# How do Family Ownership and Control Affect the Demand for Director and Officer Insurance?

**Abstract**

Equity holdings of family firms represent an important form of company ownership in South-East Asia. In order to enhance the effectiveness of corporate governance, listed companies have been required to disclose more information on their director and officer insurance (hereafter D&O insurance) purchases in Taiwan. This publicly available data enables this study to investigate how family firms react to litigation risks in terms of their D&O insurance. Using the D&O insurance coverage of Taiwan firms as a proxy for management legal liability coverage, this study made two major findings. First, firms with a high concentration of family ownership face lower litigations risk and are less likely to purchase D&O insurance. However, firms with significant controlling-minority shareholder agency conflicts are more willing to purchase D&O insurance due to the entrenchment effect. Second, family firms with Type II agency problems tend to carry abnormally high D&O insurance coverage. Furthermore, I find that family firms with outside CEOs exhibit a greater likelihood of purchasing D&O insurance. These findings suggest that the decision of family firms to purchase or not purchase D&O insurance is primarily driven by Type II agency problems and the types of CEOs they have in place.

## Introduction

Recent studies show that a significant number of firms are operated by families, and many of those firms are controlled by their founders or the founders' families and heirs (Anderson et al., 2003; Anderson and Reeb, 2003a, 2003b; Villalonga and Amit, 2006). When compared to non-family firms, family firms tend to face less severe agency conflicts between ownership and management (Type I agency problems) but more severe agency problems between family holders and minority shareholders (Type II agency problems) (Chen et al., 2008). This paper examines whether family firms tend to purchase not just director and officer liability insurance (hereafter D&O) but sometimes excessive D&O insurance coverage to cover litigation risks.

The unique characteristics of family ownership have important implications for legal liabilities. Family firms may be subject to less litigation exposure, which is consistent with the notion that they are dominated by the incentive alignment effect and survival and reputation concerns. The incentive alignment effect suggests that family owners are more willing to maximize their firms' value (Ali et al., 2007; Wang, 2006). In addition, Anderson and Reeb (2003a, 2003b) suggest that because founder families view their firms as assets to pass on to their descendants rather than as wealth to consume, these families will seek risk reduction activities. However, if family members decide to engage in riskier activities, their private benefit seeking behavior may result in legal liabilities and reduced stock prices. By linking their profits to the firms' value, family firms may face lower legal liability.

Another important concern of family firms is survival and reputation costs. The negative impact of survival and reputation costs weighs heavily on family firms, since they have longer investment horizons (Casson, 1999; Anderson et al., 2003; Chen et al., 2008). Thus, family firms usually try to avoid risky and illegal activities (Chen et al., 2008). These findings are consistent with the notion that family firms face less

legal liabilities. It follows that they may have fewer incentives to purchase D&O insurance.

However, family firms are more likely to suffer from greater Type II agency problems (Chen et al., 2010). If family members have severe Type II agency problems due to the separation of ownership and control rights (La Porta et al., 1999), their decisions may lead to the expropriation of minority shareholders' wealth (Fan and Wong, 2002), enabling family members to enrich themselves through aggressive accounting and risky investments. As family ownership decreases and non-family control increases through stock pyramids or cross-shareholdings, family members' incentives can become less aligned with a firm's value. Family members may be inclined to manipulate a firms' earnings management or engage in other illegal behaviors to increase their personal benefits. Therefore, family firms with Type II agency problems may purchase D&O insurance in order to reduce their litigation costs and prevent the possibility of indemnification.

Whether family firms face greater litigation risks is still an open question, and it is unclear whether they are more likely to purchase D&O insurance. There are two reasons why Taiwan offers an ideal environment for examining family firms' litigation risks. First, in the emerging markets of East Asia, including Taiwan, family-controlled firms are featured among publicly listed companies; this makes them widely visible. The proportion of family-controlled firms in Taiwan is similar to the average proportion of family-controlled firms in other countries in East Asia. Claessens et al. (2000) and Fan and Wong (2002) find that many Taiwanese family firms do not deviate from the one-share-one-vote policy; however, their owners may exercise control through pyramid and cross-shareholdings. Thus, it is meaningful to test for the differences between family firms with and without Type II agency problems. Second, contrary to U.S. and other Asian economies, firms in Taiwan are

required to disclose the existence of D&O insurance policies. The results of this study indicate that family firms are less likely to purchase D&O insurance because of the incentive alignment effect and survival and reputation concerns. However, I find that when family members' control rights are in excess of their cash flow rights, they tend to purchase D&O insurance and prefer to carry higher coverage limits. This suggests that family members with Type II agency problems might try to expropriate minority shareholders' wealth by seeking personal benefits.

This study contributes to family litigation risk literature by providing evidence of the impact of family ownership structure on the demand for D&O insurance. First, I document that family ownership influences the litigation risk of firms and provides the first evidence of a link between litigation risk and equity ownership structure. It follows that family members likely play a dominant role in purchasing D&O insurance. Second, by analyzing family firms' insurance policies, this study is able to determine the opportunistic behaviors of family members and the likelihood of litigation risk. The findings indicate that Type II agency problems in family firms affect both their litigation risk and their demand for D&O insurance coverage. Also, family firms' entrenchment problems may be worse when firms have abnormally high D&O insurance coverage limits. This further indicates that family members can exert an influence on the D&O insurance policy when holding the CEO position.

Finally, the ownership data used in this study reveals that Taiwanese firms exhibit a high concentration of family control. The mean family ownership of the study sample is 27.49%, which is similar to the average proportion of family-controlled firms in other East Asian economies (Fan and Wong, 2002). Even after a company goes public, family ownership or control tends to play a dominant role in the decision-making process. Thus, firms are generally owned and controlled through blood and marriage ties. This is in contrast to counterparts in the U.S. and

3

Canada, which are characterized by diffuse control and ownership. Previous research has not been able to fully examine the relationship between the specific ownership structure in East Asia and the detailed disclosure of liability coverage. However, the data now available provides current research with the opportunity to investigate whether family firms prefer to purchase excess D&O insurance coverage when they are subject to Type II agency conflicts.

## Institutional Background and Literature

### 2.1 The Legal System in Taiwan

According to Company Law in Taiwan, a firm's board of directors and officers are responsible for their company's behaviors and should fulfill their fiduciary obligations by checking the company's financial reports. Pursuant to the Securities and Exchange Act, if the negligence of the board causes any loss within the company, board members should make compensation to those shareholders who are victims of the company's false financial reports.[1]

Most individual investors in Taiwan hesitate to take legal action when their rights are infringed, either because they lack sufficient information or the legal process is too time consuming and costly. Therefore, the Taiwanese Securities and Futures Bureau (TSFB) has promulgated the Securities Investors and Futures Trader Protection Act (SIFTP Act) to protect individual investors' welfare. In 2003, the bureau established the Securities and Futures Investors Protection Center (SFIPC) to implement the Act. Since established, the SFIPC has dealt with 57 class-action cases, and more than 60,300 plaintiffs have required a total compensation amount about $0.9

---

[1] Article 20 of the Securities and Exchange Act stipulates that directors and officers who violate the provisions of the Act through misrepresentations or nondisclosures in their financial reports or in any other relevant financial or business documents filed or publicly disclosed, shall be held liable for damages sustained by bona fide purchasers or sellers of the said securities.

billion as of the end of 2008 (SFIPC 2008 annual report). Under the supervision and guidance of the competent authorities, the SFIPC has made significant progress in the fulfillment of class actions and in the protection of shareholders' equity. Also, their success in winning compensations for the investors in these cases marks a significant advance in Taiwan's efforts at establishing investor protection.

## 2.2 Directors' and Officers' Liability Insurance in Taiwan

Most firms reimburse their directors and officers for the costs of defending and settling lawsuits, usually under an arrangement specified either by the indemnification provisions,[2] or in the bylaws of the corporation. However, D&O insurance provides an additional layer of protection. D&O liability insurance can cover directors' and officer's legal expenses, damages paid pursuant to judgment, and amounts paid in settlement when the firm cannot. D&O insurance covers situations in which the director or officer commits fraudulent or illegal activities unknowingly, but does not violate his/her responsibility to the shareholders and the firm. Thus, a significant advantage of D&O insurance is that extensions are available on request to provide coverage for a firm in securities and employment mismanagement claims.

D&O insurance has been available in Taiwan since the 1990s. However, due to the increasing number of shareholders' claims against corporations, the TSFB announced a new ruling in 2002: the *Corporate Governance Best-Principles for Listed Companies*. The ruling stipulated that a listed company may take out liability insurance for directors with respect to their liabilities resulting from the exercise of

---

[2] In order to protect directors and officers from potentially bankrupting litigations, Article 546 of the Civil Code ensures that if directors and officers act in good faith and in a manner reasonably believed to be in, and not opposed to, the best interests of the company, they may demand recompense for their injury from the company. Although there is no general corporation law on indemnification, a few firms have a practical indemnity agreement specified in either the bylaws of the corporation or the director/officer mandate contract (Lu and Horng, 2007).

their duties during their terms of occupancy. The purpose of this announcement was to reduce the risk of material harm arising from the wrongdoing or negligence of a director or an officer by spreading the risk among the company and shareholders. Since 2002, D&O insurance has become an important protection for directors and officers when named as defendants.

Several arguments have been advanced that attempt to explain why firms purchase D&O liability insurance. First, the efficient contract hypothesis states that firms purchase the insurance because they cannot indemnify directors and officers in the event of a suit (Parry and Parry, 1991), and risk-averse directors and officers require D&O insurance or an extra indemnification contract as a condition of their service. Second, the monitoring hypothesis states that D&O insurance may have an important role in monitoring management (Holderness, 1990).[3] Although the primary purpose of D&O purchase is to spread the risk of loss from shareholder litigation, D&O insurance issuers, who evaluate and ultimately charge for the risks they assume, become specialists at assessing corporate governance (Griffith, 2005). Third, the managerial entrenchment (i.e., managerial opportunism) argument states that managers and directors of firms that purchase D&O insurance are likely to involve in the decision-making. Core (1997) provides evidence that when managers are more entrenched, firms are expected to purchase D&O insurance and carry higher coverage.

Although the empirical evidence is mixed on this issue, recent studies support the latest argument that D&O insurance weakens the effectiveness of litigation as a managerial control device by reducing expected personal legal liability (O'Sullivan, 2009; Wynn, 2008; Chung and Wynn, 2008). These studies indicate that opportunistic managers use their superior information to assess the probability of exposure to legal

---

[3] There are other monitoring mechanisms to oversee management, such as having a large number of shareholders or higher levels of insider stock ownership. Insurance is seen as an alternative monitoring mechanism.

liability and then purchase higher D&O insurance coverage, which is consistent with the managerial opportunism hypothesis.

## 2.3 Literature Review and Hypotheses Development

It is an open question as to whether family firms face higher or lower litigation risk. There are two characteristics of family firms that may face lower litigation risk and thereby reduce legal liability: incentive alignment and survival and reputation concerns.

First, the incentive alignment argument is consistent with the unique ownership structure of family firms. When founding family members own concentrated holdings of their firms' stocks and are actively involved in management, they may enjoy substantial control (Demsetz and Lehn, 1985). When families hold undiversified and concentrated ownership in their firms, family members are more likely to maximize the firms' value (Casson, 1999; Anderson and Reeb, 2003a). Concentrated ownership gives founding families strong incentives to minimize firm risk. Founding families can reduce firm risk by influencing the firms to invest in lower risk investment options and to seek capital expenditures that bear low probabilities of default.

In addition, recent studies provide evidence that family firms disclose fewer earnings forecasts and conference calls (Chen et al., 2008) but more earnings warnings and conservative financial statements (Ali et al., 2007; Chen et al., 2008). These characteristics of information disclosure in family firms may lead to fewer lawsuits from investors, in other words, lower litigation risks. Moreover, Core (1997) find that as insider ownership of a firm increases, the insiders become more aligned with outside shareholders, and the quantity of outside directors required for monitoring is reduced, leading to a lower demand for D&O insurance.

A second characteristic of family firms that may lower their litigation risk is

concern for their reputation and long-term survival. Several studies suggest that founding owners intend to pass their firms onto their descendants rather than consume the profits during their lifetimes (Casson, 1999; Anderson et al., 2003). Because founding owners have longer investment horizons and are more interested in firm survival than other shareholders, founding families are more concerned about the negative impact of poor reputation on the firms' value (Anderson et al., 2003a). Since family reputation is likely to influence long-lasting economic consequences, survival and reputation concerns may encourage family firms to avoid risky and illegal activities. If family members seek to maintain long-term survival and favorable reputations, they are more likely to perform better and be better able to mitigate conflicts with outside shareholders (Anderson and Reeb, 2003a). This will, in turn, lower the likelihood of lawsuits from investors.

In addition, Anderson et al. (2003) find that family firms enjoy lower costs for debt than non-family firms, which suggests that they have less agency conflicts with bondholders. Family members often develop positive relationships with banks and bondholders in order to build trust with these investors over successive generations. Therefore, bondholders may have certain expectations of family firms as long as the families maintain their ties to the firms. Bondholders who view family firms as organizational structures that protect their interests and lower their legal liabilities pose a very low litigation risk. Hence, family firms may be less likely to purchase D&O insurance. As mentioned above, this study predicts a negative sign of the effect of family firms on the demand for D&O insurance. Thus, the first hypothesis is as follows:


**Hypothesis 1**: **The likelihood of purchasing D&O insurance is negatively related to family firms.**

However, firms with a greater propensity for controlling-minority shareholder agency conflicts (Type II agency problem) may have higher litigation risks (Zou et al., 2008). Tight control creates an entrenchment problem that may cause family members to become less aligned with minority shareholders and to engage in opportunistic behavior (Chen et al., 2010). Studies have shown that founding or controlling families tend to expropriate wealth from minority shareholders once their control rights are in excess of their cash flow rights (i.e., the entrenchment effect) (Gilson and Gordon, 2003). This expropriation may take the form of self-dealing transactions, excessive compensation, special dividends or earnings management where profits are transferred to other companies they control (DeAngelo and DeAngelo, 2000; Johnson et al., 2002; Lu, 2003; DuCharme et al., 2004).

When family members pursue activities that maximize their personal utility at the expense of minority shareholders' interests, their actions lead to suboptimal policies which result in poor performance and a higher possibility of litigation from minority shareholders. It follows that such family firms may have an incentive to purchase D&O insurance. They could very well wish to reduce the litigation risks they face as their control increases and their influence exceeds their ownership rights Therefore, the second hypothesis is as follows:

**Hypothesis 2: The likelihood of purchasing D&O insurance is positively related to family firms with Type II agency problems.**

The apparent reduction of family members' liability through D&O insurance may induce moral hazards by shielding them from the discipline of shareholder litigation. Most empirical evidence supports that excess D&O insurance coverage is associated

with opportunistic behavior (Chung and Wynn, 2008; Wynn, 2008). Because carrying abnormally high D&O insurance coverage protects directors and officers from the threat of lawsuits and personal financial liability incurred by business decisions, it increases moral hazard. Therefore, families may have more incentive to practice opportunistic behavior (Chalmers et al., 2002; Wynn, 2008; Chung and Wynn, 2008). Chalmers et al. (2002) further suggest that the decision to carry D&O insurance with higher coverage limits reflects ex ante managerial opportunism pertaining to legal liability. Lin et al. (2011) find that firms carrying high levels of D&O insurance make poor merger and acquisition decisions that cause lower stock returns around the acquisition date.

If family firms have severe Type II agency problems, family members are inclined to make decisions that maximize their personal welfare and entrench the benefits of outside shareholders (Fan and Wong, 2002; Zou et al., 2008). As family ownership reduces and family control increases, family members' incentives become less aligned with the firm's future performance, thereby encouraging illegal behavior to increase their personal benefit. Due to the entrenchment effect, family members not only tend to purchase D&O insurance, but to purchase an abnormally high level of D&O coverage. Accordingly, I expect that family firms with Type II agency problems are more likely to have excessive D&O insurance coverage.

**Hypothesis 3: Excessive D&O insurance coverage is positively related to family firms with Type II agency problems.**

## 3. Research Design

The regression model is presented in this section, along with a detailed discussion of

the measures of family firms and D&O coverage. This is followed by a report on the data and sample employed in this study.

### 3.1 Models for Empirical Analysis

To examine Hypothesis 1 that family firms are less likely to purchase D&O insurance, I use the following probit regression model:

$$\text{Prob}(PURCHASE_t = 1) = \frac{1}{1 + e^{-Z}}, \text{ where}$$

$$Z = \alpha_0 + \alpha_1\, FAMILY + \alpha_2 DRLIST + \alpha_3 MB + \alpha_4 ROA + \alpha_5 LEV + \alpha_6 ACQUIROR$$
$$+ \alpha_7 DIVESTOR + \alpha_8 MVEQ + \alpha_9\, LITIGATION + \alpha_{10}\, OUTOWN + \alpha_{11}\, OUTDIR$$
$$+ \delta{\cdot}YEAR + \phi{\cdot}INDUSTRY + \varepsilon \qquad (1)$$

The dependent variable *PURCHASE* is an indicator variable that takes on a value of 1 if a firm purchases D&O insurance and 0 otherwise. The variable of interest, *FAMILY*, is an indicator variable that takes on a value of 1 if a firm whose founder or family member by either blood or marriage is an officer, a director, or the owner of at least 5% of the firm's equity, individually or as a group.

To test Hypotheses 2 that family firms with Type II agency problems have more incentives to purchase D&O insurance, I use the following probit regression model:

$$\text{Prob}(PURCHASE_t = 1) = \frac{1}{1 + e^{-Z}}, \text{ where}$$

$$Z = \beta_0 + \beta_1\, VOTE\text{-}OWN\ Family + \beta_2 DRLIST + \beta_3 MB + \beta_4 ROA + \beta_5 LEV + \beta_6 ACQUIROR$$
$$+ \beta_7 DIVESTOR + \beta_8 MVEQ + \beta_9\, LITIGATION + \beta_{10}\, OUTOWN + \beta_{11}\, OUTDIR + \delta{\cdot}YEAR$$
$$+ \phi{\cdot}INDUSTRY + \varepsilon \qquad (2)$$

where, the independent variable *VOTE-OWN Family* is the proxy for Type II agency problems, which is measured by the difference between the fractions of all votes

outstanding held by the founding family and the fractional equity ownership of the founding family.

Following previous studies (Core, 1997; O'Sullivan, 1997; Chalmers et al., 2002; Chung and Wynn, 2008; Wynn, 2008), I include a variety of control variables for company characteristics. The dummy variable of firms with exchanged-listed ADRs or GDRs (*DRLIST*) is included to control the litigation environment, because D&O claims in Taiwan are expected to be less frequent and less costly than those in the developed capital market. Since growth corporations bring more benefits to managers than value corporations (Boyer, 2005), managers of growth companies may choose smaller D&O insurance coverage. Thus, firm growth is measured as the ratio of the market value of equity to its book value (*MB*). Moreover, since firms need D&O insurance when they face poor financial performance and high financial leverage, the performance of firms (*ROA*) and their level of financial distress (*LEV*) are expected to be related to their litigation risk.

Because D&O claims often arise from mergers, acquisitions, and divestitures, litigation risk is expected to be positively related to mergers or acquisitions in the previous year (*ACQUIROR*) and to the divestiture of business or substantial assets in that year (*DIVESTOR)* (Chung and Wynn, 2008). The study uses the logarithm of the market value of the firm's stock to control for the size effect (Core, 1997). I also control for the effect of a firm's (perceived) litigation risk on D&O insurance decisions. Firms with disclosed pending or prior litigation (*LITIGATION*) are expected to have a higher litigation risk either because this litigation may lead to a D&O claim or a negative reputational effect (Chalmers et al., 2002). Thus, *LITIGATION* is added to control for the litigation effect on the demand for D&O insurance.

Finally, I control for board independence using two variables: the percentage of

outside directors' ownership (*OUTOWN*) and the proportion of independent directors over the corporate board (*OUTDIR*). Because D&O insurance may be seen as a substitute for other forms of board monitoring, a more independent board should be less likely to carry D&O insurance (Boyer, 2007; Wynn, 2008). *YEAR* is a set of dummy variables that represent year; and *INDUSTRY* is a set of dummy industrial variables.

Hypothesis 3, which concerns whether family firms with Type II agency problems tend to carry *excess* D&O insurance coverage, is tested using the following OLS regression model:

$$EXCOV= \gamma_0+ \gamma_1 \textit{VOTE-OWN Family} + \gamma_2 DRLIST+ \gamma_3 MB+ \gamma_4 ROA+ \gamma_5 LEV$$
$$+ \gamma_6 ACQUIROR+ \gamma_7 DIVESTOR+ \gamma_8 MVEQ+ \gamma_9 LITIGATION$$
$$+ \gamma_{10} OUTOWN+ \gamma_{11} OUTDIR+ \delta \cdot YEAR+ \phi \cdot INDUSTRY+ \varepsilon \qquad (3)$$

Following Chung and Wynn (2008) and Wynn (2008), the dependent variable *EXCOV*, which is the *excess* D&O liability coverage (beyond the expected coverage that a firm would carry), is measured by using the residuals from the regression of D&O insurance coverage on the determinants of D&O insurance coverage limits. The determinants of excess coverage limits include firm size, debt ratio, a cross-listing status, the percentage of outside directors on the board of directors, the percentage of shares held by outside blockholders, the volatility of stock returns, membership in a high-tech industry, and cash holdings. All other variables are as previously defined in Eq. (1) and (2).

## 3.2 Data and Sample

The study sample consists of 3,578 firm-year observations from Taiwanese listed

firms in the Taiwan Stock Exchange (TSC) covering the period 2007-2009. The D&O insurance data are publicly available in a proxy statement because the TSFB has required firms to disclose the existence of a D&O insurance policy since the end of 2007. Data for the firm level information and family ownership structure, including financial statement data and voting rights and cash flow rights, is obtained from the Taiwan Economics Journal (TEJ) database.

# 4. Empirical Analysis

## 4.1 Sample Selection and Descriptive Statistics

Family firms are defined in this study as firms where the founder or a family member by either blood or marriage is an officer, a director or the owner of at least 5% of a firm's equity (Anderson et al., 2003; Ali et al., 2007; Chen et al., 2008). The data collection process involves three steps. First, I review the proxy statements, annual reports and firm websites to identify the founders and family members of each firm. This information is then merged with the ownership and management position of each firm. Moreover, I identify whether founders or their family members served as CEOs or held at least 5% equity in their firms for each year.

In Table 1, Panel A summarizes the sample selection process. I obtained 4,588 firm-year observations from Taiwan's stock exchanges for the year 2007-2009. Of this initial sample, 358 observations were deleted due to unavailable family ownership information. I also delete 412 and 240 observations without sufficient stock prices and financial data, respectively. The final sample consisted of 3,578 observations, including 1,344 observations on D&O insurance purchases.

Panel B of Table 1 shows the descriptive statistics for the two sub-samples when the sample is partitioned by D&O insurance purchases. Panel B shows that the average D&O liability coverage limit is $9.7 million. On average, 50% of the

purchase observations are of family firms with D&O insurance, which is significantly lower than that for family firms without D&O insurance (68%). Furthermore, the comparison of firm characteristics in Panel B shows that the D&O insurance purchasers (*PURCHASE*=1) tend to have: (i) lower family member ownership (*HIGHOWN family, OWN family*), (ii) a greater difference between voting and ownership rights for family members (*VOTE-OWN Family*), (iii) a higher proportion of DR trading in the U.S., London or Luxembourg (*DRLIST*), (iv) a higher debt ratio (*LEV*), higher market value (*MVEQ*) and higher litigation risk (*LITIGATION*), (v) the divestiture of a business or substantial assets in the prior year (*DIVESTOR*) and (vi) a lower percentage of ownership by outside directors (*OUTOWN*) and a lower proportion of independent directors (*OUTDIR*). Overall, these comparisons show systematic differences between firms with and without D&O insurance purchases.

Panel C compares the D&O insurance characteristics of family firms with non-family firms. The sample consists of 1,344 observations; 50% are from family firms, and the remaining 50% are from nonfamily firms. The mean (median) value of the D&O insurance coverage limit for family firms and non-family firms is $8.74 million ($5.34 million) and $10.76 million ($5.50 million), respectively. Both the t-statistic and Wilcoxon z-statistic show that the mean and median values of D&O insurance coverage limits for non-family firms are significantly larger than for those of family firms. It is also apparent that family firms have less excess D&O insurance coverage. This is likely because incentive alignment effect and survival and reputation concerns lead family firms to face lower litigation risks, resulting in less need for D&O insurance coverage. Moreover, Panel D provides a comparison of family firms with and without high family member ownership. All differences in D&O insurance characteristics are statistically significant between these two groups. The t-test and the Wilcoxon z-statistic show that high family-owned firms are less willing to purchase

D&O insurance and usually carry lower D&O insurance coverage.

**[Insert Table 1 here]**

**4.2 Multivariate Testing Results**
**Results from examining D&O insurance purchases for family firms**

Table 2 shows the results for Hypothesis 1. Column 1 reports the probit regression results for the likelihood of D&O insurance purchase (*Purchase*) by family firms. The coefficient on *Family* is -0.742 and is statistically significant at the two tail 0.01 level. This result indicates that relative to non-family firms, family firms are less likely to purchase D&O insurance. Column 2 adds the variable *HIGHOWN Family* in Equation (1). I use *HIGHOWN Family* to capture the families who held the large proportion of the firms. *HIGHOWN Family* is measured by a dummy variable for family ownership above 20% of a firm's equity. The coefficient on *HIGHOWN Family* is -0.168 with a t-statistic of -3.24, indicating that family members enjoy lower litigation risks, which reduces their incentive to purchase D&O insurance while their ownership is relatively high. The results are consistent with the notion that family members with a highly concentrated holding of their firms' stocks have strong incentives to reduce agency conflicts. Therefore, they face lower litigation risk and are less willing to purchase D&O insurance. The findings support Hypothesis 1. Due to the incentive alignment argument and survival and reputation concerns, family firms, especially largely owned family firms, are exposed to lower litigation risk and are less likely to purchase D&O insurance.

The results on the control variables are largely consistent with the predictions of prior research. The firms that purchase D&O insurance tend to have engaged in a round of mergers and acquisitions (*ACQUIROR*). On the other hand, the firms that purchased D&O insurance were also more likely to have engaged in a round of disposals (*DIVESTOR*). The expectation is that the presence of large changes in asset

size increases coverage limits. The demand for D&O insurance also increases with market value *(MVEQ)* and the proportion of outside directors on boards *(OUTDIR)*.Demand decreases with the ownership of outside directors (*OUTOWN*).

**[Insert Table 2 here]**

**Results from examining D&O insurance purchases and excess D&O insurance coverage for family firms with Type II agency problems**

To investigate whether Type II agency conflicts in family firms affect demand for D&O insurance, Table 3 includes the variable *VOTE-OWN Family* as a proxy for the degree of entrenchment problems. In Column 1, the coefficient of *VOTE-OWN Family* is positive and statistically significant at the 5% level, indicating that family firms tend to expropriate wealth from minority shareholders when family influence exceeds their ownership rights. Consequently, they need to purchase D&O insurance to reduce their litigation concerns. This is consistent with Hypothesis 2, which states that family firms with more significant Type II agency conflicts are more likely to purchase D&O insurance because of the entrenchment argument. The results of this study provide evidence that the differential demand for D&O insurance is primarily driven by the degree of separation between family members' voting rights and ownership rights.

In order to test Hypothesis 3, I estimate excessive D&O insurance coverage (***EXCOV***) using the residuals from the regression of D&O insurance coverage on the determinants of D&O insurance. Column 2 shows that excessive D&O insurance coverage (*EXCOV*) is positively related to *VOTE-OWN Family*. It indicates that family firms with a severe divergence between family members' voting and ownership rights have an incentive to carry an abnormally high level of D&O insurance coverage, supporting Hypothesis 3. This suggests that family firms facing

more severe Type II agency problems exhibit a higher likelihood of opportunistic behaviors. While these firms may pursue actions that maximize their personal benefits, many of these actions involve greater litigation risk and a need for abnormally high D&O insurance coverage. Overall, the findings show that the relationship between family firms and the demand for D&O insurance coverage is not uniform across all levels of family ownership. Specifically, it is found that when a family's control exceeds their ownership, the potential for an entrenchment effect and litigation concerns will increase.

**[Insert Table 3 here]**

**4.3 Further Test**

Morck et al. (1988) suggest that firm founders and descendants as CEOs, have differing influences on firm value. Anderson et al. (2003) find that CEO affiliation has different impacts on agency costs or debts. Villalonga and Amit (2006) find that family firms with founder CEOs have less severe Type I agency problems, indicating that having a family CEO eliminates conflict between owners and managers. However, Type I agency problems increase when family firms hire outside CEOs (Villalonga and Amit, 2006). Therefore, in order to investigate the influence of CEO affiliation and gain additional confidence that the difference in the severity of Type I agency problems across family firms drives the test results, I repeat the analyses by adding indicator variables for each CEO type. The test includes variables that denote CEOs as founders (*CEO Founder*), family descendants (*CEO Descendent*), hired hands (*CEO Hire*) and family members with a chairman (*Dual*).

As shown in Table 4, the coefficient on *Family* in each of the columns is significantly negative to *Purchase*, suggesting that family firms are less willing to purchase D&O insurance. The coefficients on *Dual* in the Columns (1) to (3) are significantly negative, indicating that when a family member serves as both the

18

company chairman and CEOs, the firm will be less willing to purchase D&O insurance.

The coefficient on *CEO Founder* is significantly negative in Column 1, but the coefficient on *CEO Descendent* is insignificant in Column 2. These findings indicate that the active managerial involvement of the founding family exposes a firm to lower risk than the same involvement of descendants; consequently, a firm managed by a founding family will be less willing to purchase D&O insurance. This finding is consistent with the notion that founders bring special and value-adding skills to firms, while descendants detract from firm performance and increase firm risk because they hold the CEO position through family ties rather than job qualifications (Anderson and Reeb, 2003a).

However, in Column 3 the coefficient on *CEO Hire* is positively associated with the purchase of D&O insurance, suggesting that Type I agency problems seem to be a likely factor in demand for D&O insurance purchase. There are two possible reasons why outside CEOs tend to purchase D&O insurance. First, if outside CEOs perceive that they face potential litigation risks due to Type I agency problems, they may purchase D&O insurance to prevent the possibility of lawsuits. Second, risk-averse outside CEOs may require D&O personal coverage as extra compensation as a condition of service (Core, 1997). The efficient contract hypothesis states that firms purchase D&O insurance because the firms cannot otherwise indemnify CEOs in the event of a suit (Parry and Parry, 1991), and risk-averse CEOs may require D&O insurance as a condition of their service. Finally, I add all the CEO type variables in Column 4. The result is consistent with the prior findings.

**[Insert Table 4]**

Table 5 examines the impact of CEO affiliation on excessive D&O insurance coverage. In each of the columns, the coefficients on *Family* and *Dual* are

significantly negative to *EXCOV*, supporting the theory that when family members are CEOs, or CEOs and chairmen, they are less likely to have excess D&O insurance coverage.

Column 1 shows that the coefficient on *CEO founder* is negatively related to *EXCOV*, indicating that founder CEOs are less likely to carry excess D&O insurance coverage. Because founders can more closely align a firm's operation with their own interests and maintain favorable reputations by holding the CEO positions, they have fewer incentives to expropriate minority shareholders' wealth. As a result, they enjoy lower litigation risk. However, the coefficient on CEO *Descendent* is insignificant in Column 2.

In Column 3, I find that the coefficient on *CEO Hire* is positively associated with *EXCOV*, indicating that outside CEOs tend to have excessive D&O insurance coverage. I posit that when family firms hire outside CEOs, the potential Type I agency problems increase, suggesting that outside CEOs may enrich themselves via earnings management or opportunistic behaviors. Their activities lead to higher litigation risks, and this encourages them to choose abnormally high D&O insurance coverage. I also find that the results are unchanged when adding all the CEO type variables.

**[Insert Table 5 here]**


# 5. Conclusion

Equity holdings of family firms represent an important form of ownership in South-East Asia. At the end of 2007, in order to enhance effectiveness of corporate governance, the TSFB required listed companies to disclose more information on their D&O insurance purchases. This publicly available data provides this study with the opportunity to investigate how family firms react to litigation risk via D&O insurance.

The study further examines whether families can exert additional control and possibly reduce their litigation risk by holding CEO positions.

Using D&O insurance purchases of Taiwan firms as a proxy for managerial opportunism, I present the following findings. First, highly family owned firms are less likely to purchase D&O insurance due to their lower litigation risk. However, firms with more significant Type II agency conflicts have a greater incentive to purchase D&O insurance due to their legal liability threat. Second, when family firms are further divided into different groups according to their CEO type, I find that those with outside CEOs exhibit a greater likelihood of purchasing D&O insurance and carrying abnormally high coverage. This is due to Type I agency problems or the efficient contract hypothesis. Firms with founder CEOs or CEOs that also serve as chairmen are less likely to purchase D&O insurance, indicating that founders view their firms as assets to be passed on to their descendants; thus, they are less willing to expose the firms to high litigation risk. These findings suggest that the degree of likelihood that family firms will purchase D&O insurance primarily depends on Type II agency conflicts and their types of CEOs.

**Reference**

Anderson R. C., S. A. Mansi and D. M. Reeb. 2003. Founding family ownership and the agency cost of debt. Journal of Financial Economics 38: 263-285.

Anderson R. C. and D. M. Reeb. 2003a. Founding-family ownership and firm performance: Evidence from the S&P 500. The Journal of Finance 58: 1301-1329.

Anderson R. C. and D. M. Reeb. 2003b. Founding-family ownership, corporate diversification, and firm leverage. Journal of Law and Economics 46: 653-684.

Ali A., T. Y. Chen, and S. Radhakrishnan. 2007. Corporate disclosures by family firms. Journal of Accounting and Economics 44: 238-286.

Boyer, M. 2005. Directors' and officers' insurance and shareholder protection. Working paper, University of Montreal.

Casson, M. 1999. The economics of the family firm. Scandinavian economic history

review 47: 10-23.

Chen, S., X. Chen and Q. Cheng. 2008. Do family provide more or less voluntary disclosure? Journal of Accounting Research 46: 499-536.

Chen, S., X. Chen, Q. Cheng, and T. Shevlin. 2010. Are family firms more tax aggressive than non-family firms? Journal of Financial Economics 95: 41-61.

Chung, H. H. and J. P. Wynn. 2008. Managerial legal liability coverage and earnings conservatism. Journal of Accounting and Economics 46: 135-153.

Clalmers, J., L. Dann, and J. Harford. 2002. Managerial opportunism? Evidence from directors' and officers' insurance purchases. The Journal of Finance 57: 609-636.

Claessens, S., S. Djankov and L. H. P. Lang. 2000. The separation of ownership and control in East Asian corporations. Journal of Financial Economics 58: 81-112.

Chalmers, J., Dann, L., Harford, J. 2002. Managerial opportunism? Evidence from directors' and officers' insurance purchases. *The Journal of Finance* 57: 609–636.

Core, J., 1997. On the corporate demand for directors' and officers' insurance. *The Journal of Risk and Insurance* 64: 63–87.

Core, J., 2000. The directors' and officers' insurance premium: an outside assessment of the quality of corporate governance. *Journal of Law Economics and Organization* 16: 449–477.

DeAngelo, H. and L. DeAngelo. 2000. Controlling Stockholders and the disciplinary role of corporate payout policy: A study of the *times mirror* company. Journal of Financial Economics 56: 153-207.

DuCharme, L., P. Malatesta, and S. Sefcik. 2004. Earnings management, stock issues, and shareholder lawsuits. *Journal of Financial Economics* 71: 27–40.

Demsetz, H. and K. Lehn. 1985. The structure of corporate ownership: Causes and consequences. Journal of Political Economy 93: 1155-1177.

Faccio, M. and L. H. P. Lang. 2002. The ultimate ownership of Western European corporations. Journal of Financial Economics 65: 365-395.

Fan, J. P. H., and T. J. Wong. Corporate ownership structure and the informationess of accounting earnings in East Asia. Journal of Accounting and Economics 33: 401-426.

Gilson, R. J., and J. Gordon. 2003. Controlling controlling shareholders. University of Pennsylvania Law Review 152: 785-847.

Griffith, S. J. 2005. Unleashing a gatekeeper: why the SEC should manadte disclosure of details concerning directors' & officers' liability insurance policies. Working paper, University of Pennsylvania Law School.

Himmelberg, C., R. Hubbard, D. Palia. 1999. Understanding the determinants of managerial ownership. Journal of Financial Economics 53: 353-384.

Holderness, C., 1990. Liability insurers as corporate monitors. *International Review*

*of Law and Economics* 10: 115–129.

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

Johnson, M., K. Nelson, and A. Pritchard. 2002. Do the merits matter more? Class actions under the Private Securities Litigation Reform Act. Working paper of Berkeley Olin Program in Law & Economics, UC Berkeley, Berkeley, CA.

La Porta, R., F. Lopez-De-Silanes, and A. Shleifer. 1999. Corporate ownersip around the world. Journal of Finance 54: 471-518.

Lin, C., M. S. Officer and H. Zou. 2011. Directors' and officers' liability insurance and acquisition outcomes, *Journal of Financial Economics 102*, 507-525.

Lu, Y. 2003. Earnings management and securities litigation, doctoral dissertation, Graduate School of Business, Stanford University.

Lu, J. H., and D. J. Horng. 2007. The role of directors' and officers' insurance in corporate governance: evidence from the high-tech industry in Taiwan. *International Journal of Technology Management* 40: 229-247.

Mayers, D. and C. Smith. 1982. On the corporate demand for insurance. *Journal of Business* 55: 281- 296.

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

O'Sullivan, N., 1997. Insuring the agents: the role of directors' and officers' insurance in corporate governance. *The Journal of Risk and Insurance* 64: 545–556.

O'Sullivan, N., 2009. The impact of directors' and officers' insurance on audit pricing: Evidence from UK companies. *Accounting Forum 33:* 146-161.

Parry, M. E. and A. E. Parry. 1991. The purchase of insurance by a risk-neutral firm for a risk-averse agent. *Journal of Risk and Insurance* 58: 31-46.

Villalonga, B. and R. Amit. 2006. How do family ownership, management, and control affect firm value? Journal of Financial Economics 80: 385-417.

Wang, D. Founding family ownership and earnings quality. Journal of Accounting Research 44: 619-656.

Wynn, J. P. 2008. Legal liability coverage and voluntary disclosure. The Accounting Review 83: 1639-1669.

Yeh, Y. H., T. S. Lee and T. Woidtke. 2001. Family control and corporate governance: Evidence for Taiwan. International Review of Finance 2: 21-48.

Zou, H, S. Wong, C. Shum, J. Xiong and J. Yan. 2008. Controlling-minority shareholder incentive conflicts and directors' and officers' liability insurance: Evidence from China. *Journal of Banking and Finance* 32: 2636-2645.

## Table 1
### Sample Selection and Descriptive Statistics of Variables

| Panel A: Sample selection | |
|---|---|
| Number of company-years from 2007 to 2009 | 4,588 |
| Family ownership unavailable in TEJ | (358) |
| Prices unavailable in TEJ | (412) |
| Financial data not available in TEJ | (240) |
| Number of company-years in the full sample | 3,578 |
| Deduction: non-purchase D&O liability insurance | (2,234) |
| Number of company-years of purchase D&O liability insurance | 1,344 |

**Panel B: Descriptive statistics for purchasers vs. non-purchasers**

| | Purchasers (n = 1,344) | | | Non Purchasers (n = 2,234) | | | |
|---|---|---|---|---|---|---|---|
| Variables | Mean | Median | | Mean | Median | t-value | Wilcoxon Z |
| LIMIT($U.S. ) | 9,748,667 | 5,466,667 | | n.a | n.a | n.a | n.a |
| LIMITA | 0.165 | 0.052 | | n.a | n.a | n.a | n.a |
| EXCOV | -0.006 | -0.045 | | n.a | n.a | n.a | n.a |
| FAMILY | 0.502 | 1.000 | | 0.683 | 1.000 | -10.942*** | -10.766*** |
| HIGHOWN Family | 0.376 | 0.000 | | 0.562 | 1.000 | -10.910*** | -10.735*** |
| OWN Family | 19.158 | 14.925 | | 26.294 | 22.890 | -12.524*** | -13.245*** |
| VOTE Family | 25.683 | 22.605 | | 31.627 | 28.695 | -10.019*** | -10.195*** |
| VOTE-OWN Family | 6.456 | 1.955 | | 5.242 | 1.500 | 3.683*** | 4.013*** |
| DRLIST | 0.078 | 0.000 | | 0.034 | 0.000 | 5.781*** | 5.755*** |
| MB | 1.723 | 1.320 | | 1.642 | 1.240 | 1.674* | 1.039 |
| LEV | 0.365 | 0.352 | | 0.352 | 0.341 | 2.124** | 2.047** |
| ROA% | 7.176 | 7.430 | | 7.745 | 7.215 | -1.564 | -0.606 |
| ACQUIROR | 0.117 | 0.000 | | 0.111 | 0.000 | 0.572 | 0.572 |
| DIVESTOR | 0.069 | 0.000 | | 0.031 | 0.000 | 5.446*** | 5.425*** |
| MVEQ | 8.216 | 8.127 | | 8.163 | 8.077 | 3.123*** | 2.674*** |
| LITIGATION | 0.193 | 0.000 | | 0.132 | 0.000 | 4.889*** | 4.873*** |
| OUTOWN | 0.701 | 5.005 | | 8.129 | 5.265 | -3.306*** | -6.567*** |
| OUTDIR | 0.422 | 0.433 | | 0.506 | 0.500 | -11.496*** | -11.489*** |

**Panel C: Descriptive statistics of D&O liability insurance for family firm vs. non-family firm**

| | Family Firm (n = 675) | | | Non- Family Firm (n = 669) | | | |
|---|---|---|---|---|---|---|---|
| Variables | Mean | Median | | Mean | Median | t-value | Wilcoxon Z |
| LIMIT($U.S. ) | 8,741,417 | 5,343,333 | | 10,764,951 | 5,500,000 | -2.809*** | -3.868*** |
| LIMITA | 0.141 | 0.041 | | 0.189 | 0.066 | -2.211** | -3.223*** |
| EXCOV | -0.006 | -0.030 | | -0.005 | -0.012 | -2.041** | -2.225** |

**Panel D: Descriptive statistics of D&O liability insurance for family firm with high ownership vs. family firm with non-high ownership**

| | Family Firm **with high ownership** (n = 334) | | | Family Firm **with non-high ownership** (n = 341) | | | |
|---|---|---|---|---|---|---|---|
| Variables | Mean | Median | | Mean | Median | t-value | Wilcoxon Z |
| LIMIT($U.S. ) | 6,995,591 | 5,300,750 | | 10,451,404 | 5,469,667 | -4.561*** | -5.180*** |
| LIMITA | 0.112 | 0.029 | | 0.168 | 0.057 | -2.468*** | -4.353*** |
| EXCOV | -0.008 | -0.048 | | -0.004 | -0.035 | -2.087** | -1.930* |

a.Variable definitions:

| | | |
|---|---|---|
| *PURCHASE* | = | one if a firm has D&O insurance of purchase and zero otherwise; |
| *LIMIT* | = | the sum of D&O coverage limits; |
| *LIMITA* | = | LIMIT divided by lagged total assets; |
| *EXCOV* | = | the excess D&O liability coverage (beyond the expected coverage that a firm would carry) through using the residuals from the regression of D&O insurance coverage on determinants of D&O insurance coverage; |
| *FAMILY* | = | firm whose founder or a member of the family by either blood or marriage is an officer, a director, or the owner of at least 5% of the firm's equity, individually or as a group; |
| *HIGHOWN Family* | = | a dummy variable for family ownership above 20% of a firm's equity; |
| *OWN Family* | = | the fractional equity ownership of the founding family; |
| *VOTE Family* | = | the fractions of all votes outstanding held by the founding family; |
| *Vote-Cash Family* | = | the difference between the fractions of all votes outstanding held by the founding family and the fractional equity ownership of the founding family; |
| *DRLIST* | = | one if the firm has an DR trading in the U.S. (ADRs), or London (GDRs), or Luxembourg (GDRs), and zero otherwise; |
| *MB* | = | the ratio of market value to book value in the fiscal year; |
| *LEV* | = | the ratio of debt over the sum of debt and market value of equity; |
| *ROA* | = | firm's average return on assets (ROA) for the prior three years; |
| *ACQUIROR* | = | one if the book value of total assets at the end of the fiscal year increases by more than 25% from the beginning of the fiscal year, and zero otherwise; |
| *DIVESTOR* | = | one if the book value of total assets at the end of the fiscal year decreases by more than 25% from the beginning of the fiscal year, and zero otherwise; |
| *MVEQ* | = | the logarithm of the market value of the firm's common stock. |
| *LTIGATION* | = | one if firm disclosed prior or pending (in the previous year) litigation in either its annual report or proxy, and zero otherwise; |
| *OUTOWN* | = | the proportion owned by outside directors; |
| *OUTDIR* | = | the proportion of outside directors on board members. |

b. Statistical significance of the difference in the means and medians is based on a two-tailed test. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels, respectively

**Table 2**

**Results from examining D&O Insurance Purchases for Family Firms**

**(n=3,578)**

| Variables | | Dependent Variable = *Purchase* | | |
| --- | --- | --- | --- | --- |
| | | Specification (1) | | Specification (2) |
| Intercept | | -11.920*** | | -11.858*** |
| | | (-10.40) | | (-9.79) |
| *DRLIST* | | -0.078 | | -0.066 |
| | | (-0.34) | | (-0.29) |
| *MB* | | 0.017 | | 0.017 |
| | | (0.43) | | (0.44) |
| *LEV* | | -0.010 | | -0.008 |
| | | (-0.04) | | (-0.03) |
| *ROA* | | -0.003 | | -0.003 |
| | | (-0.65) | | (-0.61) |
| *ACQUIROR* | | 0.258* | | 0.256* |
| | | (1.66) | | (1.65) |
| *DIVESTOR* | | 0.447** | | 0.454** |
| | | (2.09) | | (2.12) |
| *MVEQ* | | 1.018*** | | 0.985*** |
| | | (8.80) | | (8.38) |
| *LITIGATION* | | 0.131 | | 0.134 |
| | | (1.12) | | (1.15) |
| *OUTOWN* | | -0.015*** | | -0.013** |
| | | (-2.69) | | (-2.23) |
| *OUTDIR* | | 1.689*** | | 1.663*** |
| | | (7.02) | | (6.89) |
| *FAMILY* | | -0.742*** | | -0.624*** |
| | | (-6.24) | | (-4.31) |
| *HIGHOWN Family* | | | | -0.168*** |
| | | | | (-3.24) |
| *YEAR* | | Yes | | Yes |
| *INDUSTRY* | | Yes | | Yes |
| | | | | |
| Log pseudo likelihood | | -1,713.832 | | -1,713.832 |
| Pseudo R$^2$ | | 0.276 | | 0.276 |

a. See Table 1 for definitions of all variable

b. Statistical significance is based on two-tailed test. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 3**

**Results from Examining D&O Insurance Purchases and Excess D&O Insurance Coverage for Family Firms with Type II Agency Problems (n=1,344)**

| Variables | | *Purchase* Specification (1) | | *EXCOV* Specification (2) |
|---|---|---|---|---|
| Intercept | | -12.201*** | | 0.339* |
| | | (-10.22) | | (1.65) |
| DRLIST | | -0.040 | | 0.058 |
| | | (-0.18) | | (1.65) |
| MB | | 0.026 | | 0.000 |
| | | (0.67) | | (0.05) |
| LEV | | 0.074 | | 0.059 |
| | | (0.27) | | (1.21) |
| ROA | | -0.002 | | -0.001 |
| | | (-0.32) | | (-1.15) |
| ACQUIROR | | 0.244* | | -0.014 |
| | | (1.58) | | (-0.57) |
| DIVESTOR | | 0.510** | | 0.103*** |
| | | (2.41) | | (3.09) |
| MVEQ | | 0.997*** | | 0.209*** |
| | | (8.75) | | (3.58) |
| LITIGATION | | 0.130 | | 0.042 |
| | | (1.12) | | (2.19) |
| OUTOWN | | -0.008* | | -0.001* |
| | | (-1.74) | | (-1.73) |
| OUTDIR | | 1.889*** | | 0.012 |
| | | (7.87) | | (0.28) |
| VOTE-OWN Family | | 0.011** | | 0.004* |
| | | (2.05) | | (1.70) |
| YEAR | | Yes | | Yes |
| INDUSTRY | | Yes | | Yes |
| Log pseudo likelihood | | -1,734.472 | | |
| Pseudo $R^2$ | | 0.268 | | |
| Adj $R^2$ | | | | 0.132 |

a. See Table 1 for definitions of all variable

b. Statistical significance is based on two-tailed test.   ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

## Table 4
## Results from Examining D&O Insurance Purchases for Types of CEOs
## (n=3,578)

| Variables | | Dependent Variable = *Purchase* | | | |
|---|---|---|---|---|---|
| | | Specification (1) | Specification (2) | Specification (3) | Specification (4) |
| Intercept | | -12.201*** | -12.165*** | -12.061*** | -11.882*** |
| | | (-10.22) | (-10.20) | (-10.11) | (-10.20) |
| *DRLIST* | | -0.079 | -0.077 | -0.063 | -0.061 |
| | | (-0.35) | (-0.34) | (-0.28) | (-0.23) |
| *MB* | | 0.016 | 0.017 | 0.018 | 0.013 |
| | | (0.42) | (0.44) | (0.47) | (0.35) |
| *LEV* | | -0.004 | -0.016 | -0.005 | -0.018 |
| | | (-0.01) | (-0.06) | (-0.02) | (-0.10) |
| *ROA* | | -0.003 | -0.003 | -0.003 | -0.003 |
| | | (-0.66) | (-0.67) | (-0.72) | (-0.71) |
| *ACQUIROR* | | 0.260* | 0.259* | 0.247 | 0.267** |
| | | (1.67) | (1.67) | (1.59) | (2.43) |
| *DIVESTOR* | | 0.450** | 0.448** | 0.438** | 0.415* |
| | | (2.11) | (2.09) | (2.04) | (1.94) |
| *MVEQ* | | 1.023*** | 1.019*** | 1.010*** | 0.998*** |
| | | (8.84) | (8.81) | (8.73) | (8.62) |
| *LITIGATION* | | 0.015 | 0.130 | 0.127 | 0.142 |
| | | (2.58) | (1.11) | (1.08) | (1.22) |
| *OUTOWN* | | -0.015*** | -0.015*** | -0.015*** | -0.014*** |
| | | (-2.58) | (-2.71) | (-2.64) | (-2.53) |
| *OUTDIR* | | 1.684*** | 1.684*** | 1.717*** | 1.681*** |
| | | (7.00) | (7.00) | (7.11) | (6.98) |
| *DUAL* | | -0.149* | -0.140* | -0.144* | -0.126 |
| | | (1.79) | (1.68) | (1.72) | (1.57) |
| *FAMILY* | | -0.744*** | -0.750*** | -0.839*** | -0.893*** |
| | | (-6.26) | (-6.19) | (-6.44) | (-5.90) |
| *CEO Founder* | | -0.417** | | | -0.618*** |
| | | (-2.05) | | | (2.38) |
| *CEO Descendent* | | | 0.085 | | 0.266 |
| | | | (1.08) | | (1.16) |
| *CEO Hire* | | | | 0.132* | 0.309* |
| | | | | (1.65) | (1.80) |
| *YEAR* | | Yes | Yes | Yes | Yes |
| *INDUSTRY* | | Yes | Yes | Yes | Yes |
| | | | | | |
| Log pseudo likelihood | | -1,714.353 | -1,714.86 | -1,713.149 | -1,717.22 |
| Pseudo R$^2$ | | 0.276 | 0.276 | | 0.275 |

a. See Table 1 for definitions of all variable

b. Statistical significance is based on two-tailed test. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 5**

**Results from Examining D&O Insurance Coverage for Types of CEOs**

**(n=1,344)**

| Variables | | Dependent Variable = *EXCOV* | | | |
|---|---|---|---|---|---|
| | | Specification (1) | Specification (2) | Specification (3) | Specification (4) |
| Intercept | | 0.148 | 0.157 | 0.151 | 0.164 |
| | | (0.65) | (0.68) | (0.66) | (0.51) |
| *DRLIST* | | 0.057* | 0.057* | 0.056* | 0.054* |
| | | (1.62) | (1.60) | (1.58) | (1.51) |
| *MB* | | 0.001 | 0.001 | 0.0001 | 0.001 |
| | | (0.10) | (0.10) | (0.13) | (0.13) |
| *LEV* | | 0.071* | 0.074* | 0.070* | 0.072* |
| | | (1.43) | (1.49) | (1.43) | (1.44) |
| *ROA* | | -0.001 | -0.001 | -0.001 | -0.001 |
| | | (-0.87) | (-0.91) | (-0.85) | (-0.93) |
| *ACQUIROR* | | -0.011 | -0.011 | -0.011 | -0.011 |
| | | (-0.42) | (-0.44) | (-0.44) | (-0.43) |
| *DIVESTOR* | | 0.099*** | 0.099*** | 0.100*** | 0.098*** |
| | | (2.99) | (2.96) | (2.98) | (2.91) |
| *MVEQ* | | 0.202*** | 0.207*** | 0.211*** | 0.223*** |
| | | (3.60) | (3.65) | (3.75) | (3.98) |
| *LITIGATION* | | 0.040** | 0.041** | 0.040** | 0.041** |
| | | (2.07) | (2.07) | (2.05) | (2.06) |
| *OUTOWN* | | -0.001 | -0.001 | -0.001 | -0.001 |
| | | (-1.11) | (-1.18) | (-1.09) | (-1.15) |
| *OUTDIR* | | 0.016 | 0.015 | 0.015 | 0.017 |
| | | (0.35) | (0.33) | (0.33) | (0.38) |
| *DUAL* | | -0.008* | -0.007* | -0.008* | -0.008* |
| | | (-1.75) | (-1.70) | (-1.73) | (-1.73) |
| *FAMILY* | | -0.072** | -0.072** | -0.073** | -0.075** |
| | | (-1.91) | (-1.91) | (-1.94) | (-1.95) |
| *CEO Founder* | | -0.032* | | | -0.038 |
| | | (-1.87) | | | (-1.99) |
| *CEO Descendent* | | | -0.027 | | -0.011* |
| | | | (-0.95) | | (-1.30) |
| *CEO Hire* | | | | 0.005** | 0.018*** |
| | | | | (1.98) | (2.21) |
| *YEAR* | | Yes | Yes | Yes | Yes |
| *INDUSTRY* | | Yes | Yes | Yes | Yes |
| | | | | | |
| Adj R² | | 0.007 | 0.006 | 0.006 | 0.007 |

a. See Table 1 for definitions of all variable

b. Statistical significance is based on two-tailed test.    ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.