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not-for-profit organizations: evidence  
from korean private universities**

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**Family Control and Expropriation at Not-for-Profit Organizations:  
Evidence from Korean Private Universities**

**Abstract**

**Manuscript Type:** Empirical

**Research Question/Issue:** We study an agency problem in private universities—the conflict between controlling families and other stakeholders. We investigate whether universities over which controlling families have disproportionately significant power relative to the amount of funds they contribute, that is, universities with high expropriation risk, are associated with lower outside donations and poor quality.

**Research Findings/Insights:** Using a sample of Korean private universities, we find that measures of family control in excess of monetary contributions are negatively related to the level of outside donation and measures of university quality. We also find that universities at which the controlling family exerts disproportionate control are more likely to face disputes between the controlling family and other stakeholders. Finally, we show that our results are not driven by reverse causality.

**Theoretical/Academic Implications:** While the existing literature on not-for-profit organizations focuses on the conflict between professional managers and other stakeholders, we study the conflict between controlling families and other stakeholders. We investigate a situation in which the controlling family expropriates other stakeholders, a topic missing from the existing not-for-profit literature.

**Practitioner/Policy Implications:** This study offers insights to policymakers interested in creating private universities in an emerging market setting. The relevance of our results is not

limited to Korea. According to Altbach (2005), family control of private universities is prevalent in a number of countries, including Mexico, Thailand, Taiwan, Japan, Korea, the Philippines, Argentina, India, and China.

**Keywords: Corporate Governance, Non-profits, Expropriation, Donations, Private University**

## INTRODUCTION

Family control of corporations is prevalent around the world. La Porta, Lopez-de-Silanes, and Shleifer (1999) show that even large corporations around the world are typically controlled by families. Family control is not necessarily a bad institutional model *per se*. In fact, in developed economies, family firms, particularly when founders serve as CEO or chairman of the board, tend to be associated with better performance and higher valuation (Anderson and Reeb, 2003a, 2003b; Anderson, Mansi, and Reeb, 2003; Andres, 2008; Maury, 2006; Villalonga and Amit, 2006, 2008). However, in developing economies, family control is associated with poor firm performance. Using a sample of Korean firms, Bae, Kang, and Kim (2002), Joh (2003), and Baek, Kang, and Park (2004) show that family-controlled Korean business groups perform poorly. Bertrand, Mehta, and Mullainathan (2002) find similar evidence using Indian business groups.

The main reason for the negative relationship between family ownership and firm performance in emerging markets is that families have controlling power over firms despite holding a relatively small portion of their cash flow rights through pyramidal ownership structures and cross-holdings among firms. That is, there is a significant disparity between control rights and cash flow rights, which creates strong incentives for controlling families to expropriate firm resources. Burkart, Panunzi, and Shleifer (2003) and Morck, Wolfenzon, and Yeung (2005) develop theoretical arguments suggesting that in a weak institutional environment, a family can control a firm without making a commensurate capital investment, creating large divergence between control rights and cash flow rights. Thus, in a country with a weak

institutional environment, family control is expected to be associated with high expropriation and poor firm performance, as evidenced in the previous literature.

In this paper, we investigate whether family control without a commensurate capital investment is associated with poor organizational performance in non-profit organizations. Given the evidence of expropriation in for-profit firms in emerging markets and given the weak institutional environment in these markets, it is plausible to expect negative effects of family control of non-profit organizations. Specifically, using a sample of private, non-profit universities in Korea, we test the hypothesis that universities over which founding families have disproportionately large power relative to the amount of funds they contribute, that is, universities with high expropriation risk, are associated with poor university performance as reflected in donations received.<sup>1</sup> The more controlling power the founding family has over universities in excess of their contributions, the more incentive it has to expropriate university resources to its benefit at the expense of other stakeholders. The increase in expropriation risk thus discourages future donors, leading to fewer donations, as potential donors see that the risk of their donations being wasted increases with more control by founding families.

Note that we do not measure the extent of actual expropriation by controlling families. Rather, we measure the extent of expropriation risk perceived by outside donors and examine how this expropriation risk affects outside donations. To measure expropriation risk, we create a Disparity Index, which is intended to capture the risk of expropriation by founding families. We find that the donation level is negatively and significantly related to the Disparity Index.

While we use outside donation as our main university performance variable because it can be easily measured and its interpretation is homogeneous across different universities, we also find that universities with a higher Disparity Index have poor quality in various dimensions.

They tend to have lower per student funding and Scholastic Aptitude Test (SAT) scores and engage in less faculty research, but have a higher ratio of part-time lecturers to full-time faculty. They are also more likely to experience a campus dispute between the founding family and other stakeholders of the university.

The relevance of our results is not limited to Korea. Altbach (2005) noted that family-dominated universities are prevalent in a number of countries, including Mexico, Thailand, Taiwan, Japan, South Korea, the Philippines, Argentina, India, and China. Altbach (2005) also noted that family universities are often established with the idea of making money or wielding influence, and typically have very strong and centralized administrative control, where administrative offices are in the hands of family members.

This paper proceeds as follows. Section I discusses the related literature. Section II describes the characteristics of private universities in Korea, and Section III develops the hypotheses. Section IV describes the data and construction of our main variables. Section V presents the empirical results. Section VI summarizes and concludes the paper.

## **RELATED LITERATURE**

Our paper is related to several strands in the literature: (1) family control and organizational performance, (2) risk of expropriation by family owners, and (3) non-profit organizational governance and performance.

### **Family Control and Organizational Performance**

This paper is closely related to the growing literature on family firms. In this review, we limit our discussion to empirical papers that link family control to performance. For a more extensive review of family firms, see Bennedsen, Pérez-González, and Wolfenzon (2010).

Studies of the United States and Western European countries tend to document the superior performance of family firms. For example, Anderson and Reeb (2003a) report that family firms perform better than non-family firms using S&P 500 firms.<sup>2</sup> Using Western European firms, Maury (2006) finds that active family control is associated with higher profitability than found in non-family firms. Andres (2008) finds similar evidence using German data.

Further investigation of family firms shows that not all family firms show superior performance. Using Fortune 500 firms, Villalonga and Amit (2006) report that family ownership creates value only when the founder serves as CEO of the family firm or as chairman with a hired CEO.<sup>3</sup> In contrast, firm value is destroyed when descendants serve as CEOs. Pérez-González (2006) also finds that firms with family succession underperform relative to firms that promote unrelated CEOs.<sup>4</sup> This finding is consistent with recent evidence on founder-director firms. Li and Srinivasan (in press) showed that pay-for-performance and turnover sensitivity to performance are both higher in founder-director firms than in non-founder firms. The level of corporate transparency also appears to be important to the relationship between family control and performance. Anderson, Duru, and Reeb (2009) showed that both founder and heir firms are significantly more opaque than diffuse shareholder firms and that the positive relationship between family control and performance exists only in highly transparent firms.

### **Risk of Expropriation by Family Owners**

Unlike the U.S. evidence, in which certain subsets of family firms perform better than non-family firms, studies in other parts of the world find evidence that family firms tend to perform poorly in general. Using a sample of Korean firms, Bae et al. (2002), Joh (2003), and Baek et al. (2004) show that family-controlled Korean business groups perform poorly. Bertrand et al. (2002) find similar evidence using Indian business groups.<sup>5</sup> Using Taiwanese firms, Wong, Chang, and Chen (2010) show that family control is significantly and negatively associated with abnormal returns of corporate venturing announcements. Studying Thai firms, Bertrand, Johnson, Smaphantharak, and Schoar (2008) show that greater involvement by sons in family firms is associated with lower firm-level performance.

Why do family firms perform poorly in emerging markets? The main reason is that many family firms in emerging economies have ownership structures that benefit controlling families at the expense of minority investors. It is well documented empirically that, in emerging economies, a key agency problem exists between the controlling family and minority shareholders (Claessens, Djankov, and Lang, 2000; Khanna and Yafeh, 2007). Burkart et al. (2003) and Morck et al. (2005) develop theoretical arguments that in a weak institutional environment a family can control a firm without making a commensurate capital investment, creating much divergence between control rights and cash flow rights, which in turn creates expropriation incentives for controlling families. When a firm has significant disparity between control rights and cash flow rights in its ownership structure, outside investors demand a higher risk premium for holding such a firm, or completely shy away from it, as they perceive increased risk of expropriation. Thus, high disparity between control rights and cash flow rights is associated with low firm valuation.



Johnson, La Porta, Lopez-de-Silanes, and Shleifer (2000) coin the term “tunneling” to describe the actual expropriation activities by controlling families and provide many examples of tunneling around the world. Bae et al. (2002), Bae et al. (2012), Joh (2003), Baek et al. (2004), Baek, Kang, and Lee (2006), Bertrand et al. (2002), Cheung, Rau, and Stouraitis (2004), and Atanasov (2005) provides evidence of tunneling using data from Korea, India, Hong Kong, and Bulgaria. One common theme of these papers is that the control-ownership disparity is a good proxy for the risk of expropriation by controlling shareholders and that the disparity measure well captures the extent of actual expropriation, so that high control-ownership disparity is associated with poor firm performance and valuation.

Family control of business groups in emerging economies can also have an economy-wide impact. Morck et al. (2005) argue that controlling owners of pyramids can have greatly amplified political influence relative to their actual wealth, and this influence can distort public policy regarding property rights protection, capital markets, and other institutions. They denote this phenomenon as economic entrenchment. Johnson and Mitton (2003) show an example of economic entrenchment using politically connected Malaysian firms during the Asian crisis. Morck, Yavuz, and Yeung (2011) show evidence of economic entrenchment in the banking sector. They show that tycoon or family control of banks correlates with slower economic and productivity growth, greater financial instability, and worse income inequality.

In sum, the previous literature on family firms shows that family firms in a weak institutional environment tend to perform poorly due to their inherent agency problems.

## **University Governance and Quality**

This paper is related to the literature on the governance of non-profit organizations. Fama and Jensen's (1983) study is perhaps the first to examine non-profit organizations in the principal-agent framework. Since then, the literature has grown, but so far it is limited to studies of conflict between outside donors and managers of non-profit organizations, such as non-profit hospitals, focusing mostly on the issues of management compensation (Ballou and Weisbrod, 2003; Brickley and Van Horn, 2002; Core, Guay, and Verdi, 2006; Cornell, 2004; Eldenburg et al., 2003; Fisman and Hubbard, 2005; Roomkin and Weisbrod, 1999).

Only a few studies have examined the governance of universities. McCormick and Meiners (1988) study the degree of faculty participation in university decision making and its impact on university quality. They define university quality by faculty research and graduate teaching. They measure faculty research using the number of research publications and graduate teaching using publications by former graduate students. They also use the average scholastic aptitude test (SAT) scores of the incoming freshmen class as a measure of overall university quality. They concluded that faculty perform poorly when they are assigned managerial responsibilities. Faculty successful at research and teaching do not participate much in the actual management of their universities, and those who do administer do not publish as much or teach as well. Brown (2001) refines the study of McCormick and Meiners (1988) and finds that the relationship between faculty participation in university decision making and university quality varies by decision type. He finds positive association between the two in decisions concerning faculty appointments and tenure.

Volkwein and Malik (1997) investigate whether varying degrees of regulation and autonomy exert influence on measures of university quality. They measured university quality using variables reflecting faculty and student quality constructed from the national survey of doctoral

program quality by the National Research Council, from data assembled by Graham and Diamond (1996), and from student and campus data reported in *Barren's* and *U.S. News*. They fail to find any significant association between governance and university quality. Their state-level measures of campus regulation and flexibility are not significant predictors of either faculty quality or undergraduate quality.

Aghion, Dewatripont, Hoxby, Mas-Colell, and Sapir (2010) test the hypothesis that universities are more productive when they are both more autonomous and face more competition. Using survey data, they constructed indices of university autonomy and competition for both Europe and the United States and showed that there are strong positive correlations between these indices and measures of university quality. To obtain causal evidence, they also showed that an exogenous increase in a university's expenditure generates more output, measured by either patents or publications, if the university is more autonomous and faces more competition. The main measure of university quality used by Aghion et al. (2010) is the university ranking compiled by Shanghai Jiao Tong University in its Academic Ranking of World Universities (2008). The ranking is based on six indices that capture the research capabilities of faculty and graduates.

### **University Donations**

Last, this paper is related to studies on university donations. Most of the studies on university donations focus on uncovering the factors that attract alumni donations. These studies address intercollegiate sports programs (Grimes and Chressanthis, 1994), business cycle (Okunade, Wunnava, and Walsh, 1994), number of class reunions (Willemain, Goyal, and Vendeven, 1994), participation in fraternities or sororities, proportion of full-time students

(Harrison, Mitchell, and Peterson, 1995), volunteer experience during college, residence in states with alumni chapters, varsity sports experience during college, existence of relatives attending college (Wunnava and Lauze, 2001), income level, degree of satisfaction with undergraduate experience, receipt of need-based aid during college (Clotfelter, 2003), state rules on charitable tax deductions, gender, undergraduate major, occupational sector (Holmes, 2009), and legacy admissions policy (Meer and Rosen, 2010).

To the best of our knowledge, no study has yet examined the relationship between university governance and outside donations. However, it is worth mentioning Payne (2001), who examines the effect of federal research funding on private donations at research universities. He reports a positive association between federal government funding and private donations in research universities. Because the government pays the cost of information gathering, and thereby provides peer-review services for research proposals when granting research funding, the government's grant awards may provide a signal of research quality or other information that is less noisy than that available to private donors. While private and public donations are positively correlated for research universities, they are negatively correlated for non-research institutions. Cheslock and Gianneschi (2008) confirmed Payne's (2001) findings.

## **HYPOTHESES**

As discussed in the literature section, it is well documented empirically that, in emerging economies, a key agency problem exists between the controlling family and minority shareholders. The agency problem in family-controlled business groups is likely to be even more serious. The ownership structure of family business groups allows controlling families to control firms within business groups without actually having much equity stake in them, creating much

divergence between control rights and cash flow rights, which in turn creates expropriation incentives for the controlling family. In other words, when controlling families exercise controlling power over firms in excess of their cash flow rights (when the disparity between control rights and cash flow rights increases), the expropriation incentive to transfer resources of the firm to the controlling families at the expense of minority investors increases.<sup>6</sup>

In many respects, family-controlled private universities in emerging economies appear similar to business groups. First, they have a complex ownership structure. For example, the founding family establishes a school foundation, which in turn establishes a university. Through the school foundation, the founding family also sets up other educational entities, including high schools or elementary schools; runs non-educational businesses; and even invests in for-profit firms. The non-educational and for-profit companies are established for the purpose of generating revenues that can be transferred later to the educational entities. In a sense, the university foundation can have a position similar to a holding company in a pyramidal business group.

Second, school foundations, like business groups, are under the control of founding families. This controlling power is often handed down to the founder's heir, a practice that we also observe in many of the controlling families of business groups.

Third, the founding families have full control over the school foundations without having commensurate capital investments in the form of monetary contributions. The controlling families of school foundations are similar to those of business groups, which put up only a small portion of the equity stake, but have full control over the firms within the business group, which creates the incentive to expropriate. In such circumstances, they are likely to have both the incentive and the discretionary power to expropriate resources from other stakeholders within the

university to maximize their own welfare. For instance, from the perspective of a self-interested founder who runs a not-for-profit university as well as for-profit firms, the stable stream of cash flow the university generates (e.g., tuition revenue) is the first, most natural candidate for expropriation when a for-profit firm in which the founder has a large equity stake is in financial distress.

*Figure 1* illustrates these three similarities. The founder contributes to the private school foundation and typically sits on the foundation board as a chair (link ① in *Figure 1*). The foundation then runs a number of educational entities (link ②). To generate revenue, the foundation may run a number of non-educational businesses (link ③). Instead of running the business directly, it might also hold equity stakes in for-profit firms (link ④). The founding family might also have direct equity stakes in these for-profit firms or those not directly related to the foundation (link ⑤). The dotted line in *Figure 1* indicates a business-unit relationship, and the solid line indicates equity holdings.

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Insert Figure 1 about here  
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Given that expropriation incentive for controlling families is inherent in the organizational structure of private universities, we examine whether the expropriation risk within private universities is associated with a lower level of outside donations and/or poor university quality.

## **Outside Donations**

We expect that the increase in expropriation risk will discourage future donors, leading to fewer donations, as potential donors see the risk of their donations being wasted increase. The

question here is how one can capture expropriation risk. Borrowing from the corporate governance literature, we expect that expropriation risk is an increasing function of family control and a decreasing function of the founding family's contribution to the school foundation (Claessens et al., 2000; Claessens, Djankov, Fan, and Lang, 2002; La Porta, Lopez-de-Silanes, and Shleifer, 2002; Lemmon and Lins, 2003; Mitton, 2002). Family control increases the power to expropriate, while family contribution increases the incentive to expropriate.

As for family contribution, however, one may come up with an opposite prediction. That is, if family contributions are sufficient enough to ensure the provision of educational services, the university has less incentive to mobilize donations, suggesting a negative link between contributions and donations. Thus, testing the relationship between family contributions and outside donations would actually be a test of two competing predictions.

Nevertheless, we have the following two closely related hypotheses.

*Hypothesis 1a: Non-profit universities more heavily controlled by founding families attract fewer outside donations, ceteris paribus.*

*Hypothesis 1b: Non-profit universities where founding families make greater contributions attract more outside donations, ceteris paribus.*

Combining the two hypotheses leads to

*Hypothesis 1c: Non-profit universities more heavily controlled by founding families without commensurate contribution attract fewer outside donations, ceteris paribus.*

## **University Quality**

In addition to outside donations, we also examine whether expropriation risk affects university quality. Following the studies on university quality in the United States, we examine faculty research volume on a per faculty member basis, and student quality based on factors such as incoming student SAT scores (Aghion et al., 2010; Brown, 2001; McCormick and Meiners, 1988; Volkwein and Malik, 1997). We supplement these with three other quality measures: per student spending, ratio of part-time lecturers to full-time faculty, and campus dispute.

To the extent that the amount of actual expropriation by controlling families is positively related to the degree of expropriation risk (Johnson et al., 2000), we expect that universities with greater expropriation risk will spend less on students, hire more part-time lecturers than full-time faculty, and provide less support for research. These universities are more likely to experience campus disputes between founding family and other stakeholders. For all these reasons, they attract students of poorer quality (lower SAT scores). Thus, we hypothesize as follows:

*Hypothesis 2a: Nonprofit universities more heavily controlled by founding families have lower overall university quality, ceteris paribus.*

*Hypothesis 2b: Nonprofit universities where founding families make greater contributions have higher overall university quality, ceteris paribus.*

Combining the two hypotheses leads to

*Hypothesis 2c: Universities more heavily controlled by founding families without commensurate contribution have lower university quality, ceteris paribus.*



## DATA AND VARIABLE CONSTRUCTION

### **Korean Private Universities**

To test our hypotheses, we use a sample of four-year private universities in Korea. There are a number of reasons for this. First, Korean private universities have an organizational structure close to those discussed in our hypotheses. They are established by foundations that resemble holding companies in pyramidal business groups. These foundations not only run universities, but also own business units and have equity holdings in many subsidiaries.

Second, the founding families have almost complete control over the foundation boards, which in turn control all educational and non-educational entities. According to the *Private School Law* (hereafter, the Law) that prevailed during our sample period, a foundation board elects its own board members. The usual practice is to give the founder the exclusive right to nominate directors, and to let the founder himself serve as a board chairman. No other stakeholders representing students, faculty, staff, or even alumni can influence the composition of the foundation board. The foundation board also has the exclusive right to dismiss directors. Further, it is normal practice for immediate family members or relatives to serve as board members. If the founder passes away, his or her heir normally assumes the position of board chairman.

Furthermore, the Law requires that university presidents be appointed either by the foundation board or by the founder himself, and the typical foundation charter requires that the university president be appointed by the chairman of the board. The typical charter also allows a member of the board—usually one of the founder's immediate family members—to be appointed

university president. Moreover, members of the founding family often work as staff members at the school foundation or assume managerial positions at the university.

According to a recent survey conducted by National Assemblyman Hoon Seol, 75 out of 83 universities have immediate family and/or relatives of the founder working as either board members or administrative personnel. *Figure 2* shows the details of the survey results.<sup>7</sup> *Pie chart A* of *Figure 2* shows that in the 75 universities surveyed, 247 people are related to the founding families. Of those 247, 115 (46.6 percent) serve as board members, 29 (11.7 percent) as either president or dean, 59 (23.9 percent) as professors, and 44 (17.8 percent) as administrative staff. *Pie chart B* of *Figure 2* shows these individuals' relationships to the founder. Out of 226 people identified as having a relationship with the founder, 30 (13.3 percent) are the founder's spouse, 99 (43.8 percent) are offspring, 12 (5.3 percent) are siblings, and 85 (37.6 percent) are other relations. The statistics show that immediate family members account for more than 60 percent of those who are related to the founder.

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Insert Figure 2 about here  
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Third, examples of misbehavior by founding families are abundant, ranging from outright theft to more subtle transactions that circumvent the law. For example, the founder may own a for-profit construction company, which he then uses to build school facilities, paying greatly inflated construction fees. Other examples include taking bribes upon the appointment of new faculty, misappropriation of tuition for personal use, overcompensating board members and/or related administrative staff, and the personal use of university properties such as a house or vehicles. According to the results of the National Assembly inspection in 2004, losses incurred

from 45 private universities and colleges due to improper management amounted to 300 billion won (300 million dollars) during the period 1999–2004. Such improper behavior often creates campus disputes between the founding family and other stakeholders of the university, including faculty and students. During the period 1997–2000, 44 universities were engulfed in some form of dispute (Lee, Park, and Kim, 2004).

### **Data and Variable Construction**

Our sample period spans three years: 2001–2003. We exclude public universities, as they are governed by the government and our interest in this study is the impact of family ownership on the extent of expropriation. We also exclude universities that had existed for less than 10 years as of 2001. We impose this restriction because the degree of family control over universities may be different for young universities compared to more established universities. The results we report are not sensitive to the choice of this 10-year restriction. We examined the sample with no restriction and with a five-year restriction. The results did not change. The 10-year restriction gives a three-year panel with a sample of 259 university-year observations (93 unique universities).

We obtain annual *Donation* data from the Korea Foundation for the Promotion of Private Schools, which is a non-profit organization that provides loans to private universities. The annual *Donation* is scaled by the number of students enrolled in the university to control for the impact of university size on donation, since larger universities are likely to attract more donations. Notice that unlike in the United States, donation by students at the time of admission is not allowed in Korea. It is illegal to admit students for donation. Notice also that *Donation* does not

include donations made by founding families, only those donation made by unrelated outside donors.

Our measure of family control is the number of the founder's *Relatives* who work on the foundation's staff or have assumed managerial positions in the university. We obtain this variable from a report issued in 2001 by the Millennium Democratic Party. As a measure of family contributions to the university, we use annual monetary contributions made by the school foundation to the university (hereafter, *Foundation Contributions*). These are contributions from the family that established the private school foundation. We also constructed a single variable intended to capture expropriation incentives for controlling families. First, we scaled *Relatives* and *Foundation Contribution* to range from zero to one. Then we subtract the scaled *Foundation Contribution* from the scaled *Relatives*. The variable ranges from a minimum of -1 to a maximum of 1, with a higher score implying more expropriation incentives. We call this the *Disparity Index*.

Our Disparity Index is similar in idea to the control-ownership disparity measure in the corporate governance literature (Claessens et al., 2002; John, 2003; La Porta et al., 2002; Lemmon and Lins, 2003; Mitton, 2002). A shareholder's control-ownership disparity in a firm is typically defined as the shareholder's control rights minus the shareholder's cash flow rights. Control rights capture the percentage of voting rights over which a shareholder has influence and cash flow rights capture the percentage of earnings or dividends over which a shareholder has claim. A firm with a greater degree of control-ownership disparity for the controlling shareholder is considered to have a greater degree of expropriation risk. The reason is that the controlling shareholder has greater power (high control rights) and greater incentive (low cash flow rights) to expropriate the resources of the firm. Our Disparity Index is a measure that adapts the control-

ownership disparity measure to a not-for-profit setting. *Relatives* captures the controlling family's power to expropriate, while *Foundation Contribution* captures the controlling family's incentive not to expropriate.

Our main hypothesis is that family control without contribution induces greater expropriation incentive that leads to lower donations. One main concern in testing this hypothesis is that family control could be a proxy for university reputation. If this were the case, then the negative relation between family control and donation would be a reflection of omitted variables. That is, universities with more family control are those with poor reputations, so these universities attract few donations. To control for university reputation, we use the number of years since its establishment. Universities with a long history and tradition tend to have better reputations and presumably attract more donations (*History*).

We also use information on whether or not the university has a religious mission (*Religion*). We assume that universities with such a mission have a better reputation, and thus attract more donations. We gather information on the location of the university to determine whether it is in the metropolitan area (*Metro*). We regard location as an important determinant of donations. We obtain these variables from each university's annual report.

As proxies for university quality, we use *Per Student Spending*, ratio of *Part-time Lecturers*, *Faculty Research*, *SAT* scores, and incidents of *Campus Disputes*. *Per Student Spending* is from the Korea Foundation for the Promotion of Private Schools. Information on the ratio of *Part-time Lecturers* comes from the Office of National Assemblyman Hoon Seol. We measure *Faculty Research* using the yearly number of journal articles listed in the National Citation Report published per full-time faculty member. We obtain the number of journal articles from the Ministry of Science and Technology. The *SAT* scores are from Jinhaksa, a private company

that produces publications on college entrance examinations. McCormick and Meiners (1988) also use faculty research and SAT scores as measures of university quality.

Our final measure of university quality is whether the university has experienced any disputes between the founding family and other stakeholders. Faculty and students often challenge the founding family on the use of university resources, and these challenges often lead to *Campus Disputes*. We obtained the information on *Campus Disputes* through news article searches and reports issued by the Ministry of Education. We used the Korean Integrated News Database System (KINDS) to identify all articles on campus disputes. In this search, we used all 10 nation-wide newspapers and five local newspapers, representing five major provinces. From this initial set, we excluded disputes that take place regularly every spring (for example, disputes over tuition increases), and those that do not involve the school foundation. From this final set, we obtained the list of universities and the years in which disputes were featured in the newspaper. We combined this list with another list of universities whose foundation boards were replaced by Ministry-appointed temporary directors. Typically, if a campus dispute reaches a stage where it cannot be resolved among the concerned parties, the Ministry steps in and replaces the foundation board members. Using these two sources, we created a dummy variable that takes the value of one if the university experienced a *Campus Dispute* or the foundation board members were replaced by the Ministry of Education, and zero otherwise.

In *Table 1*, we provide a detailed description of each variable used in the paper. We assume that the family control is time-invariant and measured the number of relatives as of 2001. We treat the campus dispute dummy as if the university experienced a dispute lasting the whole sample period. This treatment is reasonable given that problems existed some years before and even after the first press appearance of the dispute.

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## EMPIRICAL RESULTS

### Summary Statistics

*Table 2, Panel A*, shows the summary statistics for the main variables. The average level of donation per student is 1.2 million won. There is a large cross-sectional variation in the amount of donations. Donations range from a minimum of 70,000 won per student to a maximum of 8.4 million won per student, with a standard deviation of 1.4 million won. The average expense per student is 6.7 million won. Since all our accounting variables are highly skewed, they are logged when we run regressions.

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Insert Table 2 about here  
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The ratio of part-time lecturers to full-time faculty is very high. It averages 0.97, which means that there are as many part-time lecturers as full-time faculty members. The publication of journal articles in National Citation Report (NCR) ranges from zero to 1.09 per faculty member, with an average of 0.22. The average SAT score is 66 out of a perfect score of 100. Twenty-nine percent of the universities experienced a campus dispute at least once during the sample period.

The amount of annual foundation contribution is lower than the amount of donations, averaging 754,000 won per student. Nine out of 259 university-year observations show no contributions, even though the Law stipulates that the school foundations must contribute a certain percentage of their annual university budgets.

The number of relatives in university managements ranges between zero and four. It is surprising that the number is so small. The reason is that this variable includes only the number of relatives who have managerial positions at the university. It does not include relatives on the foundation board or relatives without a managerial position at the university. We focus only on the relatives in a managerial position because these people are the ones actually making important decisions involving the university budget. The average age of the universities is around 34 years. About one third of the universities in the sample have a religious mission. More than half are in the Seoul metropolitan area.

*Table 2, Panel B* shows the correlations between the variables. Per student donations, per-student spending, faculty research, and SAT scores are all negatively (positively) and significantly related to the variables that are proxies for family control (family contributions). In contrast, the ratio of part-time lecturers to full-time faculty is positively (negatively) related to measures of family control (family contributions). Most of the correlation coefficients are significantly different from zero. Campus disputes are not related to most of the family control variables, with the exception of family contributions, to which they are negatively related.

### **Impact on Donations**

Since we used panel data, the  $t$ -values of the ordinary least squares (OLS) coefficients can be biased. This bias arises because the residuals for each university are likely to be correlated over the years (temporal correlation), and the residuals might be correlated across universities within a single year (spatial correlation).

One way to address this problem is to run a regression model with university fixed effects and year dummies. However, the data structure does not allow this. We measure all the main



variables of interest as time-invariant, with the exception of foundation contributions. Thus, these measures are completely captured by university fixed effects. As an alternative, we use university random effects with year dummies.

*Table 3* shows the results of the random-effects model, in which we regress the log of annual donations per student on family control variables together with other control variables. T-statistics are adjusted using White's heteroskedasticity-consistent standard errors. In Model (1), we use year dummy variables to control for any time trend, together with the age of the university (history), the religion dummy (religion), and the metropolitan dummy (metro) as additional control variables. The coefficient estimate for history is positive and significant at the 5 percent significance level, which suggests that universities with a long tradition and good reputation attract more donations. Religious universities also receive more donations, probably because of the stable provision of donations from their religious affiliations. Universities located in a metropolitan area attract more donations, but the relationship is not significant. Although not reported, the coefficient estimates for year dummies show that donations have been increasing over the years. The overall  $R^2$  is 15.5 percent, suggesting that the control variables capture the variation in donations reasonably well.

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Insert Table 3 about here  
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In Model (2), we add the number of relatives of the founding family in university management, our main proxy for family control. The estimate of this variable is significantly negative. The magnitude of the coefficient estimates is also economically significant. One additional relative of the founder in university management (approximately a one-standard-deviation increase) will decrease the log of donation by 0.26, which represents a drop in

donations of 162,000 won per student from the median donation of 713,000. This decrease amounts to a 23 percent drop in donations. If the foundation increases the number of relatives to four, donations per student will drop by 458,000 won, a decrease of 64 percent. In addition to the number of relatives, we also examined the ratio of relatives on the foundation board. This variable turns out to be insignificant. This evidence is consistent with the view that the non-relative board members are not independent from the founding family and the board of the school foundation plays no monitoring role.

In Model (3), we replace the number of relatives with the variable that measures the extent of family contributions. Consistent with the prediction, this variable is positively related to donations, significantly. If a controlling family increases its contributions by one standard deviation, donations increase by 1,603,000 won. This is an increase of 225 percent from the median donation. Our result suggests that the effect of family contribution on expropriation risk dominates the need to mobilize outside donations. The former predicts a positive link between family contribution and outside donation, while the latter predicts a negative link between the two. In Model (4), we include both the number of relatives and the extent of family contributions. Both variables are significant with the expected signs. We note that overall  $R^2$  increases to 47.6 percent with both variables added from 15.5 percent without them.

In Model (5), we use a single Disparity Index that captures the extent of expropriation incentives. The coefficient of the Disparity Index is negative and highly significant. Holding all other control variables at their mean levels, if one increases the Disparity Index (i.e., family control in excess of family contributions increases) from the 25<sup>th</sup> percentile value to the 75<sup>th</sup> percentile value, then the donation drops by 265,000 won. This is a drop of 37 percent from the median donation.

Overall, the results in *Table 3* suggest that family control without commensurate capital contributions increases risk of expropriation by founding families and thus negatively affects donations.<sup>8</sup> Our results are also consistent with the findings in the corporate governance literature that study the disparity between control and cash flow rights. Using country-level data, La Porta et al. (2002) find evidence of lower valuation of firms in countries with a higher wedge between control and ownership rights. Using dual-class firms in the United States, Gompers, Ishii, and Metrick (2010) find evidence of firm value increasing with insiders' cash flow rights, but decreasing with insider voting rights. Using Korean data, Joh (2003), Baek et al. (2004), and Black, Jang, and Kim (2006) respectively show that disparity is associated with lower accounting profitability, lower stock returns, and lower firm value.

### **Impact on University Quality**

Existing studies in the corporate governance literature relate disparity not only to performance but also to other aspects of firm quality. For example, Fan and Wong (2002) find evidence that firms with concentrated ownership have accounting earnings that are less informative. More recently, Li and Srinivasan (in press) investigated pay-for-performance and turnover sensitivity to performance in founder-director firms. Accordingly, in this section, we investigate the relationship between our family control (or contributions) measures and university quality. As proxies for university quality, we use per student spending, ratio of part-time lecturers, faculty research, SAT scores, and incidents of campus dispute.

In *Table 4*, we examine the impact of family control and family contributions on the measures of university quality. We use the random-effects model in all regressions. In Model (1), as a quality measure, we use per student university spending (measured in logarithms). If the founder tunnels resources from the university to other for-profit firms, then fewer resources will

be available to be spent on the university. The results show that a university with more relatives in school management spends less per student. In contrast, universities that have more foundation contributions spend more per student.

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Insert Table 4 about here  
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In Model (2), we use the fraction of part-time lecturers as an alternative quality measure. Our reasoning is that universities that suffer more from expropriation tend to hire less full-time faculty and instead hire more part-time lecturers, who are less expensive and have little voice on university matters. The estimation result indicates that universities with more foundation contributions tend to have a lower fraction of part-time lecturers.

In Model (3), we use faculty research as the dependent variable. The results show that faculty members of universities with more relatives in school management have less research output. In Model (4), we replace faculty research with SAT scores. The results indicate that universities with more relatives in school management attract fewer high-quality students.

In Model (5), we use a university quality composite index constructed from four of our university quality measures (per student spending, part-time lecturers, faculty research, and SAT scores). We first normalize each quality measure to range from 0 to 1. Then, we compute their sum and multiply by 25, so that the index takes a value between 0 and 100. The regression result shows that universities with more foundation contributions or those with less relatives in school management have higher university quality.

In Model (6), we use campus dispute as the dependent variable. Since campus dispute is a binary variable, we run a probit model. The results show that universities with fewer foundation contributions tend to experience more campus disputes. We note that universities with a long

history tend to have a higher probability of dispute. This could be partly due to selection bias. Since we rely on newspaper articles to identify universities with disputes, it is possible that the measure is biased toward well-known universities with longer histories and traditions. Campus disputes in relatively new and unknown universities are not likely to attract interest from the general public, and thus are less likely to be covered by newspapers.

### **Robustness Checks**

*Table 5* presents the results of a number of robustness checks. In Models (1)–(3), we run year-by-year OLS tests. We find that the coefficient estimates of the number of relatives and foundation contributions are all significant and have the expected signs. The control variables are mostly not significant, with the exception of the metropolitan dummy, which is positively related to the log of donation.

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Insert Table 5 about here  
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In Models (4) and (5), we partition the sample into non-religious and religious universities, because the governance characteristics of the two groups of universities might be different. For both religious and non-religious universities, we find that all variables related to family control and family contributions are significant and have the expected signs.

Model (6) is the same as Model (4) in *Table 5*, except that we replace the metropolitan dummy with the SAT score, which may better capture the reputation of universities in Korea. Comparing the two models shows that the coefficient estimates of the main variables of interest change very little.

As discussed previously, the family control variables are time-invariant, which is the reason we use the random-effects model instead of the fixed-effects model. In an unreported test, we estimated the fixed-effects model, in which we regressed the log of donation on foundation contribution, history, SAT score, and the year dummies. The coefficient estimate on the foundation contribution is 0.06 with a *t*-statistic of 1.98. Overall, the results indicate that the impact of family control and family contributions on donation is robust to the choice of time periods, estimation method, and subsamples.

We control for the size of university by scaling each control variable used in the regression with the number of students enrolled. To see if university size *per se* has any additional explanatory power, in an unreported regression we separately controlled for the number of enrolled students (in natural logarithm) using Model (6) in *Table 5*. The coefficient estimate is negative and significant with a *t*-stat of -3.80. The coefficient estimate and the *t*-stat of our Disparity Index remain unchanged.

We also examine the effect of political links for the founding family and its effect on donations (results not reported). Politically linked founding families may be in a position to use political power to avoid compliance, prosecution, etc., so that the extent of expropriation is more serious. We obtain information on political links from two sources. The first is the list of individuals who contributed political donations to National Assemblymen during 2004–2010. Unfortunately, this information is not available before 2004. The list is compiled by the National Election Commission. From this list, we identify universities whose president or foundation chairman made political donations. The second source comes from an article published by the local newspaper *Oh My News* (June 14, 2011). The article lists all the National Assemblymen of the Grand National Party—the current incumbent party—that have family ties with the founders

of school foundations. Using these two sources of information, we construct a dummy variable that takes a value of one if the university president (or foundation chairman) contributed political donations or its founding family members include a National Assemblyman. When we include this dummy in Model (5) of *Table 5*, we find that the coefficient estimate is insignificant. This result, however, should be interpreted with caution, as our variable for political ties is likely not comprehensive.

### **Exploring the Direction of Causality**

Thus far, we have assumed that our expropriation measure, the Disparity Index (family control in excess of family contributions), is exogenously determined. A major challenge in studying the relationship between this variable and donations is the possibility of reverse causality. It could be that large donors attach strings to their donations and force the receiving university to be subject to less family control and more family contributions, so that donation can cause a change in our Disparity Index. For example, a large donation could impose a condition that requires the school foundation to contribute a matching fund to the university.

A standard way to address the issue of reverse causality is to find an instrumental variable for the Disparity Index and run a two-stage least squares (2SLS) test. However, we do not follow this route, because we were not able to find a good instrumental variable with high correlation with the Disparity Index but not the donation. Instead, we show that donations do not cause change in the Disparity Index and take this as indirect evidence that the Disparity Index does cause change in donation.

We use the metropolitan dummy as an instrumental variable for donations and the Disparity Index and run 2SLS tests. In the first stage, we regress donation on the metropolitan, history,

religion, and year dummies. In the second stage, we use the fitted values of donation obtained from the first stage as a variable to explain the Disparity Index, along with other control variables. If the coefficient of the fitted donation values is statistically insignificant, it shows that an exogenously determined donation does not cause change in the Disparity Index. We take this result as evidence against reverse causality.

The metropolitan dummy satisfies all the conditions of a good instrumental variable. First, it is exogenous. It is hard to imagine that a university would change its location because of donations. Second, the metropolitan dummy is highly correlated with annual donations. The correlation between the two variables is 0.27 and significant at the 1 percent level. Third, it is not correlated with the Disparity Index. The correlation between the two is 0.04 with a p-value of 0.56.

*Table 6* shows the 2SLS results. In Model (1), we run the first-stage regression, regressing the log of donation on the metropolitan dummy and other control variables. The coefficient estimate on the metropolitan dummy is highly significant.

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Insert Table 6 about here  
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In Model (2), we run the second-stage regression of the Disparity Index on the fitted values of log of donations from Model (1) with the history, religion, and year dummies as controls. The coefficient estimate on the fitted values of the log of donations is insignificant (a *t*-value of -1.41), which suggests that exogenously determined donations do not cause the change in the Disparity Index.

While not reported, we also conducted similar tests for the university quality variables to see whether university quality causes change in the Disparity Index. On *a priori* grounds, it is



difficult to see why university quality affects the Disparity Index. For instance, why would a university with strong faculty research or high SAT scores discourage family control by founding families but encourage more family contributions? Consistent with the prediction, we found that per student spending, the ratio of part-time lecturers to full-time faculty, faculty research, and SAT scores do not cause change in the Disparity Index.

In sum, while we cannot completely dismiss the possibility of reverse causality, we conclude that the correlation between expropriation risk and donations (and university quality) exists, not because the latter causes the former, but because the former affects the latter.

## **CONCLUSION**

In this paper, we examine the agency problems of Korean private universities. In many Korean private universities, founding families have almost total discretionary power over management, while they often do not make commensurate monetary contributions to the universities. Furthermore, there are few mechanisms for monitoring their misbehavior. We argue that such a structure creates strong incentives for founding families to expropriate university resources for their own benefit, at the expense of students, faculty, and other stakeholders of the university.

The empirical results and anecdotal evidence appear consistent with the following scenario. Universities controlled by founding families who have control power in excess of their initial donation level are associated with high expropriation risk, and a higher probability of expropriation discourages donations. Good researchers stay away from these universities, leading to poor faculty research. As a result of expropriation, per student spending is low and more part-time lecturers are hired, leading to poor educational services. In the most extreme circumstances, campus disputes take place.

Our study, however, is limited in a number of ways. First, our sample covers only three years, and some of our key variables are time-invariant, making it impossible to run university fixed-effects regressions. Second, we do not have information on which for-profit firms the founding families have equity stakes in. With such information, one could construct an expropriation measure much more refined than the one used in this paper. Third, our study is a single-country study that can be influenced by country specifics. Future research could benefit from a multi-country study.

Despite its limitations, our study contributes to the existing literature by investigating a topic missing from the literature. While the existing literature on not-for-profit organizations focuses on the conflict between professional managers and other stakeholders, we study the conflict between a controlling family and other stakeholders.

Given the prevalence of family control over for-profit firms in emerging economies, we suspect that the relevance of our results is not limited to Korea, and that other emerging economies are likely to suffer from similar agency problems in school governance. It would be interesting to document the extent of agency problems in not-for-profit organizations from other emerging economies. More importantly, our study provides important implications to policymakers who regulate private universities in emerging economies.

## ENDNOTES

<sup>1</sup> According to the rankings in IMD's World Competitiveness Yearbook (2003), Korea ranks low in many areas related to the quality of legal institutions: justice (45<sup>th</sup>), ethical practices (53<sup>rd</sup>), manager's credibility (52<sup>nd</sup>), corporate boards (58<sup>th</sup>), and shareholder value (54<sup>th</sup>). This low ranking is in stark contrast to Korea's rankings in economic performance: GDP (11<sup>th</sup>), real GDP growth (4<sup>th</sup>), and unemployment rate (7<sup>th</sup>).

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<sup>2</sup> In a related paper, Anderson, Mansi, and Reeb (2003) show that family ownership is related to a lower cost of debt financing. Anderson and Reeb (2003b) find that family firms experience less diversification than non-family firms. Anderson, Reeb, and Zhao (in press), however, reported that family firms experience a substantially higher volume of abnormal sales prior to negative earnings shocks than non-family firms, suggesting extensive informed trading.

<sup>3</sup> Using U.S. data, Villalonga and Amit (2010) show that the founders and their families are more likely to retain control when doing so gives the firm a competitive advantage, thereby benefiting all shareholders.

<sup>4</sup> Using data from Denmark, Bennesen, Nielsen, Pérez-González, and Wolfenzon (2007) find that family successions have a large negative causal impact on firm performance. They used the gender of a departing CEO's firstborn child as instrumental variable for family succession.

<sup>5</sup> Using data from seven East Asian economies, Fan and Wong (2002) find evidence that firms with concentrated ownership have accounting earnings that are less informative. Shyu and Lee (2009) studied the link between control-ownership disparity and debt maturity using Taiwanese family firms. On the other hand, Chen and Nowland (2010) show that the higher levels of monitoring are not always in the best interests of minority shareholders in family-owned companies.

<sup>6</sup> Numerous studies have documented the evidence that the disparity between control and cash flow rights by controlling families is associated with greater expropriation risk and thus poor firm performance (Atanasov, 2005; Bae, Kang, and Kim, 2002; Bae et al., 2012; Baek, Kang, and Lee, 2006; Baek, Kang, and Park, 2004; Bertrand, Mehta, and Mullainathan, 2002; Cheung, Rau, and Stouraitis, 2004; Claessens, Djankov, and Lang, 2000; Claessens et al., 2002; Joh, 2003; La Porta et al., 2002; Lemmon and Lins, 2003, Mitton, 2002).

<sup>7</sup> We thank National Assemblyman Hoon Seol for providing this statistic.

<sup>8</sup> One way to measure the incentive for controlling families to expropriate university resources is to examine whether the controlling family has equity stakes in for-profit businesses. Unfortunately, this information is not available for most universities. Instead, we generate a dummy that takes the value of one if the foundation operates a hospital and zero otherwise. For many Korean private universities, hospital operation is the largest source of revenues. When we include this dummy in regression (5) of Table 3, the coefficient estimate of the hospital dummy is positive and significant. The magnitude and significance of the Disparity Index remain intact.

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**TABLE 1**  
**Description of Variables**

| Variable   | Definition   |
|--|--|
| <i>Donation and university quality variables</i> |  |
| Donation   | Annual donation per student (in thousand won). Donation does not include foundation contributions. We obtain this information from the Korea Foundation for the Promotion of Private Schools, a non-profit organization, the business of which is to provide loans to private universities.  |
| Per Student Spending                             | Annual university expenditure per student (in thousand won). We obtain this information from the Korea Foundation for the Promotion of Private Schools.  |
| Part-Time Lecturers                              | Ratio of part-time lecturers to full-time faculty members. We obtain this information from the Ministry of Education.  |
| Faculty Research                                 | Yearly number of articles published per full-time faculty member in the journals listed in the National Citation Report. We obtain this information from the Ministry of Science and Technology.   |
| SAT  | Average test score of admitted students on a government-administered college entrance examination. We obtain this information from Jinhaksa, a private company that produces publications on college entrance examinations.  |
| Quality Index                                    | University quality index based on per student spending, part-time lecturers, faculty research, and SAT. Quality Index = $[(\ln(\text{per student expense})/11.12) + (\text{full-time faculty}/8.26) + (\text{faculty research}/1.09) + (\text{SAT}/98.01)] \times 25$ . Full-time faculty is the ratio of full-time faculty members to part-time lecturers. $\ln(\text{per student expense})$ , full-time faculty, faculty research, and SAT are scaled by their respective maximum values. We multiply by 25 so that the index takes a value between 0 and 100. A higher index value indicates higher university quality. |
| Campus Dispute                                   | A dummy variable equal to one if the university experiences a dispute between the founding family and other stakeholders during the sample period, and zero otherwise. We obtain this information from the Korean Integrated News Database System (KINDS).   |

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***Family control***

|           |  |
|-----------|--|
| Relatives | Number of relatives in university management (working at either the school foundation or the university). The variable does not include relatives on the board of the school foundation or those relatives with no managerial positions. We obtained this information from a report issued by the Millennium Democratic Party. |
|-----------|--|

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***Family contributions***

|                          |  |
|--------------------------|--|
| Foundation Contributions | Annual contribution per student from the school foundation to the university (in thousand won). Foundation contributions are not included in donations. We obtain this information from the Korea Foundation for the Promotion of Private Schools. |
|--------------------------|--|

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***Disparity between family control and family contributions***

|                 |  |
|-----------------|--|
| Disparity Index | To construct the degree of expropriation incentives for founding families, we constructed the following Disparity Index. $\text{Disparity Index} = [(\text{Relatives}/4) - (\text{Contribution}/12,521)]$ . Relatives and contribution are scaled by their respective maximum values. The variable can range from the minimum of -1 to the maximum of 1. A higher score implies more family control with investment. |
|-----------------|--|

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***Control variables***

|          |  |
|----------|--|
| History  | Number of years since the university's establishment. We obtained this information from each university's annual report.   |
| Religion | A dummy variable equal to one if the university has a religious mission, and zero otherwise. We obtained this information from the Association of Private School Foundations.  |
| Metro    | A dummy variable equal to one if the university is located in the Seoul metropolitan area (including Incheon and Kyunggi Province), and zero otherwise. We obtained this information from each university's annual report. |

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**TABLE 2**  
**Summary Statistics and Correlations**

| <i>Panel A: Summary statistics</i>        |             |       |           |         |                             |        |                             |         |
|---|-------------|-------|-----------|---------|-----------------------------|--------|-----------------------------|---------|
| Variable                                  | No. of Obs. | Mean  | Std. Dev. | Minimum | 25 <sup>th</sup> percentile | Median | 75 <sup>th</sup> percentile | Maximum |
| <i>Donation</i>                           |             |       |           |         |                             |        |                             |         |
| Donation (in thousand won)                | 259         | 1,221 | 1,429     | 70      | 374                         | 713    | 1,267                       | 8,403   |
| <i>University quality variables</i>       |             |       |           |         |                             |        |                             |         |
| Per Student Spending (in thousand won)    | 259         | 6,742 | 4,721     | 2,833   | 4,764                       | 5,674  | 7,381                       | 67,588  |
| Part-Time Lecturers                       | 177         | 0.97  | 0.42      | 0.12    | 0.68                        | 0.91   | 1.25                        | 2.28    |
| Faculty Research                          | 253         | 0.22  | 0.25      | 0.00    | 0.06                        | 0.15   | 0.26                        | 1.09    |
| SAT (0–100)                               | 259         | 65.60 | 19.56     | 18.14   | 50.04                       | 66.12  | 82.03                       | 98.01   |
| Quality Index                             | 177         | 45.72 | 10.86     | 29.38   | 38.88                       | 42.46  | 50.15                       | 78.76   |
| Campus Dispute (0 or 1)                   | 259         | 0.29  | 0.46      | 0.00    | 0.00                        | 0.00   | 1.00                        | 1.00    |
| <i>Family control variables</i>           |             |       |           |         |                             |        |                             |         |
| Relatives                                 | 259         | 0.77  | 1.03      | 0.00    | 0.00                        | 0.00   | 1.00                        | 4.00    |
| <i>Family contributions</i>               |             |       |           |         |                             |        |                             |         |
| Foundation Contribution (in thousand won) | 259         | 754   | 1,438     | 0       | 54                          | 211    | 647                         | 12,521  |
| <i>Disparity Index</i>                    | 259         | 0.32  | 0.25      | -0.57   | 0.14                        | 0.35   | 0.50                        | 0.85    |
| <i>Control variables</i>                  |             |       |           |         |                             |        |                             |         |
| History (in years)                        | 259         | 34.46 | 16.90     | 10.00   | 16.00                       | 35.00  | 51.00                       | 60.00   |
| Religion (0 or 1)                         | 259         | 0.32  | 0.46      | 0.00    | 0.00                        | 0.00   | 1.00                        | 1.00    |
| Metro (0 or 1)                            | 259         | 0.52  | 0.50      | 0.00    | 0.00                        | 1.00   | 1.00                        | 1.00    |

| <i>Panel B: Correlations</i>            |       |       |       |       |       |       |       |       |      |       |      |      |
|---|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|------|
|   | [1]   | [2]   | [3]   | [4]   | [5]   | [6]   | [7]   | [8]   | [9]  | [10]  | [11] | VIF  |
| [1] <i>ln</i> (donation)                | 1.00  |       |       |       |       |       |       |       |      |       |      |      |
| [2] <i>ln</i> (per student spending)    | 0.73  | 1.00  |       |       |       |       |       |       |      |       |      |      |
| [3] Part-Time Lecturer                  | -0.33 | -0.34 | 1.00  |       |       |       |       |       |      |       |      |      |
| [4] Faculty Research                    | 0.57  | 0.58  | -0.39 | 1.00  |       |       |       |       |      |       |      |      |
| [5] SAT                                 | 0.39  | 0.52  | -0.08 | 0.57  | 1.00  |       |       |       |      |       |      |      |
| [6] Campus Dispute                      | -0.10 | -0.00 | -0.07 | 0.02  | 0.13  | 1.00  |       |       |      |       |      |      |
| [7] Relatives                           | -0.34 | -0.35 | 0.03  | -0.30 | -0.28 | -0.04 | 1.00  |       |      |       |      | 1.11 |
| [8] Disparity Index                     | -0.58 | -0.61 | 0.34  | -0.53 | -0.41 | 0.05  | 0.64  | 1.00  |      |       |      | 1.19 |
| [9] <i>ln</i> (foundation contribution) | 0.66  | 0.58  | -0.37 | 0.37  | 0.30  | -0.13 | -0.19 | -0.48 | 1.00 |       |      | 1.13 |
| [10] History                            | 0.30  | 0.52  | -0.16 | 0.47  | 0.63  | 0.16  | -0.24 | -0.38 | 0.23 | 1.00  |      | 1.24 |
| [11] Religion                           | 0.14  | 0.16  | 0.14  | -0.17 | -0.02 | -0.13 | -0.21 | -0.03 | 0.19 | -0.08 | 1.00 | 1.11 |
| [12] Metro                              | 0.27  | 0.35  | 0.18  | 0.27  | 0.72  | 0.06  | -0.15 | -0.18 | 0.16 | 0.28  | 0.13 | 1.15 |

This table presents the correlation matrix of variables used in the study. It also shows the variance inflation factors (VIF) computed for independent variables used in *Table 3* Model (4) (Relatives, Foundation Contribution, History, Religion, and Metro) and Model (5) (Disparity Index).

**TABLE 3**  
**Random Effects Regression of Donation on Family Control and Family Contributions**

| Variable                            | (1)               | (2)                 | (3)               | (4)                 | (5)                 |
|-------------------------------------|-------------------|---------------------|-------------------|---------------------|---------------------|
| Relatives                           |                   | -0.26***<br>(-3.49) |                   | -0.25***<br>(-3.67) |                     |
| <i>ln</i> (foundation contribution) |                   |                     | 0.16***<br>(4.75) | 0.16***<br>(4.37)   |                     |
| Disparity Index                     |                   |                     |                   |                     | -1.26***<br>(-3.98) |
| History                             | 0.41*<br>(2.03)   | 0.31<br>(1.60)      | 0.22<br>(1.53)    | 0.32*<br>(2.19)     | 0.25<br>(1.46)      |
| Religion                            | 0.38†<br>(1.66)   | 0.27<br>(1.26)      | 0.11<br>(0.65)    | 0.23<br>(1.26)      | 0.18<br>(0.91)      |
| Metro                               | 0.32<br>(1.42)    | 0.28<br>(1.30)      | 0.22<br>(1.34)    | 0.26<br>(1.49)      | 0.27<br>(1.35)      |
| Constant                            | 4.79***<br>(7.35) | 5.38***<br>(8.38)   | 4.95***<br>(9.59) | 4.37***<br>(8.65)   | 5.60***<br>(9.87)   |
| Year Dummies                        | Yes               | Yes                 | Yes               | Yes                 | Yes                 |
| Observations                        | 259               | 259                 | 259               | 250                 | 259                 |
| No. of Universities                 | 93                | 93                  | 93                | 92                  | 93                  |
| Within R <sup>2</sup>               | 0.148             | 0.146               | 0.162             | 0.131               | 0.148               |
| Between R <sup>2</sup>              | 0.145             | 0.222               | 0.342             | 0.503               | 0.145               |
| Overall R <sup>2</sup>              | 0.155             | 0.211               | 0.323             | 0.476               | 0.155               |

The table presents the regression results of the random effects model in which we regress the log of donation per student on the governance and control variables. All variables are defined in *Table 1*. Numbers in parentheses are *z*-statistics using White's heteroskedasticity-consistent robust standard errors. \*\*\*, \*\*, \*, and † denote significance levels of 0.1, 1, 5, and 10 percent, respectively.

**TABLE 4**  
**Random Effects Regression of University Quality on Family Control and Family Contributions**

| Variable                            | (1)                              | (2)                 | (3)                 | (4)                 | (5)                 | (6)                  |
|-------------------------------------|----------------------------------|---------------------|---------------------|---------------------|---------------------|----------------------|
|                                     | <i>ln</i> (per student expenses) | Part-Time Lecturer  | Faculty Research    | SAT                 | Quality Index       | Campus Dispute Dummy |
| Relatives                           | -0.02***<br>(-3.55)              | 0.00<br>(0.26)      | -0.01***<br>(-3.59) | -0.55*<br>(-2.11)   | -0.48***<br>(-3.32) | -0.05<br>(-0.55)     |
| <i>ln</i> (foundation contribution) | 0.07***<br>(4.43)                | -0.06***<br>(-3.35) | -0.00<br>(-0.06)    | -0.00<br>(-0.00)    | 0.32***<br>(2.30)   | -0.13**<br>(-2.47)   |
| History                             | 0.22***<br>(4.61)                | -0.11<br>(-1.40)    | 0.07***<br>(3.25)   | 13.92***<br>(8.09)  | 8.55***<br>(6.80)   | 0.40**<br>(2.23)     |
| Religion                            | 0.06<br>(0.93)                   | 0.13<br>(1.14)      | 0.00<br>(0.52)      | -2.44<br>(-1.25)    | -0.89<br>(-0.83)    | -0.30<br>(-1.42)     |
| Metro                               | 0.12†<br>(1.79)                  | 0.22*<br>(2.72)     | 0.07*<br>(1.98)     | 23.22***<br>(11.65) | 5.89***<br>(3.45)   | 0.19<br>(0.98)       |
| Constant                            | 7.48***<br>(40.85)               | 1.45***<br>(5.24)   | -0.02<br>(-0.27)    | 12.36*<br>(2.05)    | 14.48***<br>(3.63)  | -1.21*<br>(-1.87)    |
| Year Dummies                        | Yes                              | Yes                 | Yes                 | Yes                 | Yes                 | Yes                  |
| Observations                        | 250                              | 172                 | 245                 | 250                 | 172                 | 250                  |
| No. of Universities                 | 92                               | 86                  | 92                  | 92                  | 86                  | -                    |
| Within R <sup>2</sup>               | 0.208                            | 0.113               | 0.199               | 0.656               | 0.239               | -                    |
| Between R <sup>2</sup>              | 0.604                            | 0.245               | 0.215               | 0.775               | 0.509               | -                    |
| Overall R <sup>2</sup>              | 0.566                            | 0.223               | 0.241               | 0.782               | 0.511               | -                    |

The table presents the regression results of the random effects model in which we regress university quality measures on governance and control variables. As measures of university quality, Model (1) uses the log of per student spending, Model (2) the ratio of part-time lecturers to full-time faculty, Model (3) faculty research, Model (4) SAT scores, and Model (5) an index composed of these quality measures. Model (6) uses a dummy variable for campus disputes. All variables are as defined in *Table 1*. Numbers in



parentheses are  $z$ -statistics using White's heteroskedasticity-consistent robust standard errors. \*\*\*, \*\*, \*, and † denote significance levels of 0.1, 1, 5, and 10 percent, respectively.

**TABLE 5**  
**Robustness Tests**

| Variable                            | (1)<br>2001        | (2)<br>2002         | (3)<br>2003        | (4)<br>Religion = 0 | (5)<br>Religion = 1 | (6)<br>Replace Metro<br>with SAT |
|-------------------------------------|--------------------|---------------------|--------------------|---------------------|---------------------|----------------------------------|
| Relatives                           | -0.23**<br>(-3.01) | -0.23***<br>(-3.21) | -0.21**<br>(-2.51) | -0.30***<br>(-2.91) | -0.27***<br>(-3.60) | -0.23***<br>(-3.34)              |
| <i>ln</i> (foundation contribution) | 0.30***<br>(5.29)  | 0.32***<br>(6.31)   | 0.31***<br>(6.20)  | 0.06*<br>(2.30)     | 0.35***<br>(5.31)   | 0.16***<br>(4.72)                |
| History                             | 0.13<br>(0.99)     | 0.12<br>(0.94)      | 0.08<br>(0.55)     | 0.04<br>(0.20)      | 0.20<br>(1.35)      | 0.07<br>(0.38)                   |
| Religion                            | -0.02<br>(-0.10)   | -0.11<br>(-0.74)    | -0.03<br>(-0.21)   |                     |                     | 0.13<br>(0.85)                   |
| Metro                               | 0.14<br>(0.86)     | 0.26*<br>(1.83)     | 0.36**<br>(2.47)   | 0.28<br>(1.50)      | 0.36†<br>(1.82)     |                                  |
| SAT                                 |                    |                     |                    |                     |                     | 0.01*<br>(2.16)                  |
| Constant                            | 4.61***<br>(8.79)  | 4.61***<br>(9.43)   | 4.83***<br>(7.99)  | 6.04***<br>(8.26)   | 3.94***<br>(7.57)   | 4.85***<br>(9.63)                |
| Year Dummies                        |                    |                     |                    | Yes                 | Yes                 | Yes                              |
| Observations                        | 85                 | 83                  | 82                 | 170                 | 80                  | 250                              |
| No. of Universities                 |                    |                     |                    | 63                  | 30                  | 92                               |
| Within R <sup>2</sup>               |                    |                     |                    | 0.344               | 0.074               | 0.132                            |
| Between R <sup>2</sup>              |                    |                     |                    | 0.312               | 0.787               | 0.515                            |
| Overall R <sup>2</sup>              |                    |                     |                    | 0.311               | 0.663               | 0.485                            |
| Adjusted R <sup>2</sup>             | 0.4457             | 0.5355              | 0.4963             |                     |                     |                                  |

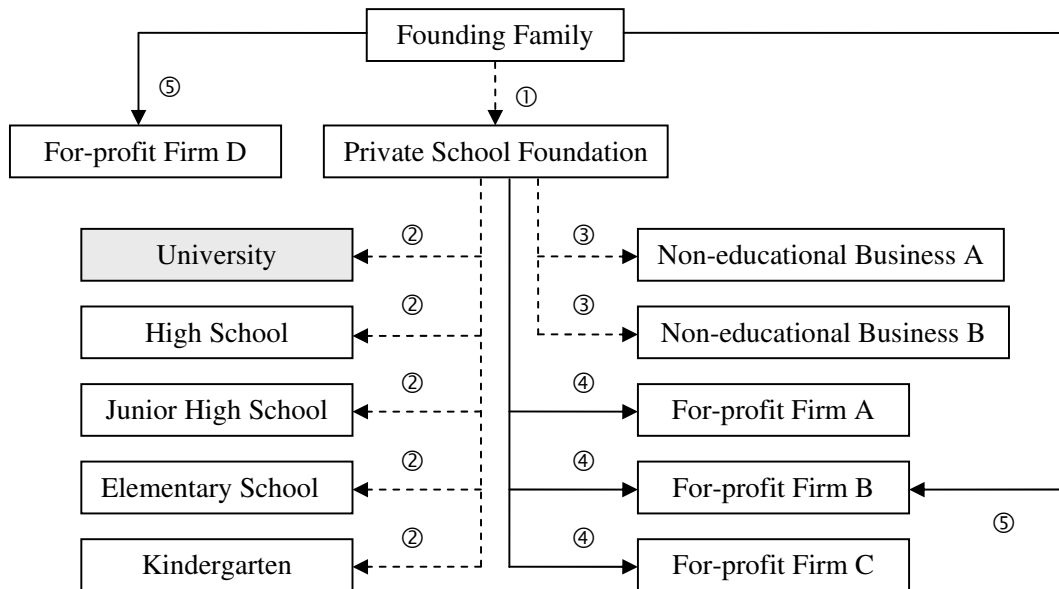
The table presents the results in which we regress the log of donation on governance and control variables. Models (1)–(3) use OLS tests for each sample year during the 2001–2003 period. Models (4) and (5) use random effect regression for the subsamples of non-religious and religious universities, respectively. Model (6) replaces the metropolitan dummy with the SAT score to control for university reputation. Model (7) runs a fixed-effect model. All variables are as defined in *Table 1*. From columns (1) to (6), the numbers in parentheses are *t*-statistics (or *z*-statistics) using White’s heteroskedasticity-consistent robust standard errors. \*\*\*, \*\*, \*, and † denote significance levels of 0.1, 1, 5, and 10 percent, respectively.

**TABLE 6**  
**Test of Reverse Causality**

|                         | (1)   | (2)                                      |
|-------------------------|---|--|
|                         | 1 <sup>st</sup> Stage<br><i>ln</i> (donation) | 2 <sup>nd</sup> Stage<br>Disparity Index |
| <i>ln</i> (donation)    |   | -0.11<br>(-1.14)                         |
| History                 | 0.44***<br>(4.37)                             | -0.09<br>(-1.53)                         |
| Religion                | 0.29*<br>(2.26)                               | -0.15***<br>(3.56)                       |
| Metro                   | 0.34**<br>(3.03)                              |  |
| Year Dummies            | Yes   | Yes                                      |
| Observations            | 259   | 259                                      |
| Adjusted R <sup>2</sup> | 0.141   | -  |

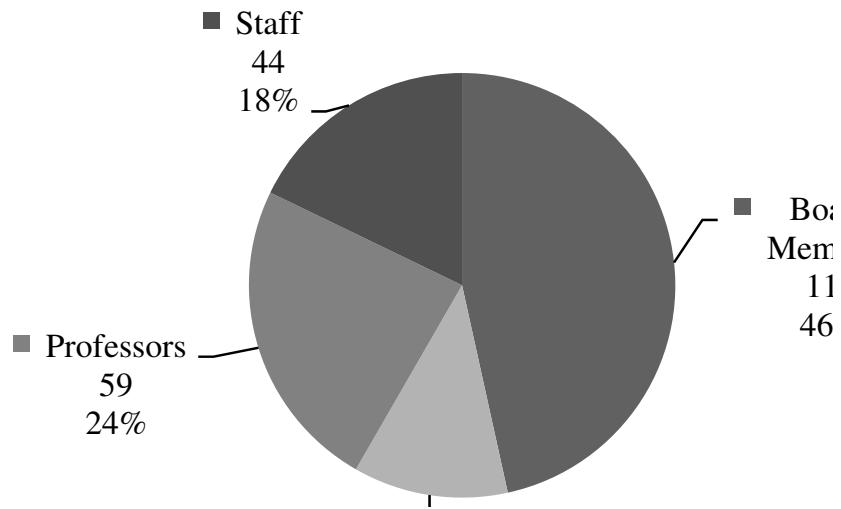
This table presents the test results of reverse causality. We estimate the first-stage regression of 2SLS, regressing the log of donation on the metropolitan dummy (the instrumental variable), control variables, and year dummies, which are exogenously determined. The metropolitan dummy takes the value of one if the university is located in the metropolitan area, and zero otherwise. In the second-stage regression of 2SLS, we regress the Disparity Index on the fitted values of donation, exogenously determined by the metropolitan dummy, control variables, and year dummies. All variables are as defined in *Table 1*. Numbers in parentheses are *t*- or *z*-statistics using White's heteroskedasticity-consistent robust standard errors. \*\*\*, \*\*, \*, and † denote significance levels of 0.1, 1, 5, and 10 percent, respectively.

**FIGURE 1**  
**Structure of Family-Controlled Private Universities**

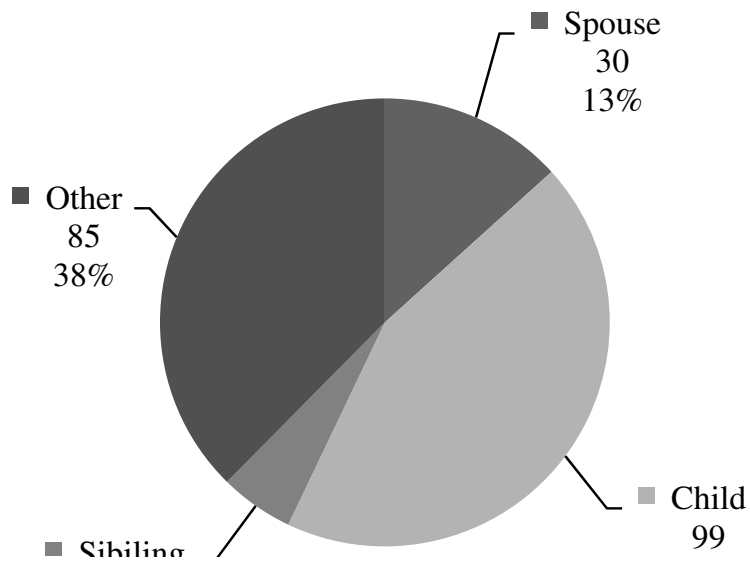


**FIGURE 2**  
**Private Universities under Family Control**

**A. Number of positions taken by founding fan**



**B. Relationship to the founder**



The figures present the survey results conducted by National Assemblyman Hoon Seol for 83 private universities on the extent of the founding family’s control. Out of 83 universities that participated in the survey, 75 (90 percent) universities had members of the founding family in the university management in various capacities. *Panel A* shows the positions that they had within the universities. *Panel B* shows their relationship to the founder. “Other” includes relatives of the founder who are not immediate family. Numbers in parentheses are percentages of the total.