize* to control for the size effect. *Largersize* takes the value of 1 if total assets of announcing member firm *i* are greater than those of its group peer *j*, and zero, otherwise. The closer the earnings announcement dates of announcing and non-announcing member firms are, the more likely the stock price reactions of non-announcing member firms are to be affected by their own earnings information; thus, we include the variable, *Lag*, measured as the number of days by which member firm *i* precedes its group peer *j* in releasing earnings. The literature shows that stock prices of non-announcing firms react to earnings announcements made by other firms within the same industry (Foster, 1981; Han and Wild, 1990; Thomas and Zhang, 2008). To control for such intra-industry information spillover effect, we include in regression model (1) the dummy variable, *Industry_same*, which takes the value of 1 if the announcing member firm *i* and its non-announcing group peer *j* are operating in the same one-digit SIC code industry, and zero otherwise.

We also include in regression model (1) announcing member firms' market-to-book ratio (*MB*) and a ratio of total debts to total assets (*Lev*), to control for the potential effects of growth opportunities and financial leverage, respectively. Finally, we include industry dummies, defined at the level of one-digit SIC codes, and year dummies to control for possible industry and time effects.

[6] Specifically, we calculate controlling families' indirect equity ownership as the product of all ownership stakes along the control chain when they hold the equity stake via other entities in their member firms.

IV. Sample selection and summary statistics

A. Data sources

To construct a sample of family business groups, we manually collect ownership data as of the end of fiscal year 2005 from annual reports for all public firms listed on the HKSE and covered by Datastream. Similar to prior literature (e.g., Faccio, Lang, and Young, 2001; Claessens, Djankov, Fan, and Lang, 2002), we first trace backwards along each firm's control chain to the top and identify as the ultimate controlling owner the largest shareholder, who effectively controls at least 10% of a firm's voting rights, and then put firms sharing the same ultimate controlling owner (an individual, a family or family coalition) together to form a family business group. In total, out of 934 publicly traded firms in Hong Kong at the end of 2005, we identify 180 firms affiliated with 59 different family business groups, each of which consists of at least two firms listed in Hong Kong.

Our sample period spans from 2002 to 2008. We assume that ownership structure and group affiliation of the identified firms do not change substantially over the sample period, as ownership patterns tend to be relatively stable (La Porta, Lopez-De-Silanes, and Shleifer, 1999). We begin with all 180 family group member firms with accounting and financial data available in Datastream. The data on board structure characteristics are collected from annual reports over 2002-2008. Annual earnings announcement dates are retrieved from Datastream. For firms with announcement dates missing, we hand collect the dates from the HKExnews website.[7] We obtain an original sample of 1,241 earnings announcement events.

However, our final sample is reduced due to the following requirements. First, we require that each pair of announcing and non-announcing member firms have the same fiscal year-end, which leads to the exclusion of 163 earnings announcements made by member firms that do not share the same fiscal

[7] The HKExnews website was launched by HKSE as an information disclosure archive for listed firms (http://www.hkexnews.hk/index.htm). To check the accuracy of the earnings announcement dates recorded in Datastream, we randomly select a subset of 100 earnings announcement dates and compare the dates from Datastream to those of HKExnews. We find no difference.

year-end with any of their group peers.[8] Second, we delete 405 earnings announcements from family business groups within which all member firms released earnings on the same day. Third, we delete 217 earnings announcements made by member firms that released earnings at the latest within their groups given that no non-announcing member firms react to those latest announcements. Finally, we require that announcing member firms release earnings preceding non-announcing member firms by at least five calendar days to ensure that market reactions of non-announcing member firms would not be contaminated by their own performance information, which leads to the further exclusion of 167 earnings announcements. These sample selection processes leave a final sample of 601 pair-year observations, corresponding to 289 earnings announcement events. They represent 111 individual member firms from 33 different family business groups over the period 2002–2008, with each pair consisting of one announcing member firm and one non-announcing member firm within the same family business group.[9] Table I presents the distribution of our pair–year observations among family business groups, showing that 23 out of 33 family business groups in our sample consist of only 2 or 3 member firms per group.

[Insert Table I around here]

B. Summary statistics

Table II reports summary statistics of our sample firms during the sample period 2002-2008. To provide a complete picture of sample firms within family business groups, we present the descriptive statistics separately for all sample firms (Panel A), announcing member firms (Panel B), and non-announcing member firms (Panel C). The announcing and non-announcing groups are not mutually

[8] Alternatively, we remove the same fiscal year-end requirement and replicate all the main tests. The results remain qualitatively unchanged. See Section VI.F.

[9] We do not exclude financial institutions from our sample, because the number of financial firms is small and their exclusion does not affect our empirical results.

exclusive as some member firms can be classified as belonging to announcing and non-announcing groups simultaneously.[10]

[Insert Table II around here]

Panel A of Table II reports summary statistics on the cumulative abnormal returns of announcing and non-announcing member firms, along with their comparative variables included in our regression model (1). Mean (median) cumulative abnormal returns for the announcing firms around their earnings announcement date, *Car*, is 0.63% (-0.22%), with a standard deviation of 9.86%, while the mean (median) cumulative abnormal returns for the non-announcing firms around their group peers' earnings announcement date, *Resp*, is 0.06% (-0.02%), with a standard deviation of 4.87%. The correlation coefficient between *Car* and *Resp* is close to 0.20, which is statistically significant (*P*-value < 0.00), suggesting that earnings news released by member firms affects the stock prices of both announcing and non-announcing member firms in the same direction, consistent with the intragroup propping argument.

Panel A of Table II also shows that controlling families own lower cash flow rights in announcing firms (*Lowercash*) than they do in non-announcing firms for 67.05% of pair observations, suggesting that member firms with lower cash flow rights in the hands of their controlling families are more likely to release their earnings earlier. Moreover, smaller member firms tend to make earnings announcement earlier as announcing firms are larger in total assets (*Largersize*) than their non-announcing counterparts for only 28.62% of pair observations.[11] In approximately 25% of sample observations, announcing firms and their non-announcing counterparts operate in the same one-digit SIC code industry (*Industry_same*). Announcing firms, on average, release their earnings 17 days earlier than their non-announcing counterparts (*Lag*).

[10] On the one hand, some member firms could be non-announcing member firms relative to their earlier-announcing group peers, but be announcing member firms relative to their later-announcing group peers in a given fiscal year. On the other hand, they could belong to different groups in different fiscal years depending on their earnings announcement dates.

[11] This implies that our sample might understate the magnitude of intragroup propping, to the extent that propping goes from larger member firms to smaller member firms. Our additional data analysis shows that the mean value of *Lowercash* decreases to 45.63%, and the mean value of *Largersize* increases to 41.56% for the restricted subsample when we exclude observations with equity links between announcing and non-announcing member firms (a subsample used for Panel A of Table VI) (for example, Hutchison Harbour Ring and Hutchison Whampoa, as illustrated in Figure I).

Panel B of Table II presents summary statistics on three board structure variables and two control variables for announcing member firms. The mean (median) number of directors (*Boardsize*) on the announcing firms' board is 8.92 (9.00), with a maximum (minimum) value of 17 (4). The average (median) proportion of the announcing firms' board comprised of independent non-executive directors (*Independence*) is 36.97% (37.50%). For 49.13% of sample announcing firms, the position of board chairperson is held by an executive director from their controlling families (*Familychair*). With regard to control variables about announcing firms, the mean (median) market-to-book equity ratio (*MB*) is 1.88 (1.05) with a standard deviation of 5.28, and total debt, on average, comprises 37% of total assets (*Lev*).

Panel C of Table II presents summary statistics for non-announcing member firms. The non-announcing firms' characteristics exhibit quantitatively similar patterns to those of their announcing counterparts, partly due to the nontrivial overlap between the two groups, except that the mean value of *Familychair* of non-announcing firms (66.67%) is significantly higher than that of their announcing counterparts (49.13%), suggesting that controlling families are more reluctant to give up the board leadership role in their larger and higher-cash-flow-rights member firms.

V. Empirical results

A. Main results

This section presents the main regression results on the impact of board structure characteristics on the stock price reactions of non-announcing member firms to earnings news released by their group peers. Column (1) in Table III reports the results for the regression of *Resp* on *Car*, Column (2) shows the results with board structure variables added, and Column (3) reports the results with board structure variables as well as all other controls simultaneously included. The statistical significance of the reported coefficients is based on heteroscedasticity-consistent standard errors clustered by the earnings announcement event.[12]

[12] The results remain unchanged when we calculate the *t*-statistics based on standard errors clustered by announcing member firm and year (Petersen, 2009).

All regression specifications in Table III include industry and year dummies, though their coefficients are not reported for the sake of brevity.

[Insert Table III around here]

The results in Table III show that the coefficients for the variable *Car* are positive and significant at the 5% level or better in all regressions as the intragroup propping hypothesis predicts, which indicates that the stock prices of non-announcing member firms react non-trivially to their group peers' earnings news. This is consistent with the results shown in Bae, Cheon, and Kang (2008). More importantly, the coefficients on *Log(Board)*Car* are negative and significant at the 1% level in the regression with control variables (Column (3)) and at the 5% level without them (Column (2)). These results indicate that the stock price reactions of non-announcing firms to earnings news released by their group peers are *less* pronounced when the announcing member firms have a larger board, consistent with H1. The results suggest that a larger number of directors could reinforce the board's ability to deter controlling families from undertaking intragroup propping activities. The coefficients on *Independence*Car* are also negative and significant at the 1% level in Column (3) and at the 5% level in Column (2), respectively, supporting H2. The results indicate that the earnings news released by member firms with a higher proportion of independent directors sitting on the board has a *less* pronounced effect on the stock prices of their non-announcing group peers. This suggests the reduction in the intragroup propping potential associated with stronger board independence and is in line with the view that boards with higher percentage of independent directors better protect the minority shareholders of the announcing member firms. Our results corroborate the findings of Dahya, Dimitrov, and McConnell (2008), that even for firms with a dominant shareholder who can remove independent directors as easily as appoint them, boards with a higher proportion of independent directors exhibit greater ability to prevent expropriation of minority shareholders. Furthermore, our findings on board size and board independence support, in the context of family business groups, the argument that boards with large size and a high proportion of independent

directors are demanded by firms with excess level of private benefits available to insiders (Raheja, 2005; Harris and Raviv, 2008).

Finally, the coefficients on *Familychair*Car* are positive and significant at the 5% level in Column (3) and at the 10% level in Column (2), respectively, suggesting that intragroup propping potential tends to be accentuated when group member firms have an executive director from their controlling families acting as board chairperson, consistent with H3. The reinforced effect of controlling family board leadership role on intragroup propping potential is consistent with the intuition that controlling family grip on the power of board chairperson may be detrimental to board effectiveness in constraining intragroup propping activities. Regarding the board structure level variables, none of the coefficients for *Log(Boardsize)*, *Independence*, and *Familychair* are consistently significant in both Columns (2) and (3).

Taken together, our empirical results in Table III suggest that announcing member firms appointing a board with larger size and a higher proportion of independent directors reduces intragroup propping propensity; whereas announcing member firms having an executive director from their controlling families serving as board chairperson increases intragroup propping propensity.

Among the control variables in Column (3), the coefficient on *Lag*Car* is negative and statistically significant ($p < 0.01$), indicating that the valuation implication decreases as the earnings reporting lag between member firms increases. One possible explanation is that pre-disclosure or leakage of information about non-announcing member firms grows intensively as their earnings announcement dates approach.[13] The coefficient on *MB*Car* is positive and marginally significant, suggesting that more propping is expected from announcing member firms with higher growth prospects. The coefficients for other control variables are mostly insignificant.

[13] There could be other firm-level information producing activities, such as management forecasts, analyst forecasts, or insider trading activities. Other far more active information seeking activities are likely to be undertaken by market participants.

B. Analyses on causal effect

This study specifies regression model (1) with the assumption that member firm board structure is exogenously determined. However, the incentives of the controlling families to undertake intragroup propping activities would undoubtedly affect their decisions related to member firm board structure. This self-selection issue could raise a question about the validity of our empirical evidence. Several studies exploit governance reform to identify the causal influence of board composition on firm value or performance (e.g., Black, Jang, and Kim, 2006; Dahya and McConnell, 2007; Black and Kim, 2012). We take advantage of an *exogenous* regulation change to examine the causal effect of board governance on curbing intragroup propping: a legal reform on the number of independent non-executive directors brought into force by HKSE. The Amendments to Listing Rules (No. 80 for Main Board Listings and No. 18 for GEM Listings) issued by HKSE in early 2004 require all listed firms to include at least three independent non-executive directors by September 30, 2004. The introduction of this new regulation undoubtedly represents an *exogenous* shock to those member firms with fewer than three independent non-executive directors at that time, while it may not affect those member firms having already appointed at least three independent directors.

To demonstrate the causal effect of board structure in disciplining propping activities within family business groups, we divide our sample of announcing firms into two subsamples based on whether they are subject to this new regulation. We identify that prior to the regulation, 59.3% of announcing member firms had less than three independent directors and were subject to the regulation ("Affected" firms), while 40.7% of announcing firms already had at least three independent directors, and thus were not subject to the regulation ("Unaffected" firms).

[Insert Table IV around here]

Table IV reports descriptive statistics on board structure (Panel A) and regression results (Panel B) separately for affected and unaffected announcing firms. Panel A shows that for the affected firms, the

mean value of independent directors is 1.98 prior to the regulation (i.e., pre-regulation period) and increases to 3.17 after implementation of the regulation (i.e., post-regulation period). This increase is significant at the 1% level. The percentage of independent non-executive directors (*Independence*) dramatically rises from 29.05% to 39.88%, which is significantly higher at the 1% level. However, the mean value of board size (*Boardsize*) rises only from 7.80 to 8.53. This increase is statistically insignificant. Our additional data analysis reveals that approximately 60% of affected firms replaced old directors with new independent directors without increasing board size, while about 40% added new independent directors to boards that increased board size. *Familychair* remains unchanged. For the unaffected firms, the mean values of independent directors were 3.32 and 3.47 in the pre-and post-regulation periods, respectively. None of the three board structure variables significantly changed due to the regulation. The median values show similar patterns for both affected and unaffected firms. In short, the regulation significantly increased *Independence* of the affected firms, but made little impact on their board size (*Boardsize*) and *Familychair*. This is not surprising as the goal of the new regulation was to improve board independence, not board size or board leadership.

To analyze the economic consequence of the new regulation on intragroup propping, we introduce into the regression a dummy variable of *Reg*, which takes the value of one if the observation comes from the period after implementation of the new regulation, and zero, otherwise. Based upon the findings in Panel A, we add the interaction variable of *Reg*Independence*Car* and estimate regressions for the affected and unaffected firms, separately. If a causal effect of board independence on intragroup propping exists, we expect its coefficient to be significantly negative for affected firms, but insignificant for unaffected firms.

The regression results in Panel B of Table IV show that the coefficient on *Reg*Independence*Car* is -3.733 and significant at the 5% level for affected firms, but insignificant for unaffected firms, consistent with our prediction. In contrast, the coefficient on *Independence*Car* is -3.347 and significant at the 1% level for unaffected firms, but insignificant for affected firms in the pre-regulation period. These results suggest that the governance effect of board independence on intragroup propping activities is

strengthened for member firms that are subject to the new regulation, but not for unaffected firms. Taken together, the results in Table IV provide evidence for the causal effect of board independence on intragroup propping activities and strengthen the validity of our empirical evidence.[14]

Furthermore, we consider another economic shock to operating environments associated with the global financial crisis that took place in late 2007. The hit of the global financial crisis might change the incentives of controlling families to conduct intragroup propping activities (Friedman, Johnson, and Mitton, 2003; Bae, Baek, Kang, and Liu, 2012).[15] However, it is difficult for controlling families to immediately adjust member firm board structure to cater to their intragroup propping needs immediately after the hit of the global financial crisis. Thus, we examine whether the governance effects of member firm board structure on intragroup propping potential change between pre- and post-financial crisis periods. If the results remain qualitatively similar in the wake of the global financial crisis, the concern over self-selection issue could be alleviated to some extent. To address this concern, we divide our sample into pre-crisis (2002–06) and crisis periods (2007–08) and estimate equation (1) separately for each period.

[Insert Table V around here]

The results in Table V show that the coefficient on *Car* is 3.575 and far greater during the crisis period than 1.840 in the pre-crisis period, implying intensified intragroup propping potential during the crisis period. All coefficients for the interactions between *Car* and the three board structure variables have the predicted signs and are statistically significant before and during the crisis periods (except

[14] When we include *Reg* Log(Boardsize)*Car and Reg*Familychair*Car* in the regression model, none are statistically significant at conventional levels, consistent with the lack of significant changes of these variables in the post-regulation period, as shown in Panel A of Table IV. This is also consistent with the goal of the new regulation that was to improve the independence of boards of directors, not board size or board leadership. Alternatively, we estimate regressions for the affected firms separately for the pre-and post-regulation periods, instead of using *Reg* as an independent variable, to avoid high multicollinearity among two- and three-way board interaction variables with *Reg*. The (untabulated) results show that the coefficients on *Independence*Car* are significantly negative in both the pre-and post-regulation periods, and the magnitude of the coefficient is substantially greater for the post-period (-3.746) than that in the pre-period (-2.124). The coefficients on *Log(Boardsize)*Car* and *Familychair*Car* are significant both in the pre- and post-periods, but not statistically different between the two periods. Overall, these results are consistent with those reported in Panel B of Table IV.

[15] Bae, Baek, Kang, and Liu (2012) find evidence on Korean firms that the expropriation incentives of the controlling shareholders are different during the 1997-98 Asian financial crisis versus during subsequent recovery periods.

*Familychair*Car* during the crisis). The magnitude of the coefficients for *Log(Boardsize)*Car* and *Independence*Car* is significantly greater during the crisis than before the crisis, suggesting accentuated monitoring efforts from boards of directors during the crisis. Overall, the results in Table V suggest that our main findings in Table III are not fully driven by the self-selection issue.[16]

Altogether, the additional evidence on the exogenous regulation change regarding independent directors in Hong Kong and the global financial crisis in 2007 strengthens our confidence about the causality of board governance on intragroup propping activities.

VI. Robustness checks

We perform a battery of sensitivity tests to ensure that our observed results are robust.

A. Ownership effect

Some group member firms are interlinked by equity investment via the use of pyramid or cross-holding structures. This raises a concern that stock price reactions of non-announcing member firms to earnings news released by other group peers might be technically attributed to the equity interlock between them, but not to the intragroup propping potential of announcing member firms. If this is the case, our empirical results could be spurious. To address this possibility, we exclude equity-linked pair observations (through direct or indirect equity investment between announcing and non-announcing member firms), and re-estimate the regressions in Columns (2) and (3) of Table III.[17]

The regression results reported in Panel A of Table VI show that the coefficients on *Log(Boardsize)*Car* and *Independence*Car* are significantly negative at the 5% level or better in both Columns (1) and (2), while the coefficient on *Familychair*Car* is significantly positive only in Column (2) with control variables included. These results suggest that the significant effects of board structure

[16] The negatively significant coefficient on *Lowercash*Car* during the crisis period suggests that the market valuation of propping is smaller when announcing member firms have lower cash flow rights owned by controlling families. This is consistent with the argument that firms that are less owned by controlling families are likely to have fewer resources to prop up other member firms, particularly during the financially difficult period.

[17] Using the aforementioned Hutchison Harbour Ring, the first announcing member firm within the Li Ka-shing conglomerate for fiscal year 2005 (Figure I), as an example, the paired samples of Hutchison Harbour Ring-Cheung Kong and Huthchison Harbour Ring-Hutchison Whampoa—are excluded, as they are tied through equity investments.

characteristics shown in Table III are not attributable to the impact of equity interlocks between announcing and non-announcing member firms.

[Insert Table VI around here]

B. Timing of earnings announcements among group member firms

Some family business groups in our sample consist of three or more member firms (as shown in Table I). Since the market may infer and incorporate into valuation decisions the performance information of later-announcing member firms from earlier earnings announcements of other group member firms, the intragroup valuation implications of later-announcing firms might be contaminated by earlier ones. To address this concern, we restrict our sample to pair observations that contain only the first announcing member firms and their non-announcing counterparts in each sample year and re-estimate the last two regression models in Table III. The results presented in Panel B of Table VI are quite similar to those in Table III, suggesting that our main results are not sensitive to the timing of earnings announcements among group member firms.

C. Effect of performance

Prior studies suggest that announcing member firms with good performance have more resources available to prop up their group peers, while poorly performing member firms have few resources to be shared or may even need to be propped up (Bae, Cheon and Kang, 2008). Given relatively less frequent propping potential from poorly performing member firms, it is likely that the monitoring effect of boards of directors on intragroup propping activities is more evident among member firms with good performance. To address this issue, we divide the sample into two groups based on announcing member firm performance. Good performers consist of observations in which announcing firms report both positive earnings and an earnings increase over the previous year, and poor performers consist of the other

observations.[18] We re-estimate the regression in Column (3) of Table III for each group separately and report the results in Panel C of Table VI.

Panel C of Table VI shows that the results for good performers are quite similar to those in Table III. However, for the poor performers, the coefficient on *Car* is only marginally significant at the 10% level, and only one of the three board structure variables (*Independence*Car*) is statistically significant. The explanatory power of the regression model is also greater for good performers (25.4%) than for poor performers (12.2%).[19] In short, the results in Panel C of Table VI are consistent with the view that well-performing member firms have more resources available to prop up other member firms, and the introduction of high-quality board of directors more effectively protects their resources from being siphoned off. In contrast, poorly performing member firms have few resources available to be shared, and thereby the mitigating effect of high-quality board on intragroup propping is less evident among them.

D. Portfolio approach to estimating abnormal returns for non-announcing member firms

A potential problem with the use of individual returns for non-announcing member firms is that the assumption of cross-sectional independence in the ordinary least squares (OLS) regression may be violated because individual returns for non-announcing member firms are perfectly clustered at their announcing group peers' earning announcement event, which may result in upward-biased *t*-statistics in the analyses. To address this concern, we follow Bae, Cheon, and Kang (2008) and employ an equal-weighted portfolio approach to estimate returns for non-announcing member firms, as portfolio returns tend to diversify away the cross-sectional dependence of individual returns.

We report the results in Panel D of Table VI, where the variable, *Lowercash*, is redefined to indicate whether cash flow rights of announcing member firms in the hands of their controlling families are below their group median, and *Largersize* is redefined to indicate whether total assets of announcing member

[18] When we classify good (bad) performers based on an earnings increase (decrease) over the previous year (without considering the level of earnings), the results remain unchanged.

[19] Alternatively, we segregate all sample observations into good and bad performer subsamples based on whether the cumulative abnormal returns of the announcing member firm (*Car)* around the earnings announcement date are positive. The regression results are similar to those in Panel C of Table VI.

firms are above their group median. The results show that the coefficients on *Log(Boardsize)*Car* and *Independence*Car* are all significant with the predicted signs at the 5% level in both Columns (1) and (2), and the coefficient on *Familychair*Car* significantly positive only in Column (2). Overall, the results in Panel D of Table VI indicate that our main results on board structure are not fully driven by cross-sectional dependence of individual returns around earnings announcement events.

E. Attributes of non-announcing member firms

Our regression model (1) does not include financial characteristics of non-announcing member firms, except for comparative variables between announcing and non-announcing member firms (i.e., *Lowercash*, *Largersize*, and *Industry_same*). However, it is possible that some financial characteristics of non-announcing member firms affect their market reactions to the earnings news released by their group peers. For example, non-announcing member firms in financial difficulty are more likely to be propped up, and thus are expected to be more sensitive to the performance achieved by their group peers.

To address this concern, we introduce several additional variables for non-announcing member firms into the regression model: market-to-book ratio (*MB_Non*), leverage ratio (*Lev_Non*), and a dummy variable for losses (*Loss_Non*), indicating whether non-announcing member firms reported losses for two consecutive fiscal years. We include both the level and interaction variables with *Car*. Since member firms with high leverage ratio, lower growth rate, and poor performance are more likely to fall into financial trouble, we expect positive coefficients for *Lev_Non* Car* and *Loss_Non*Car*, but a negative coefficient for *MB_Non*Car*.

[Insert Table VII around here]

Table VII reports regression results for three sample groups: Column (1) reports for the full sample; Column (2) reports for good performers, in which announcing member firms report both positive earnings and earnings increases relative to the previous year; and Column (3) reports for good performers, in which announcing member firms have a positive *Car*. The coefficient on *Loss_Non*Car* is positive and

significant at the 1% level in Column (2) and at the 5% level in Column (3), respectively, but insignificant for the full sample (Column (1)). This result suggests that poorly performing, non-announcing member firms are expected to benefit more from the good earnings news released by their group peers. The coefficient on *MB_Non*Car* is all negative and statistically significant only in Column (2). None of the coefficients on *Lev_Non*Car* are significant. More importantly, our main results on board governance variables remain statistically significant with the predicted signs in all three columns, and are barely affected by the inclusion of financial characteristics of non-announcing member firms.

F. Alternative samples

While most family firms in Hong Kong have a fiscal year-end of December 31, others have different fiscal year-ends. If announcing and non-announcing member firms within the same family business groups have different fiscal year-ends, the stock price reactions of non-announcing member firms to their announcing group peers' earnings news might be contaminated by their own interim (quarterly or semiannual) earnings releases. To alleviate this concern, we require that announcing and non-announcing member firms of each pair-year observation have the same fiscal year-end in our analyses. However, this requirement leads to a large reduction in sample size. When we remove this requirement, our observations increase from 601 to 947 pair-years (which represent 136 member firms from 41 family business groups). We replicate all previous regressions using this enlarged sample and find that all the main results (untabulated) on propping and board governance variables remain unchanged, suggesting that our inferences are immune from the influence of the strict requirement on the same fiscal year-end between announcing and non-announcing member firms.

As shown in Table I, one family business group with 8 member firms (the Li Ka-shing conglomerate) contributes 130 pair-year observations to the sample. Since it is possible that our main results are affected by over-representation of the Li Ka-shing group, we exclude these 130 pair-year observations attributable to this group and re-estimate the regressions in Table III. The results (untabulated) are qualitatively

similar to those in Table III, suggesting that our findings are not subject to over-representation of a particular group in the sample.

G. Impact of overlapping estimation periods and different event windows

The overlap of estimation periods in computing abnormal returns for announcing and non-announcing member firms could influence the independence of the estimated returns and therefore make it likely that the *t*-statistics in the analyses of abnormal returns are biased upward. To address this issue, we use market-adjusted and mean-adjusted abnormal returns, respectively, to replace market model abnormal returns and repeat the main regressions in Table III. The results, not reported for brevity, are similar to those in Table III. In addition, we re-estimate the main regressions using market model abnormal returns with three alternative event windows, over days [0, 2], [-1, 2], and [-2, 2], respectively, in place of the event window [-1, 1]. All results (untabulated) are similar to those in Table III. Therefore, the overlap of estimation periods and the choice of event windows do not seem to drive our results.

H. Alternative explanation for the relation between abnormal returns for announcing and non-announcing member firms

An alternative explanation for the positive correlation between *Car* and *Resp* is information spillover from announcing member firms' earnings to their non-announcing group peers' performance. That is, investors may be able to rationally infer other member firms' performance from the earnings released by their group peers, due to business ties or the controlling families' resources, such as political connections and managerial talents, shared by announcing and non-announcing firms. However, prior studies find that boards with larger size and stronger independence are associated with higher earnings quality in terms of less financial statement fraud and earnings management (e.g., Beasley, 1996; Dechow, Sloan, and Sweeney, 1996; Klein, 2002b; Larcker, Richardson, and Tuna, 2007). Earnings of higher quality will convey more valuation information to the market. If the positive return correlation between announcing and non-announcing member firms is fully driven by information spillover, such positive relation would be strengthened for announcing member firms whose boards are larger and more independent. Thus, this

would bias against finding the observed monitoring effect (i.e., the opposite signs) of board structure of announcing member firms on intragroup propping activities.

VII. Conclusions

This paper investigates the governance role of boards of directors in curtailing intragroup propping activities within family business groups in Hong Kong. Specifically, we examine the monitoring effect of member firms' board structure characteristics on intragroup propping potential, which is measured by the stock price reactions of non-announcing member firms to the earnings news released by other group members. We first report the positive association between the stock price reactions of non-announcing and announcing member firms, suggesting the existence of intragroup propping, as reported in Bae, Cheon, and Kang (2008). More importantly, we find that market reactions of non-announcing member firms are *less* pronounced to earnings news released by their group peers that have a board with larger size and a higher percentage of independent directors, but are *more* pronounced to those that have an executive director from their controlling families serving as board chairperson. Our findings suggest that boards with a larger number of directors and a higher proportion of independent directors play a more effective governance role in protecting member firm resources from intragroup propping. In contrast, the grip of controlling families on the position of board chairperson facilitates intragroup propping. We take advantage of the recent regulation change on the number of independent directors in Hong Kong and show that the monitoring effect of board independence on curbing intragroup propping activities is strengthened for firms that are subject to the new regulation, suggesting the causality of board governance.

Our study highlights that more independent and larger boards play a critical role in restraining controlling families from undertaking intragroup propping activities and protecting the interests of minority shareholders of member firms. Our study extends Bae, Cheon, and Kang (2008) on intragroup propping to the governance role of boards of directors in disciplining propping activities within family business groups, and thus contributes to the literature on propping and corporate governance within

family business groups. It also provides empirical evidence, in the context of family business groups, for the theoretical argument that firms with higher levels of private benefits to insiders demand a board with larger size and stronger independence (Raheja, 2005; Harris and Raviv, 2008).

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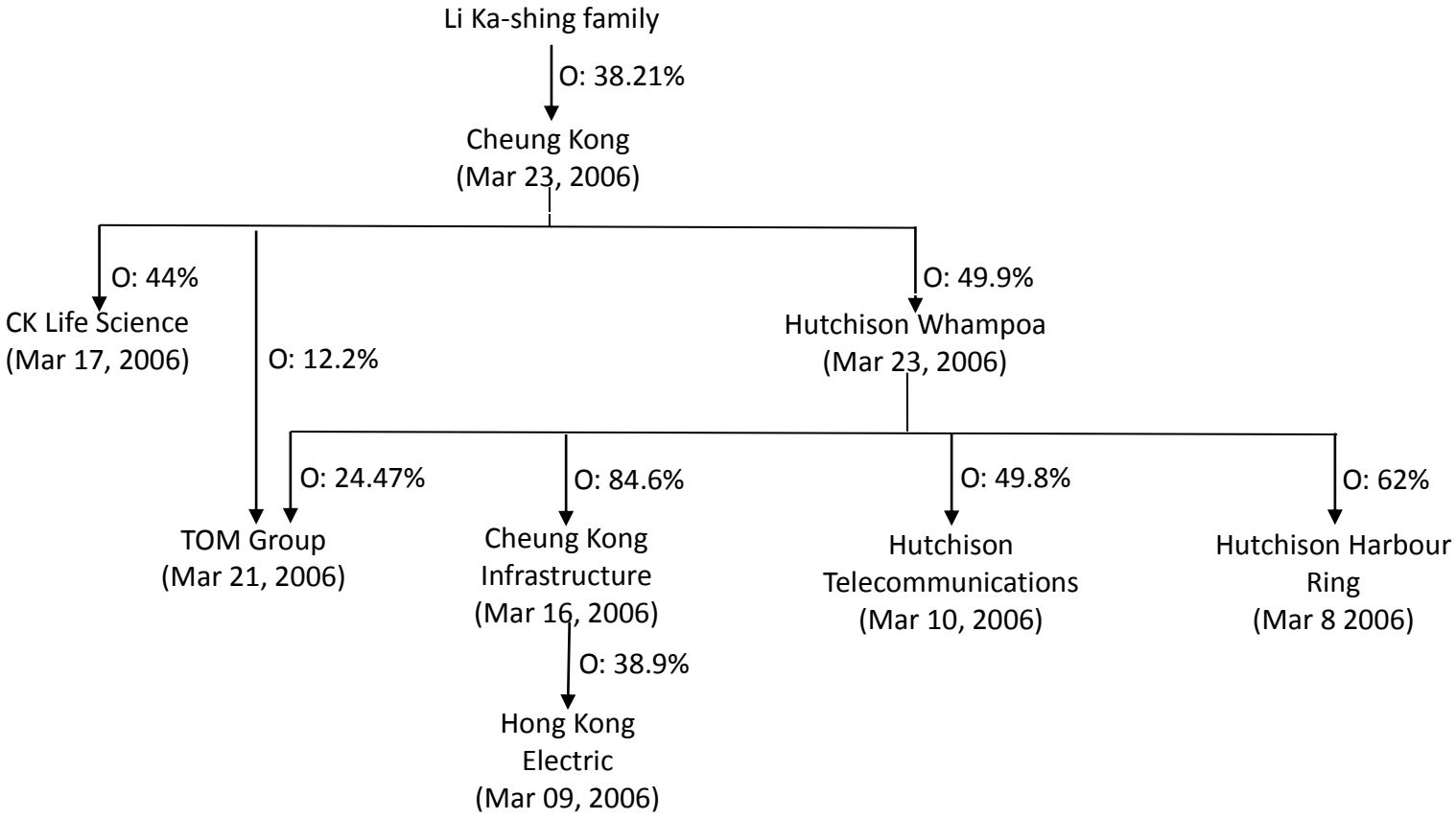
Figure I. The Li Ka-shing family business group



Note: The earnings announcement date for fiscal year 2005 is presented in parentheses under each member firm's name. The direct ownership stakes (O) held by upper member firms or by the Li Ka-shing family in lower member firms are shown along arrow lines linking them. Ownership data is collected from annual reports as of fiscal year-end 2005.

Table I. **Sample distribution of family business groups**

The sample is comprised of 601 pair-year observations over the period 2002-2008, involving 111 member firms from 33 family business groups in Hong Kong.

	# of family business groups	# of member firms per group	# of member firms	# of earnings announcement events	# of paired observations
	11	2	22	41	41
	12	3	36	77	117
	4	4	16	45	79
	3	5	15	48	95
	2	7	14	46	139
	1	8	8	32	130
Total	33		111	289	601

Table II. **Summary statistics for announcing and non-announcing member firms**

This table provides summary statistics for member firms included in our sample. The sample is comprised of 601 pair-year observations over the period 2002-2008, involving 111 member firms from 33 family business groups in Hong Kong. *Resp* is three-day cumulative abnormal returns for non-announcing member firm *j* around member firm *i*'s earnings announcement date. *Car* is three-day cumulative abnormal returns for member firm *i* around its earnings announcement date. *Lowercash* takes the value of one when controlling families own cash flow rights in firm *i* at a level lower than they do in firm *j*, and zero, otherwise. *Largersize* takes the value of one if the total assets of firm *i* are greater than those of firm *j*, and zero, otherwise. *Industry_same* takes the value of one if firm *i* and firm *j* are operating in the same one-digit SIC code industry, and zero, otherwise. *Lag* is number of days by which the earnings announcement date of firm *i* precedes that of non-announcing firm *j*. *Boardsize* is the number of directors sitting on the board. *Independence* is the percentage of independent non-executive directors sitting on the board. *Familychair*, a dummy variable, takes the value of one if the board chair is an executive director from the controlling family, and zero, otherwise. *MB* is the market-to-book equity ratio. *Lev* is the ratio of total debts to total assets.

Panel A: Descriptive statistics between announcing and non-announcing member firms (N = 601)

Variables	Mean	Std Dev	Min	Q1	Median	Q3	Max	Corr. coef. between *Car* and *Resp*
Resp	0.06%	4.87%	-22.69%	-2.05%	-0.02%	1.63%	25.68%	0.20 ($p < .00$)
Car	0.63%	9.86%	-54.79%	-2.68%	-0.22%	1.92%	45.13%	
Lowercash	67.05%	47.04%	0%	0%	100%	100%	100%	
Largersize	28.62%	45.24%	0%	0%	0%	100%	100%	
Industry_same	24.79%	43.22%	0%	0%	0%	0%	100%	
Lag	16.56	10.89	5.00	8.00	13.00	22.00	58.00	

Panel B: Descriptive statistics for announcing member firm characteristics (N = 289)

Variables	Mean	Std Dev	Min	Q1	Median	Q3	Max
Boardsize	8.92	2.63	4.00	7.00	9.00	10.00	17.00
Independence	36.97%	11.37%	16.67%	30.00%	37.50%	33.33%	71.43%
Familychair	49.13%	50.08%	0%	0%	0%	100%	100%
MB	1.88	5.28	0.19	0.69	1.05	1.57	71.07
Lev	0.37	0.28	0.01	0.20	0.34	0.50	2.54

Panel C: Descriptive statistics for non-announcing member firm characteristics (N = 336)

Variables	Mean	Std Dev	Min	Q1	Median	Q3	Max
Boardsize	9.23	3.12	4.00	7.00	9.00	11.00	21.00
Independence	37.69%	10.83%	15.38%	30.00%	37.50%	44.44%	75.00%
Familychair	66.67%	47.21%	0%	0%	100%	100%	100%
MB	1.76	6.87	0.19	0.60	0.80	1.32	79.43
Lev	0.38	0.27	0.00	0.22	0.33	0.49	2.54

Table III. **Regression results of the impact of board structure on stock price reactions of non-announcing member firms to earnings announcements made by their group member firms**

The sample is comprised of 601 pair-year observations over the period 2002-2008, involving 111 member firms from 33 family business groups. *Log(Boardsize)* is measured as natural log of the number of directors sitting on the board. All other variables are defined as in Table II. The *t*-statistics given in parentheses below each estimate are based on heteroscedasticity-consistent standard errors clustered by earnings announcement event. *, **, *** denote significance at the levels of 10%, 5%, and 1%, respectively.

		Predicted	Dependent variable = *Resp*		
Variables	Coef.	sign	(1)	(2)	(3)
Intercept	α_0		1.058	7.425	6.865*
			(0.46)	(1.62)	(1.77)
Car	β_1	+	0.092**	1.529**	2.221***
			(2.14)	(2.55)	(3.89)
*Log(Boardsize)*Car*	β_2	−		-0.436**	-0.638***
				(-2.39)	(-3.77)
*Independence*Car*	β_3	−		-1.482**	-1.987***
				(-2.32)	(-3.35)
*Familychair*Car*	β_4	+		0.160*	0.157**
				(1.69)	(2.18)
Log(Boardsize)	β_5			-1.789	-1.828
				(-1.37)	(-1.40)
Independence	β_6			-6.092*	-5.368
				(-1.77)	(-1.59)
Familychair	β_7			-0.780	-0.288
				(-1.35)	(-0.51)
*Lowercash*Car*	β_8	+			0.036
					(0.59)
*Lag*Car*	β_9	−			-0.009***
					(-2.97)
*Largersize*Car*	β_{10}	+			-0.074
					(-1.09)
*Industry_same*Car*	β_{11}	+			0.014
					(0.20)
*MB*Car*	β_{12}				0.016*
					(1.83)
*Lev*Car*	β_{13}				0.181
					(1.31)
Lowercash	β_{14}				0.183
					(0.40)
Lag	β_{15}				-0.065***
					(-2.86)
Largersize	β_{16}				-0.287
					(-0.57)
Industry_same	β_{17}				0.490
					(0.91)
MB	β_{18}				0.049
					(0.95)

Lev	β_{19}			-0.516
				(-0.54)
Industry dummies		Yes	Yes	Yes
Year dummies		Yes	Yes	Yes
Sample size		601	601	601
R^2		0.090	0.121	0.175

Table IV. **Descriptive statistics and regression results for the impact of the new regulation on the number of independent non-executive directors**

The sample is comprised of 601 pair-year observations over the period 2002-2008, involving 111 member firms from 33 family business groups. The "affected" firms represent those subject to the new regulation in 2004 and the "unaffected" firms represent those not subject to the new regulation (i.e., those that already appointed at least three independent directors prior to the new regulation). *Reg* is a dummy variable, which takes the value of one if the earnings announcement took place after the new requirement on the number of independent non-executive directors came into force in 2004, (i.e., post-regulation) and zero, otherwise (i.e., pre-regulation). All other variables are defined as in Table II and Table III. The *t*-statistics given in parentheses below each estimate are based on heteroscedasticity-consistent standard errors clustered by earnings announcement event. *, **, *** denote significance at the levels of 10%, 5%, and 1%, respectively.

Panel A: Difference in mean values of board structure characteristics between pre- and post-regulation periods for announcing member firms that are subject versus those not subject to the new regulation

Firms subject to new regulation ("Affected" firms)

Variables	# of firm-years	*Boardsize*	# of independent directors	*Independence*	*Familychair*
Pre-regulation	44	7.80	1.98	29.05%	52.27%
Post-regulation	137	8.53	3.17	39.88%	51.82%
Difference		0.73	1.19***	10.83%***	-0.45%
t-value		1.58	12.66	5.62	-0.05

Firms not subject to new regulation ("Unaffected" firms)

Variables	# of firm-years	*Boardsize*	# of independent directors	*Independence*	*Familychair*
Pre-regulation	19	9.63	3.32	36.44%	47.37%
Post-regulation	89	9.92	3.47	36.53%	43.82%
Difference		0.29	0.15	0.09%	-3.55%
t-value		0.52	0.96	0.04	-0.28

Panel B: Regression results for the impact of the new regulation for member firms that are subject versus those not subject to the new regulation

Variables	Coef.	Predicted sign	Dependent variable = *Resp*	
			Unaffected	Affected
Intercept	α_0		1.815	-7.750
			(0.33)	(-1.03)
Reg	β_1		-1.153	-2.677
			(-0.53)	(-1.23)
Car	β_2	+	2.565***	3.426**
			(3.09)	(2.13)
*Reg*Car*	β_3		0.126	0.880
			(0.46)	(1.16)
*Log(Boardsize)*Car*	β_4	−	-0.783***	-1.193**
			(-2.97)	(-2.41)
*Independence*Car*	β_5	−	-3.347***	0.824
			(-2.98)	(0.43)
Reg Independence*Car*	β_6	?/−	0.849	-3.733**
			(1.17)	(-2.00)
*Familychair*Car*	β_7	+	0.180**	0.419**
			(2.40)	(2.38)
Log(Boardsize)	β_8		-0.657	4.662*
			(-0.38)	(1.68)
Independence	β_9		-1.218	6.601
			(-0.15)	(0.78)
*Reg*Independence*	β_{10}		4.478	2.213
			(0.59)	(0.36)
Familychair	β_{11}		-0.742	0.051
			(-1.04)	(0.05)
*Lowercash*Car*	β_{12}	+/?	0.069	-0.158
			(1.06)	(-1.14)
*Lag*Car*	β_{13}	−	-0.010***	-0.008
			(-2.88)	(-1.30)
*Largersize*Car*	β_{14}	+	-0.050	0.059
			(-0.60)	(0.62)
*Industry_same*Car*	β_{15}	+	0.026	-0.304
			(0.32)	(-1.65)
*MB*Car*	β_{16}		0.026**	-0.084
			(2.53)	(-0.86)
*Lev*Car*	β_{17}		0.214	-0.606*
			(1.41)	(-1.72)
Lowercash	β_{18}		-0.162	0.866
			(-0.24)	(0.90)
Lag	β_{19}		-0.047	-0.054*
			(-1.38)	(-1.68)
Largersize	β_{20}		-1.281*	0.762
			(-1.71)	(1.02)
Industry_same	β_{21}		0.233	1.494
			(0.28)	(1.49)
MB	β_{22}		0.025	-1.273*
			(0.51)	(-1.75)

Lev	β_{23}	0.328	-0.717
		(0.24)	(-0.41)
Industry dummies		Yes	Yes
Sample size		202	399
R^2		0.190	0.190

Table V. **Regression results of the impact of board structure on intragroup propping potential before and during the global financial crisis**

The subsample prior to the global financial crisis is comprised of 401 pair-year observations over the period 2002-2006, and the subsample during and after the crisis contains 200 observations over the period 2007-2008. All variables are defined as in Table II and Table III. The *t*-statistics given in parentheses below each estimate are based on heteroscedasticity-consistent standard errors clustered by earnings announcement event. *, **, *** denote significance at the levels of 10%, 5%, and 1%, respectively.

		Predicted	Dependent variable = *Resp*	
Variables	Coef.	sign	Pre-crisis	Crisis
Intercept	α_0		14.968***	2.602
			(2.78)	(0.42)
Car	β_1	+	1.840**	3.575***
			(2.12)	(4.32)
*Log(Boardsize)*Car*	β_2	−	-0.551*	-0.972***
			(-1.92)	(-4.08)
*Independence*Car*	β_3	−	-1.757**	-2.807***
			(-2.22)	(-3.18)
*Familychair*Car*	β_4	+	0.248***	0.063
			(3.09)	(0.70)
Log(Boardsize)	β_5		-3.189*	-0.261
			(-1.86)	(-0.13)
Independence	β_6		-13.124***	-0.916
			(-2.94)	(-0.17)
Familychair	β_7		-1.149	-0.250
			(-1.64)	(-0.31)
*Lowercash*Car*	β_8	+/?	0.110**	-0.205*
			(2.29)	(-1.89)
*Lag*Car*	β_9	−	-0.010***	-0.013*
			(-2.92)	(-1.98)
*Largersize*Car*	β_{10}	+	-0.055	-0.141
			(-0.62)	(-1.15)
*Industry_same*Car*	β_{11}	+	0.091	-0.208**
			(1.12)	(-2.32)
*MB*Car*	β_{12}		0.028**	0.024*
			(2.45)	(1.78)
*Lev*Car*	β_{13}		0.191	0.112
			(1.11)	(0.54)
Lowercash	β_{14}		-0.622	1.508*
			(-1.05)	(1.86)
Lag	β_{15}		-0.012	-0.114**
			(-0.49)	(-2.56)
Largersize	β_{16}		-0.418	0.691
			(-0.77)	(0.71)
Industry_same	β_{17}		-0.843	1.869**
			(-1.39)	(2.17)
MB	β_{18}		-0.543**	0.073
			(-2.52)	(1.37)
Lev	β_{19}		-1.315	-0.020
			(-0.93)	(-0.02)

Industry dummies	Yes	Yes
Year dummies	Yes	Yes
Sample size	401	200
R^2	0.234	0.255

Table VI. Robustness tests

The sample period spans the period 2002-2008. In Panel C, the pair-year observations in which announcing member firms report both positive earnings and earnings increases relative to the prior year are grouped into good performing subsample, and the other observations grouped into poor performing subsample. In Panel D, variables are defined as follows: *AvgResp* is three-day cumulative abnormal returns for the equal-weighted portfolio of non-announcing member firms around member firm *i*'s earnings announcement date. *Lowercash* is a dummy variable, which takes the value of 1 if the cash flow right of the announcing member firm in hands of the controlling family is not greater than its group median, and zero , otherwise. *Largersize* is a dummy variable, which takes the value of 1 if the market value of the announcing member firm is larger than its group median, and zero, otherwise. All other variables are defined as in Table II and Table III. The *t*-statistics given in parentheses below each estimate in Panels A through C are based on heteroscedasticity-consistent standard errors clustered by earnings announcement event, and those in Panel D based on heteroscedasticity-consistent standard errors. *, **, *** denote significance at the levels of 10%, 5%, and 1%, respectively.

Panel A: Excluding observations that have equity ties between announcing and non-announcing member firms

		Predicted	Dependent variable = *Resp*	
Variables	Coef.	sign	(1)	(2)
Intercept	α_0		2.326	-0.331
			(0.39)	(-0.05)
Car	β_1	+	3.055**	4.160***
			(2.35)	(3.04)
*Log(Boardsize)*Car*	β_2	−	-0.928**	-1.211***
			(-2.21)	(-2.76)
*Independence*Car*	β_3	−	-2.764**	-3.588***
			(-2.28)	(-2.89)
*Familychair*Car*	β_4	+	0.134	0.161*
			(1.32)	(1.71)
Log(Boardsize)	β_5		-0.751	0.867
			(-0.40)	(0.40)
Independence	β_6		-2.820	0.746
			(-0.48)	(0.11)
Familychair	β_7		-0.909	-0.214
			(-1.28)	(-0.28)
Control variables			No	Yes
Industry dummies			Yes	Yes
Year dummies			Yes	Yes
Sample size			320	320
R^2			0.127	0.219

Panel B: Including only the first announcing member firms and their non-announcing group peers

Variables	Coef.	Predicted sign	Dependent variable = *Resp* (1)	(2)
Intercept	α_0		6.709*	7.380*
			(1.86)	(1.90)
Car	β_1	+	1.153**	1.456***
			(2.10)	(2.62)
*Log(Boardsize)*Car*	β_2	−	-0.339*	-0.428**
			(-1.90)	(-2.37)
*Independence*Car*	β_3	−	-1.160**	-1.305***
			(-2.13)	(-2.63)
*Familychair*Car*	β_4	+	0.064	0.125*
			(0.87)	(1.75)
Log(Boardsize)	β_5		-2.412**	-2.077
			(-2.00)	(-1.65)
Independence	β_6		-6.160*	-5.426*
			(-1.94)	(-1.78)
Familychair	β_7		-0.341	-0.087
			(-0.82)	(-0.20)
Control variables			No	Yes
Industry dummies			Yes	Yes
Year dummies			Yes	Yes
Sample size			328	328
R^2			0.067	0.143

Panel C: Separate tests for good vs. poor performers

Variables	Coef.	Predicted Sign	Good performers	Poor performers
Intercept	α_0		3.391	7.065
			(0.79)	(1.19)
Car	β_1	+	2.541***	1.721*
			(4.00)	(1.71)
*Log(Boardsize)*Car*	β_2	−	-0.730***	-0.534
			(-3.58)	(-1.63)
*Independence*Car*	β_3	−	-2.039***	-1.840**
			(-2.68)	(-2.45)
*Familychair*Car*	β_4	+	0.140*	0.099
			(1.88)	(0.96)
Log(Boardsize)	β_5		-0.130	-4.014
			(-0.09)	(-1.62)
Independence	β_6		-2.931	-8.425
			(-0.69)	(-1.51)
Familychair	β_7		-0.064	-0.316
			(-0.10)	(-0.27)
Control variables			Yes	Yes
Industry dummies			Yes	Yes
Year dummies			Yes	Yes

Sample size	358	237
R^2	0.254	0.122

Panel D: Regression results using the portfolio approach

		Predicted	Dependent variable = *AvgResp*	
Variables	Coef.	Sign	(1)	(2)
Intercept	α_0		7.035*	8.031*
			(1.67)	(1.84)
Car	β_1	+	1.582**	1.668**
			(2.38)	(2.54)
*Log(Boardsize)*Car*	β_2	−	-0.485**	-0.499**
			(-2.32)	(-2.50)
*Independence*Car*	β_3	−	-1.348**	-1.452**
			(-2.13)	(-2.39)
*Familychair*Car*	β_4	+	0.136	0.121*
			(1.61)	(1.80)
*Log(Boardsize)**	β_5		-1.325	-1.350
			(-1.11)	(-1.09)
Independence	β_6		-6.627**	-6.434**
			(-2.05)	(-2.02)
Familychair	β_7		-0.762	-0.641
			(-1.37)	(-1.14)
Control variables			No	Yes
Industry dummies			Yes	Yes
Year dummies			Yes	Yes
Sample size			289	289
R^2			0.110	0.137

Table VII. **Regression results after including the attributes of non-announcing member firms**

The sample is comprised of 601 pair-year observations over the period 2002-2008, involving 111 member firms from 33 family business groups. Column (1) reports the results of regression with the full sample; Column (2) reports the results of regressions with observations in which announcing member firms report both positive earnings and earnings increases relative to the prior year; and Column (3) reports the results of regressions with observations in which announcing member firms have a positive *Car*. *MB_Non* is the non-announcing member firm's market-to-book ratio. *Lev_Non* is the non-announcing member firm's ratio of total debts to total assets. *Loss_Non* is a dummy variable, which takes the value of one if the non-announcing member firm reported losses for two consecutive fiscal years, and zero, otherwise. All other variables are defined as in Table II and Table III. The *t*-statistics given in parentheses below each estimate are based on heteroscedasticity-consistent standard errors clustered by earnings announcement event. *, **, *** denote significance at the levels of 10%, 5%, and 1%, respectively.

Variables	Coef.	Predicted sign	(1) Full sample	(2) Good performers on earnings	(3) Good performers on *Car*
Intercept	α_0		8.001**	3.613	4.777
			(2.01)	(0.83)	(0.74)
Car	β_1	+	2.021***	2.041***	2.922***
			(4.02)	(4.13)	(5.24)
*Log(Boardsize)*Car*	β_2	−	-0.601***	-0.640***	-0.891***
			(-3.89)	(-3.91)	(-5.19)
*Independence*Car*	β_3	−	-1.761***	-1.173**	-2.853***
			(-3.56)	(-2.34)	(-4.40)
*Familychair*Car*	β_4	+	0.159**	0.127**	0.280**
			(2.33)	(2.06)	(2.55)
*Log(Boardsize)**	β_5		-1.883	-0.044	-1.131
			(-1.42)	(-0.03)	(-0.51)
Independence	β_6		-5.664*	-3.105	-1.089
			(-1.67)	(-0.75)	(-0.20)
Familychair	β_7		-0.331	-0.045	-1.504
			(-0.58)	(-0.07)	(-1.52)
*Lowercash*Car*	β_8	+	0.059	0.071	0.031
			(1.03)	(0.93)	(0.30)
*Lag*Car*	β_9	−	-0.009***	-0.016***	-0.009***
			(-3.34)	(-4.81)	(-2.63)
*Largersize*Car*	β_{10}	+	-0.141**	-0.143*	-0.153**
			(-2.26)	(-1.93)	(-2.01)
*Industry_same*Car*	β_{11}	+	-0.007	-0.151**	0.112
			(-0.10)	(-2.08)	(0.90)
*MB*Car*	β_{12}		0.016*	0.003	0.154
			(1.92)	(0.06)	(1.33)
*Lev*Car*	β_{13}		0.149	0.128	0.129
			(1.02)	(0.90)	(0.55)
Lowercash	β_{14}		-0.050	0.182	0.582
			(-0.11)	(0.33)	(0.77)
Lag	β_{15}		-0.064***	-0.043	-0.051*
			(-2.90)	(-1.65)	(-1.67)

Largersize	β_{16}		-0.074	0.318	-0.572
			(-0.15)	(0.52)	(-0.91)
Industry_same	β_{17}		0.452	0.079	-0.112
			(0.83)	(0.14)	(-0.13)
MB	β_{18}		0.040	0.081	-0.256
			(0.80)	(0.19)	(-0.95)
Lev	β_{19}		-0.011	-0.908	1.045
			(-0.01)	(-0.78)	(0.50)
*MB_Non*Car*	β_{20}	–	-0.002	-0.008**	-0.014
			(-0.47)	(-2.10)	(-1.58)
*Lev_Non*Car*	β_{21}	+	0.084	0.166	-0.012
			(0.60)	(0.72)	(-0.05)
*Loss_Non*Car*	β_{22}	+	0.196	0.368***	0.362**
			(1.47)	(4.67)	(2.34)
MB_Non	β_{23}		0.040	-0.015	0.146**
			(1.22)	(-0.41)	(2.09)
Lev_Non	β_{24}		-2.346**	-1.142	-2.584
			(-2.31)	(-0.82)	(-1.52)
Loss_Non	β_{25}		-1.464	0.057	-5.024
			(-1.34)	(0.04)	(-1.56)
Industry dummies			Yes	Yes	Yes
Year dummies			Yes	Yes	Yes
Sample size			601	358	287
R^2			0.195	0.289	0.383