

structure for Japanese stocks occurred in the past 15 years and a larger fraction of stocks listed on the stock exchange are currently owned by fund trusts, pension funds, mutual funds and foreign individual and institutional investors. Second, cross-shareholdings among Japanese firms decreased substantially in recent years (Eoyang, 1998). Thus, we infer that both the weight of shareholdings by founding families and the fraction of floating stocks have become smaller.

First of all, we classify Japanese family firms into three types. First type is small businesses that have survived over 200 years. The majority of these firms is private firms and not publicly traded. Toraya, a 16th century pastry producer from Kyoto, is one of these examples as well as many independent hotels, restaurants, and craft makers. These are private firms and are not included in our sample. The second type is firms in heavy industries, transportation, transportation equipment, and electric appliances. Most of these firms were started before the World War II. Tobu Railroad, Toyota, and Nakayama Steel are examples. The third type are firms in newer high tech industries, in which either founding families are still running companies (entrepreneurship stage), or are retired and the second generation is in charge, coming from either a founding family or from outside (descendent stage). Square-Enix, Omron, and Kyocera are examples of this last type. Among the three types, the latter two groups are larger firms and the majority of these are listed firms, and this is the sample we use for the current study².

As for the previous evidence on Japanese family businesses, Asaba (2010) investigated the investment behavior of the electric machinery industry in Japan and found that for a sample of 184 family firms more aggressive and enduring investment

² We do not cover the sample from larger private family firms like Suntory Brewery, Yamazaki Mazak, and Yanmar Diesel as well as thousands of smaller private family firms of the first type in this study. A separate research will be called for to investigate these private firms and our study is limited in this sense.

were observed than non-family firms between 1995 and 2006. Saito (2008) find that family firms slightly outperformed non-family firms between 1990 and 1998, but that superiority is limited to the founders' reign. Mehrotra et al. (2010) investigated the succession problem of Japanese family businesses and demonstrated that adopted heirs can avoid the succession problem. They identified family firms between 1949 and 1970 and followed the data up to 2000.

The current paper adopts a slightly different research design and focuses on the corporate social performance of listed family firms. We explore how family firms compare to non-family firms in their basic financial characteristics and contribute to creating social value in Japan.

2.2 Previous Evidence on Corporate Social Performance by Family Firms

As to the empirical evidence on the effectiveness of corporate social responsibilities executed by family firms in the world, Morck and Yueng (2004), among others, report that family businesses belonging to 27 of the most industrialized countries are not particularly helping improve the social ethics or creation of social capital, more so among developing countries. Oh et al. (2011) also find a negative relationship between CSR rating and the shareholding by top managers for their Korean firm sample.

As for U.S. evidence Waddock and Graves (1997) finds for the data for family firms from 1990s that both financial performance and CSR activities are positively related. Dyer and Whetten (2006) report that family firms are not significantly different from non-family firms in promoting positive social initiatives, while family firms show less social concerns, by which meant pollution or safety controversies, as examples. On the

other hand, Reinking et al. (2011) report that family firms in the U.S. are associated with higher level of CSR activities and with lower ROEs. Note the former study uses only 52 family firm sample, while the latter uses the larger sub-sample from Anderson and Reeb (2003). Moreover, Reinking et al. (2011) report that family firms show lower ROE than non-family firms. As additional evidence, Barnea and Rubin (2010) using BMSI Index from the KLD Data, report that the level of CSR activities are negatively related to inside ownership concentration, for U.S. firms.

Given these empirical evidence we explore the corporate social performance of family firms in Japan utilizing the most recent Japanese listed firm data, which we have constructed on own.

3. CSR and Five Attributes of Corporate Social Performance

The concept of corporate social performance is advocated, for example, from the angle of a new concept of corporate responsiveness, CSR_2 , by Frederick (1994, p.155) rather than from the angle of older corporate social responsibility, for which the more active role to be played by management is emphasized. Dane (2011) emphasizes the role of family businesses from the viewpoint of contributing to form social capital. As a way to assess corporate social responsibilities conducted by family firms, Zellweger and Nason (2008) also lays out a typology to assess performance outcome; that is, overlapping, causal, synergistic, and substitutional with a view from both financial and non-financial comprehensive performance perspectives. In addition, by adopting a form of questionnaire survey Gallo (2004) find the family firms are superior in their corporate social responsibilities fulfillment in the responsibilities of wealth creation and delivery of good to the market than the development of individual skills and

guaranteeing their long-term continuity. As examples, Miller and Le Breton-Miller (2005, p. 75) cite Levi Strauss, Hallmark, and Johnson, all of which emphasize social contributions as one of the core values emanating from family businesses.

In this paper, first time in the literature, we quantitatively investigate the degree of social corporate performance attained by family firms in Japan.³ We compare their performance with non-family firms. There are five attributes of corporate social performance which we discuss in detail below; that is, 1) employee relations, 2) social contributions, 3) security of the firm and product safety 4) internal governance and risk management, and 5) environmental preservation.

As to the first characteristic, Miller and Le Breton-Miller (2005), mention examples of family firms like Estee Lauder, demonstrating that they take good care of their employees and treat them like family members.

As to the second characteristic, social contributions, the most cited book on this topic is again Miller and Le Breton-Miller (2005), who advocate the four Cs of virtuous characteristics of family firms, which are rarely found among non-family firms: 1) continuity: pursuing the dream, 2) community: uniting the tribe, 3) connection: being good neighbors and partners, and 4) command: acting and adopting freely. In the context of this paper we can safely argue that 1 is related to security of the firm and product safety as well as environmental preservation; 2 is related to employee relations and environmental preservation; 3 is related to social contributions; and 4 is related to internal governance and risk management. Furthermore, Dane (2011) argues that the

³ Introducing formally the “value” concept when discussing corporate social responsiveness (Frederick, 1995, ch. 1) is a formidable task and we utilize aggregated indices to quantitatively measure corporate social performance in this paper.

role of family businesses should be evaluated from the viewpoint of aggregate social capital created by family firms, which is directly related to 2.

The third characteristic, security of the firm and product safety, may be connected to the second one because is directly related to the notion of corporate social responsibility and sustainability (see Tricker, 2009, ch. 15).

The fourth characteristic, internal governance and risk management, is related to the concept of accounting disclosure, internal auditing, and firm risk taking, for which a separate accounting research and finance research is called for.⁴

The fifth characteristic, environmental preservation, may be sometimes synonymous to CSR when used along with the second, social contributions, but one may think that this is a narrower definition than the general CSR activities. When we adopt the view by Frederick (1994), the advocate of *CSR₂*, corporate social responsiveness, these two characteristics take the form of a broader view of *CSR₂*, according to Frederick's definition.

Because we test the performance of family firms using these five characteristics, it can also be said that it is a test on whether the aforementioned four functions, shared among U.S. and European firms as cited in Miller and Le Breton-Miller (2005), can also be observed for Japanese family firms.

Finally, in management strategy literature there are views that firms should put resources into CSR activities in a limited context. Tricker (2009, p. 350), for example, states that the only legitimate purpose for a company is to create wealth, pursuing their business effectively for the benefits of their customers, whilst providing a profitable

⁴ Ebihara et al. (2012a) finds the quality of accounting information is better for family firms in Japan and Asaba (2010) finds the level of firm investment is not reduced during economic downturn periods for Japanese family firms. The former may be coming partly from better internal controls and the latter may indicate family firms are less risk-averse and look for long term goals.

reward to their investors, by referring to the original argument proposed by Milton Friedman. Porter and Kramer (2006) emphasize that CSR strategies taken by corporations should be executed only when they stay within a sphere of primary corporate strategies which help enhance their profits.

We admit that the full picture of corporate social performance of firms cannot be necessarily measured only by the performance of the five characteristics mentioned above and it would require further analysis of CSR activities conducted by firms by referring to broader management strategies taken by each firm in creating long run values. Unfortunately our research methodology is limited in this sense, and thus in Section 8 we compare the corporate social performance of family firms in Japan from somewhat different angles to complement the findings of our main empirical results.

4 Hypotheses

The family firms which we focus in this study are usually expected to be equipped with a management team congruent with the family's norm, no matter if the CEO is from the family or not. Accordingly, we expect that management teams possess stronger real authority inside family firms according to the definition of Aghion and Tirole (1997). In this sense family firms will suffer less from agency cost problems that arise between managers and share owners (Jensen and Meckling, 1976) because either a large fraction of shares are owned by founding families or the CEO has real authority attributed to the founding family. These elements will lead family firms to higher efficiency with less agency cost. Moreover, Anderson, Duru, and Reeb (2009) make a point that family firms can provide stronger control and oversight with less agency cost, which may lead family firm managers into more direct control of decisions on firms'

corporate social activities. They call this strong tendency as “control in-place” hypothesis.

However, another side of the coin is that family firms may fall more into a state of autarky, and from fear of losing jobs, non-family managers and employees may not be able to stand up against the family view shared by the firm. For example, both Dyer and Whetten (2006) and Anderson, Duru, and Reeb (2009) are concerned that families can be self-centered and more interested in just protecting their well beings, and Anderson, Duru, and Reeb (2009) call this tendency as “entrenchment hypothesis,” in a family business context. However, note Dyer and Whetten (2006) did not find any evidence of such a behavior in their S&P 500 sample.

We argue that when the reputation of the company is strongly tied to the reputations of the family, a company may be strongly motivated to disclose the fact that it is really a good one. On the other hand, when blocks of stocks are owned by family members and the ownership is not large enough to the extent that firm reputation is strongly tied to family reputation, the motivation for firm value maximization will be weaker for family members. These family firms may be less motivated to voluntarily disclose the current state of the firm or the level of CSR activities to minority shareholders and outsiders, and may stick to the level of minimum disclosure just enough for their stock to be kept listed on the stock market.

With its unique ownership structure and the role of family members in the management team and the board, the risk of the firm as revealed in the cost of equity may be higher than that of non-family firms, and the quality of disclosure and CSR activities may be of lower quantity and quality. Ebihara et al. (2012b), however, find that the cost of equity is not necessarily higher for family firms among Japanese firms.

As to the quality of disclosure, Ebihara et al. (2012a) find that the quality of accounting earnings for family firms is superior to that of non-family firms. Accordingly, in this paper we empirically investigate the quantity and quality of the level of CSR activities for family firms in Japan to add to the literature in the field.

We state five null hypotheses related to the performance of corporate social responsibility by family firms for our study based on the argument we proposed in the foregoing .

H1: *Family controlled firms place a higher value on employee relations than non-family firms.*

H2: *Family controlled firms are more concerned with social contributions than non-family firms.*

H3: *Family controlled firms are more concerned with the security of their firm and with safety of their products than non-family firms.*

H4: *Family controlled firms are equipped with tighter internal governance mechanisms and higher management control of firm risk than non-family firms.*

H5: *Family controlled firms are more concerned with their impact upon the environment than non-family firms.*

With these five null hypotheses we proceed to conduct empirical investigations with our data of Japanese family firms whose stocks are traded on the first and second sections of the Tokyo Stock Exchange.

5. Data Construction Method

Ownership data and CEO data to identify family firms was extracted from Major Shareholders Database and Directors' Database (from Toyo Keizai, Inc.) while financial statement and stock price data was extracted from the Nikkei NEEDS Financial Quest Database published by Nikkei Digital Media, Inc.⁵

We construct our database for the current study as follows. Based on survey data by Toyo Keizai Shinpousha we obtained the data for the largest 30 stockholders and detailed descriptions of board members, including the CEO and chairperson with endowed executive authority. We also used old company handbooks published by Toyo Keizai Shinpousha to identify the names and kinship of founding families. To further complement this data, an extensive questionnaire to all the 3527 listed firms was administered by mail and the web in 2009 to collect information on family ownership and management for which 406 listed firms responded.⁶ That helped confirm accuracy of initial data base we have constructed for responding firms as well as appropriateness of the data constructing method we have employed.

As for CSP indices constructed and reported by Suto and Takehara (2011) from March 2007 through 2009 we obtain 1711 total firm-year observations, which we explain below, and we matched this data with our family business database.

⁵ Financial firms were excluded due to the fundamental differences in their financial reporting structure.

⁶ The response rate of the questionnaire was 11.5%, which is close to the average rate of or higher than the normal response rates for questionnaire to Japanese companies.

We constructed the database based on two criteria: a family ownership of 10% or larger, and whether the family member is on the board and endowed with management authority as a chairperson or vice-chairperson of the board. The former 10% criteria is used in Asaba (2010) and Mehrotra et al. (2010) for the reasons that, in Japan, inheritance tax is quite hefty with over 50% leading to the dilution of family owned shares, and main banks tend to hold stable shares of lending partners as well as investment trusts related to those bank groups.⁷ In this paper we want a continuous explanatory variable in our cross-sectional regressions, and thus we use a continuum of shareholding ratios in the estimation stage, while we dichotomously classify family controlled firms and non-family controlled firms with this former 10% holding criterion. The data we use is firms listed on the first and second sections of the Tokyo Stock Exchange as of March 2009, and we use individual financial statements because we need original shareholders' holdings.⁸

Dependent variables in the regression analysis, whose results we report in Section 7 section, are five corporate social performance indices from Suto and Takehara (2012). The original database of Tokyo Keizai Co. consists of three major categories: employment, overall survey, and environment. These are social contributions, security and product safety, and internal governance and risk management. Suto and Takehara (2012) then constructed scores computed in five categories as their original CSP Index based on principal component analysis. That is, for each of these five CSP attributes, they obtain a CSP rating of firms with CSP-EMP (employment), CSP-SC (social contributions), CSP-SS (security and product safety), CSP-IGRM (internal governance

⁷ Another country with a hefty inheritance tax rate is Taiwan, but it is not the case any longer.

⁸ Although family firms in Japan have many subsidiaries and related companies in general, pyramid structure is not common, and accordingly we focus on the parent companies in this study. In our future study we plan to compare both the consolidated statements and individual financial statements.

and risk management) and CSP-ENV (environment).

Among these attributes of CSP, CSP-EMP includes the ratio of female employees, the ratio of workers over 60 years old, job leaving rates, and job accident ratios. CSP-SC includes the CSR section and volunteer activities. For CSP-SS, the section to handle goods and services safety, apparatus for internal claims and the attainment ratio of ISO 9000s inside the firm are included. For CSP-IGRM, the law abidance section, it includes the CIO position and firm performance in security measures. CSP-ENV, the environmental section, includes environmental accounting and the number of Eco labels attached with their products.

We utilize these scores from these five CSP indices as dependent variables in our regression analyses in Section 7 and identify whether characteristics of family firms; that is, the fraction of shares owned by owner families and the dummy variable of whether the CEO is from the family or not, can contribute to or impair the degree of corporate social responsibility.

For other financial data used as independent variables or control variables, the source is again Nikkei Media Marketing Co., Ltd. Two control variables we use are: $\ln MV$, which is a natural logarithm of market value of equity (in million yen), and B/M , which is the book-to-market ratio of the firm. These financial attributes of the firm, $\ln MV$ and B/M , are computed from the Nikkei Portfolio-Master Database. Note we do not include financial firms in our sample because we use cost of capital estimates, which cannot be unambiguously defined for these firms.

6 Basic Observations

6.1 Basic Statistics

In Table 1 and 2 we describe the characteristics of our sample. Table 1 identifies the weight of family businesses in Japan of our sample firms listed on the Tokyo Stock Exchange.

TABLE 1 ABOUT HERE

The first column is the number of the sample firms. The table reports the number for the most recent data as of March 2009. The total sample is 583, and in the first column the number of firms for each industry is reported. The second column is the number of firms where the ratio of shareholdings by founding families exceed 10% and either CEOs or other company executives are from the family (we label this the CEO criterion for simplicity), the second column is the number of firms where only the first criterion of 10% shareholdings is satisfied, and the third column is where only the second CEO criterion is satisfied.⁹ The fourth column computes the percent of family firms where all these criteria are met, and the fifth column reports the average shares owned by the families, which are classified as family firms.

From the table we find that 29.67% of firms in our sample are classified as family firms and average shareholding is 5.45%. The percentages of family firms are high for Retail Trade with 61.76%, Services with 47.50%, and Wholesale Trade at 40.63%. The lowest are Oil and Coal Products, Electric Power and Gas, and Warehousing with 0%, which means these industries contain no family firms. The rankings of the average

⁹ We use the 10% criteria, based on Asaba (2010), in which he reports that the results were not significant different whether he used the 10% criteria or the 20% criteria for his Japanese firm data. Anderson, Duru, and Reeb (2009) uses the continuum of ownership starting from 1% and for U.S. data. We consider the percentage to be chosen for Japanese and U.S. firms should be much lower than the percentage applied to European or Southeastern Asian countries.

shareholdings are also the same with the percentage of the number of family firms in each industry. The percentage of 29.67% is somewhat comparable to the numbers reported by Anderson and Reeb (2003) for U.S. data. Both economies distinguish themselves as a developed economy where there is more separation of management and ownership, and yet one-third of the listed firms in Japan are family businesses, whose finding matches with the recent finding by Allouche et al. (2008).¹⁰

Table 2 reports ownership distributions and basic firm characteristics of our sample firms. The total firm-year for three years of observation is 556 for family firms and 1155 for non-family firms. We are showing the result for family firms (first column) and for non-family firms (second column). The third and fourth columns report *p*-values of the significance of the differences computed by Student *t*-test and Wilcoxon rank test, and the sixth column reports the Spearman rank correlation between the ranking of each variable and the percentage of shares owned by founding families, and its *p*-values are shown in the seventh column.

TABLE 2 ABOUT HERE

In the third row from the top we report the details of overall floating stocks. By floating stock we define the ratio not owned by the largest top 10 shareholders.¹¹ The third row from the top reports that the percentage of floating stock is lower for family firms with a ratio of 55.165% to 55.676% of non-family firms, and the difference is

¹⁰ It has been said that the majority of firms in other Eastern Asian countries are family firms (Morck et al., 2005). Also, the percentage of shares held by families in European countries is larger and 30% or 50% shareholdings criteria are often used to distinguish family firms in the research.

¹¹ Our data is based on the top 30 shareholders and examination of the shareholders from 21 to 30 reveal indeed that the top 10 shareholders are quite constant overall and thus we believe our proxy measure is a good one for the portion of actively traded stock.

significant for Wilcoxon rank test.¹² All other differences are also significant at a 5% level except the percentage held by investment trust. The shares held by directors, individuals, and other non-family firms show higher numbers, which is quite an intuitive result. For other measures, non-family firms show higher numbers. So, even though the fraction of stock owned by institutional investors has increased in the past 10 years, we still find family firms' shareholdings are more individual and/or family based. We expect that the alignment between shareholders and management is more congruent judging by the fractions owned by directors, whose major portion of stock is owned by founding families.

The size of family firms (10.619) is significantly smaller than that of non-family firms (11.459). We find that family firms are more value firms judging from the book-to-market ratio where book-to-market ratios are higher. Net sales per employee and the labor equipment ratio (as measured by the ratio of tangible assets to the number of workers) are all significantly smaller in our sample for family firms.

From seventh row from the bottom and downward, we report financial characteristics of firms. From the top, we find that the ROE is higher for family firms than non-family firms with 4.797% and 3.791%, respectively. However, it is not significant with Wilcoxon rank test though it is significant with conventional *t*-test at 5percent significance level.¹³

If we momentarily rely on the result from conventional *t*-test, ROE as a measure of the ultimate return to shareholders, family firms serve their purpose for main shareholders where the weight of founding families will be heavier. Then, family firms

¹² Due to the possible non-normality of sample observations we base our main interpretation on the results from Wilcoxon rank test. We thank Jay Shanken for discussing this point.

¹³ Ebihara et al. (2011b) find ROE value are significantly higher for family firms than non-family firms for their larger sample of the similar observation period.

will retain larger percentages of earnings, which is consistent with pecking order behavior (Myers, 1984). The reason may be that founding families do not want to lose control of their firms to lenders or to outside new shareholders by issuing new seasoned offerings. However, because the result from Wilcoxon test is not significant, we cannot conclude either way at this moment.¹⁴ We also find that Tobin's q of family firms is inferior to the one of non-family members and significant. So, it seems the overall operating performance of family firms is either not different (ROE) or inferior (Tobin's q).

When we look at borrowing related variables, we find the family firms are more dependent on bank lending among total debt, while the debt ratio, debt-to-total assets, is much lower with 44.236% compared to 51.310 % of non-family firms. These differences are all significant.

In terms of investment in fixed assets, however, family firms are more lightly equipped judging by figures of fixed assets to equity and fixed assets to long-term capital. It may be due to particular industry distributions of family firms relative to non-family firms, where we reported that there are more family firms in services, retail, and other products industries. As to R&D expenditures, we find that family firms invest less than non-family firms (1.964% vs. 2.907%), but again it may be due to distributions of industries of family businesses.

6.2 Differences in Corporate Social Performance

Table 3 reports the main results of performance of corporate social responsibility as measured by the five-factor scores from Suto and Takehara (2012). The data covers

¹⁴ In our future work we plan to add five more years of observations and hopefully that can resolve this issue.

three years and total firm-year observations are 1117. The first column is for family firms, the second column for non-family firms, and the third and fourth columns report *p*-values for significance of differences. The fifth column reports Spearman's rank correlations between variables reported and fraction of shares owned by family firms, and the sixth column reports its significance.

TABLE 3 ABOUT HERE

First of all, the average CSP score, shown in the bottom row, is 0.035 for family firms and 0.332 for non-family firms, and non-family firms are superior to family firms overall. Next, from the figures in the first and the second row, we find that the all the factor scores are lower for family firms than for non-family firms. Except for social contributions (CSP-SC) the differences are significant. It is a bit surprising, but the significance implies the results are rather strong. The largest score among family firms is 0.163 for security and product safety and the lowest score is -0.033 for internal governance and management. According to our view, the latter result has important implications for the way the organization is run in family businesses, which we already addressed by inferring that employees and a non-family CEO may be looking into more of the value for the family sacrificing self control of their firms.

As noted in Table 2, ROE was not significantly higher and Tobin's *q* was significantly lower for family than non-family firms, suggesting lower economic performance for shareholders as well. Thus, in terms of value-maximizing, family firms may be less efficient with less agency costs incurred. Furthermore, the results so far on CSP seem to

add additional evidence on family firms in Japan. However, we postpone our final judgment until we conduct detailed multivariate cross section regressions.

Overall, our temporal interpretation of these results is that the separation of management and ownership calls for more outside public relations for managers of non-family members, while in the case of family firm management no matter with or without a family CEO, a CEO may not feel an imminent need for doing this. As a temporary conclusion family firms in Japan do not necessarily add to social capital, or necessarily to social value.

6.3 Correlations of CSR Related Variables

Panel A of Table 4 reports the correlations of variables of our interest, the percent of shares held by families, five factor scores, size of the firms and the book-to-market ratios. We report Spearman rank correlation numbers in the upper right corner and the corresponding p -values in the lower left corner of the matrix.

TABLE 4 ABOUT HERE

As to the correlations between the percent of shares held by families and other CSR related variables, they are all negative and significant. Thus, family shareholdings seem to be detrimental to the attainment of corporate social responsibility. However, we also note that the fraction of shares held by families are negatively correlated with size and positively correlated with book-to-market ratios. So, the fact that firms with a higher fraction of shares held by founding families are smaller and more of value firms may

have some explanatory power. Accordingly, we choose these two variables as our control variable in the cross-sectional regressions in Section 5.

In Panel B of the table we report the additional Welch t test by dichotomizing the same data depending on whether the CEO is from founding families or not. The upper row is the case when the CEO is a founder and the lower row is the case where the CEO is from outside the family. Again, when the CEO is from the family, the CSR scores are lower except in the case of security of the firm and product safety, in which it is not significant.¹⁵

Accordingly, from these simple pair-wise correlation analyses we conclude that the attainment of social responsibility by family firms is less overall than that by non-family firms.

7. Cross Section Regression Results

Table 5 reports results for the employee relations (CSP-EMP) on family firm related variables, the fraction of shares owned by founding families and the CEO dummy as well as control variables of size and book-to-market ratios.¹⁶ In Panel A we report the case where the dependent variable is the raw variable and in Panel B we report the case where the dependent variable is the ranked variable. That is; let x denote

¹⁵Note Reinking et al. (2011) recently report that family firms in the U.S. are associated with higher level of CSR activities, which is opposite to our findings. They use the sub-sample from Anderson and Reeb (2003). It can be said that their samples include only the relatively larger firms in S&P 500. Note that our data covers all firms listed both on the first section and the second section of Tokyo Stock Exchange, which include much smaller firms than their sample as far as the second section firms are concerned. It is likely that the founders of these smaller companies may be less concerned with corporate social responsibility than larger firms though exceptions could be found.

¹⁶ We also included in all the regressions an interactive term from the fraction of shares held by founding families and the CEO dummy. The coefficients were all insignificant and we report only the cases without the interactive term.

the n -dimensional real vector and $\text{rank}(x)$ denote a function which returns the rank of the elements in x . Then, the ranked version of x is defined as $(\text{rank}(x)-1)/(n-1)$.

TABLE 5 ABOUT HERE

We find that the coefficients of the fraction of shares owned by founding families are negative in all four cases. The estimated coefficients are significant both with and without control variable cases. This means that the more shares held by families, the less the quality of employee relations. The CEO dummy is negative, but not significant. The result rejects the hypothesis H1, although the magnitudes of the estimated coefficients are small at -0.016 for a raw variable case and -0.004 for a ranked variable case.

Table 6 reports the regression results for social contributions (CSP-SC), which was the only case the difference was not significant with the univariate test. Independent and dependent variables are the same as Table 5.

TABLE 6 ABOUT HERE

With our cross-sectional multivariate test this time, the hypothesis H2 is rejected because coefficients of the fraction of shares owned by founding families are negative and significant for all four cases. The CEO dummy is either negative or positive, but they are not significant. However, note the difference was not significant in case of

the univariate analysis where we testing the significance of difference with Wilcoxon rank test. Hence, we reserve the final conclusion for hypothesis H2.¹⁷

Table 7 reports the result from our cross-sectional regression in which the dependent variable is security of the firm and product safety. Once again, the set of independent variables is the same in Tables 5 and 6, and also the lower Panel B shows the results where dependent variables are the ranked variables as defined in the foregoing.

TABLE 7 ABOUT HERE

Although coefficients for the fraction of shares owned by founding families are all negative, coefficients for the cases with control variables are not significant. We also find that coefficients for the CEO dummy are all positive, but not significant. In sum, the CEO from the family may help improve security of the firm and product safety, although we cannot conclude clearly because coefficients are not significant. Hence, we neither accept nor reject hypothesis H3.

Table 8 reports the result from our cross-sectional regression, in which the dependent variable is internal governance and risk management (CSP-IGRM).

TABLE 8 ABOUT HERE

In this case all the coefficients for the fraction of shares owned by founding families and the CEO dummy are negative, but they are all insignificant. Again, we cannot conclude whether hypothesis H4 is accepted or rejected.

¹⁷ We expect to extend our sampling period from the current three years to eight years, which hopefully will give us further robust results.