Exit and Transitions in Family Control and Ownership in Post-War Japan

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Abstract

The involvement of families in post-war corporate control has not been widely researched. In this study, we provide two novel contributions to the literature on family successions. First, we develop a new technique to measure the decay in fractional firm ownership. We call this the half-life of ownership, and find considerable variation in half-lives across firms. Specifically, we find that half-lives are shorter for firms with older CEOs, higher growth, and less liquidity. Second, we describe various ways in which families may exit the firms that they found, either partially by retaining ownership but not control (e.g. hiring a sarariman) or by disposing off ownership but continuing to serve as CEO, or by selling out in a full exit. We provide evidence on the cross-sectional determinants of such exit patterns.

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1. Introduction

While most firms start out as entrepreneurial/family enterprises, their metamorphosis into professionally-managed firms with diffused shareholdings (as predicted by Chandler, 1977) or their stasis as family firms long after they are listed on an exchange has received meager attention in the literature, wholly disproportionate to their importance in the economies they inhabit. Thus, while several recent studies have examined the decay in founder ownership following a firm's IPO (see, among others, Myers et al., 2011; Foley and Greenwood, 2010; Helwege et al., 2007; Klasa, 2007; Mikkelson et al., 1997), they have as a rule focused narrowly on equity ownership, which, as we argue below, is but one of two ways in which founders disengage from the firms they found. Moreover, most studies do not examine the cross-sectional determinants of ownership decay, and none provide a precise dynamic measure of ownership decay in the post-IPO period. In this study, we address both these gaps using a 50-year panel of all family firms listed on major Japanese stock exchanges between 1950 and 2000, a sample more comprehensive and a period substantially longer than that examined in the typical ownership studies cited above.

Our first contribution is to expand the scope of the study to include family involvement in management in addition to equity ownership. In this way we are able to describe the evolution of a founder's involvement both in terms of post-IPO ownership, as well as in terms of actually managing these firms. At the outset, we note that the culmination of post-IPO changes is not necessarily along the lines predicted by Chandler, i.e., into an open firm managed by sarariman.[1] Rather, in a substantial number of cases, founders or their progeny continue to be involved in the management of the firms long after their equity ownership has declined to minuscule levels. In many cases, founders or their progeny disengage from actively managing their firms, but continue to own significant equity stakes while active management resides in the hands of sararimans. In yet

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[1] The term *sarariman*, from the English *salary man*, connotes a manager who works long hours, but does not control his destiny.

other cases, we find that firms on occasion back pedal to bring back long disassociated family members into the board or management cadres (as did Toyota in the late 1990s). The richness of the various semi-exit paths, including the odd U-turns, taken by these firms is likely a more universal phenomenon than our Japanese data suggest. Factors that affect ownership attenuation need not necessarily be the same that affect disengagement from, and the occasional re-engagement into, active management.

In order to examine family ownership and management control independently from each other we define several distinct transition events in the panel based on family ownership and control permutations. Specifically, we define Type I firms as those where the founding family retains ownership as well as control – we call them **Traditional Family** firms for lack of a better descriptor. Type II firms as those where ownership has been relinquished either via active sales or via passive dilution, but one or more family members continue to occupy key management positions in the firm – these firms are called **Family Management** firms. Type III firms are those where the family retains significant equity ownership but executive/management control resides in a professional CEO – we call them **Sarariman** firms. Finally, Type IV firms as those where the family has exited on both fronts – most commonly these are firms that have been sold or acquired by other firms – we call them **Former Family** firms. We find that depending on the type of transition, different factors explain both its likelihood and its impact on subsequent firm performance. Perhaps unsurprisingly, we find that more profitable firms, and those managed by younger CEOs, are less likely to transition to lower levels of family ownership or control. More interestingly, we find that growth imperatives are less important in transition from Traditional Family to Sarariman firms, while the presence of elite (highly educated) directors is more important in these transitions. By contrast, the presence of highly educated family on boards is associated with transitions to **Family Management** firms.

An advantage of our post-war Japanese dataset is its richness in terms of family structure and ownership details. Thus we are able to include variables that affect intra-family succession as well as those that capture idiosyncratic firm-level as well as broader macro-economic influences. For e.g., our 50-year panel data span multiple generations allowing for critical family succession issues to be examined. Given that succession is often considered the weakest link in the continued viability and success of family firms (see among others, Burkart, Panunzi and Shleifer, 2003), our data allow us to examine how successive generations of family ownership and control change in response to both internal and external stimuli. The longitudinal detailed description of family ownership and control over this time period in Japan, while not the main focus of our study, is nevertheless an important contribution to the literature.

Second, and more importantly from a methodological viewpoint, we devise a novel means of measuring the decay in founder ownership by borrowing the concept of half-lives from chemistry. Specifically, for each firm in our sample (almost the population of listed firms in post-war Japan), we estimate the time it takes for the family ownership fraction to decay to half its current level. Half-lives are estimated each year, and we summarize the data by plotting average half-lives in both calendar and IPO-event time. In IPO time, we find that average half-lives display a downward sloping curve, with half-lives longest in the early years after the IPO, and then tapering off to shorter periods as the firm seasons. Specifically, we find that one year following the IPO, family (largely founder) ownership level is expected to decline to half its value in approximately 12 years. Ten (twenty) years following the IPO, the half-life drops to nine (six) years, implying that the decay of family ownership accelerates as the firm seasons. While this may appear unsurprising, this study is the first to document the time series variation in family ownership dilution.

Average half-life shows considerable variation across firms, and we are naturally interested in what factors explain this variation. We find that profitability, financial slack and industry concentration are associated with longer half-lives, while CEO age, sales growth and outside

ownership are associated with shorter half-lives. We interpret these influences as indicating that growth imperatives, coupled with financial constraints, put pressure on family ownership, indicating a role for finance in family control. This is consistent with the description of family firms in Bennedsen and Fan (2013) who argue that family involvement is a trade-off between the benefits of family assets and roadblocks, the latter mainly external constraints such as growth or financing.

We believe this is the first study to examine such detailed transitions, their determinants, and their effects. While our data are from Japan, we believe they are instructive in understanding how ownership and control by families have evolved in other countries as well.

2.   Data

In **Figure 1** we describe the listing of new family firms on all four major Japanese exchanges (the Tokyo, Nagoya, Fukuoka and Osaka stock exchanges) in the post-war period, spanning 1949-2000. We notice a spike in 1949 when the Tokyo Stock Exchange (TSE) reopened after the war, and then again in 1961-62, when the second tier of the TSE was opened. We also see a spate of new family firms listings in the late 1990s, coinciding with signs of renewed though ultimately brief, life in the Nikkei Index. Ownership data are from the Development Bank of Japan database for 1981 through 2000, as are our accounting data from 1962 through 2000. The Toyo Keizai database provides information on stock prices and boards from 1989 through 2000. For prior years and years with missing data, we hand-collect ownership, board, and financial data from hardcopy annual reports available at the Institute of Innovation Research of Hitotsubashi University.

Ownership data disclosed in annual reports include: (1) the stake of each of the top ten shareholders, (2) the combined stake of all banks and other financial sector firms, and (3) the combined stake of all other firms. Board data include detailed information on each director's education (alma mater, major, and graduation year), birth date, year initially hired, year appointed to the board, years made CEO (shacho) and Chairman (kaicho), and prior work experience.

We identify each firm's founder by consulting the following sources: (1) commemorative volumes (shashi) celebrating firms' anniversaries, (2) Toyokeizai Shimposha (1995), (3) Nihon Keizai Shimbun (2004), and (4) company websites. To identify relationships within the founding family, we use various Japanese language sources: (1) Tokiwa Shoin (1977) provides the family trees of 1002 business leaders, (2) a series of books published by Zaikai Kenkyusho (1979, 1981, 1982, 1983, 1985) provides the names of family members of the boards of listed firms, and (3) a set of thirty-eight Nihon Keizai Shimbun (2004) volumes provides the biographies of 243 prominent postwar business leaders. Additional information on family relationships is obtained from the following sources: Japanese equivalents of Who's Who published by Jinjikoshinjo, the Nikkei Telecom 21 database of corporate news items published from 1975 on in the Nikkei newspapers (Nihon Keizai Shimbun, the Nikkei Business Daily, the Nikkei Financial Daily and the Nikkei Marketing Journal), company archives, Koyano (2007), and website searches. Using all this information, we annotate family trees with the names and business roles of all members of each firm's founding family. This information lets us identify each firm's founder(s) and ultimate owners, and ascertain each CEO/Chairman's relationship, if any, to the founding family by blood, marriage, or adoption. We define a family firm as one with a member of its founding family (or family's foundation) listed among its top ten shareholders or serving in a leadership position: either as CEO (shacho) or chairman (daihyo torishimariyaku kaicho). Using this criterion, we find a total of 2148 family firm IPOs over the 1949-2000 period. In **Figure 1** we describe the listing of new family firms on all four major Japanese exchanges (the Tokyo, Nagoya, Fukuoka and Osaka stock exchanges) in the post-war period, spanning 1949-2000. We notice a spike in 1949 when the Tokyo Osaka Stock Exchange (TSE) and Osaka Stock Exchange (OSE) reopened after the war, and then again in 1961-62, when the second tier of the TSE and OSE was opened. We also see a spate of new family firms listings in the late 1990s, coinciding with signs of renewed though ultimately brief, life in the Nikkei Index. Ownership data are from the Development Bank of Japan database for 1981 through 2000, as

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foundation) listed among its top ten shareholders or serving in a leadership position: either as CEO (shacho) or chairman (daihyo torishimariyaku kaicho). Using this criterion, we find a total of 2146 family firm IPOs over the 1949-2000 period.

3.   Prior literature

Notwithstanding Chandler's (1977) prognosis regarding the evolution of family firms into widely held professionally managed firms, ownership in large swathes of the world remains highly concentrated, leading Landes (2007) to remark that "*Clearly, then, the family firm is not about to disappear… The vast majority of new businesses throughout the world remain family enterprises, and I believe this will remain the case for the foreseeable future.*"   The persistence of ownership concentration in a majority of countries is a puzzle, given the obvious benefits of Markowitz diversification and management specialization. Indeed, Moskowitz and Vissing-Jørgensen (2002) find that an entrepreneur or a family firm owner faces an unfavorable trade-off against holding a basket containing index funds, suggesting that there must be non-pecuniary motives for retaining such illiquid and undiversified assets. Burkart, Panunzi and Shleifer (2003) trade-off such "amenities" against Chandler's sarariman and Markowitz's diversified agent, and conclude that sufficiently high contracting costs tilt the balance in favor of family control. Anderson, Li and Reeb (2012) relate the reluctance of families to exit their businesses to ambiguity aversion, where the higher parameter uncertainty of investing in a broad basket of assets outside the family firm detracts from the conventional diversification benefits of such a move.

A second strand of the literature examines longitudinal data, typically focusing on firm life cycle effects. Thus entrepreneur firms face the first significant ownership dilution at the time of the IPO; from then on, additional equity issuances and stock financed mergers further attenuate the founding family's stake in the firm, until at some point the firm is considered widely held (see for e.g. Mikkelson, Partch and Shah, 1997; Helwege, Pirinsky and Stulz, 2007; and Klasa, 2007). But

such a fate is hardly guaranteed – family ownership persists even in the U.S., and its speed of decay – to the extent it decays – appears to systematically vary across countries (Franks et al, 2012). While there is far from a consensus on what factors affect the ownership decay patterns, it seems that finance plays an important role. The ability to cash out at favorable prices in liquid markets is positively associated with the decline in family ownership (Helwege et al, 2007). This is hardly surprising, since exit is only possible if the terms are superior to the status quo. Even when exit is not the lead motivation, the process of financing growth via equity issuance will lead to the same result. For instance, Franks, Mayer and Rossi (2005, pp. 583) note the following in regards to the British experience:

Family ownership did not for the most part decline because families sold out. They did not typically abandon firms through company flotations or share sales. Instead, their holdings were diluted in the process of issuing shares to finance growth.

In contrast, the U.S. experience is more akin to an active dilution of ownership – witness the sale of ownership facilitated by J. P. Morgan on behalf of the Vanderbilts (reference here).

The broad message from the literature is that ownership is highly concentrated at the time of IPO, but from then on, the paths differ markedly across countries and era. While the economies of the United Kingdom, United States, Germany and Japan largely, though not completely, eschewed continued family control, there is little to suggest that the dominance of old money families in much of the world outside these Chandler Four countries has faced any serious challenge or even attenuated over the last century. What the literature needs, and lacks, is a longitudinal study of ownership decay, ideally in a country that has experienced significant shifts in family control over a period spanning several decades. Multivariate analysis of the factors associated with such shifts will be instructive in understanding how and why families either stay in or exit the corporate sector.

4.   Results

4.1   Ownership Changes

We start by graphing family ownership following the exchange listing in **Figure 2**. At the end of the listing year, family ownership averages about 35%. While direct comparison with other countries are muddied by measurement issues, we note that the ownership of shares by family in the sample of sell-outs studied by Klasa (2007) is 36%, and ownership by CEOs (officers and board members) in the year of the IPO is 16% (44%). By year 5, ownership declines to 26.6%, and by year 10, it is 19.6%. Twenty years years after IPO, average ownership declines further to 12.4%, and after thirty years, it is 8.9%.

An innovation in this study is the use of half-lives to represent ownership changes in IPO time. We define ownership half-life as the time in which family ownership declines to half its value at that point in time (measured in post-IPO years).

Let ownership at any time t be W_t, with initial ownership = W_0

Assuming a decaying ownership function, half-life, $\boldsymbol{\tau}$, at time $\boldsymbol{t}$ is calculated as follows:

$$\boldsymbol{\tau} = \boldsymbol{t}_{1/2} = \boldsymbol{t}.\log(2)/\log(W_0/W_t)$$

Consistent with the ownership changes presented in **Figure 2**, we see that one year after the IPO, average ownership half-life is 11.5 years, implying that if a firm survives for one year after its IPO, its family stake is expected to decline by 50% in 11.5 years. Half-life is not constant over IPO time. For e.g., for a firm that has survived for 20 years after its IPO, family ownership is expected to reduce to half its year 20 value in 5.8 years. In general, younger firms have longer half-lives – later, we examine the determinants of ownership half-live in a multivariate setting. As firms get more seasoned, family ownership declines at a faster rate.

4.2   Determinants of ownership half-lives

While on average ownership half-life declines with firm age, we are interested in examining its cross-sectional variation. Our main conjectures are that more profitable firms ought to retain family ownership for a longer period, while firms that need external finance ought to be associated with shorter ownership half-lives. For example, firms with more financial leverage and greater growth potential are more likely to experience a shorter half-life period. Similarly firms that have issued equity in the prior two years are likely to be associated with shorter half-lives. We expect more competitive industries to hasten the exit of family ownership. Older firms and firms with older CEOs are also likely to be associated with shorter ownership half-lives. We also control for ownership by financial institutions, foreigners, and other corporations. Finally, we cluster standard errors at the firm level, and include fixed year effects in all regression specifications.

Thus half-life of family ownership for firm i in year t after IPO is modeled as follows. In equation (1), $\tau_{i,t}$ is the half-life of ownership in firm i and at time t, x's are explanatory variables such as firm age, CEO age, ROA, Q-ratio, etc, w's are control variables such as ownership by financial institutions, foreigners and other corporations, a's and b's are coffieicent estimates, c_1's are fixed year effects, and e's represent error terms.

$$\tau_{i,t} = \sum_n a_n\, x_{n,i,t} + \sum_m b_m\, w_{m,i,t} + c_1 \delta_t + e_{i,t} \qquad \text{Eq. [1]}$$

Results are provided in **Table 1**. We find that as the CEO gets older, and as the firm ages, the likelihood of family ownership declining increases, imparting negative coefficients to both CEO age and firm age since IPO. By contrast, longer CEO tenures are associated with longer half-lives, suggesting a link between control and ownership. Financial constraints appear to matter – stronger sales growth is associated with shorter half-lives, while ROA is associated with longer half-lives for ownership. Industry concentration is not significantly related to ownership decay; neither is the firm's Q-ratio. The latter finding implies that finance has not played the same role in diminishing

the family stakes in businesses that it did in the early part of the 20th century in the U.S. However, equity issuances display a negative association with half-lives, indicating that family ownership declines faster when external equity is issued to bring in new shareholder, resulting in a passive dilution of family ownership.

Overall our data show that family ownership decay over time is related to CEO age, firm growth prospects, and past equity issuances. Profitability and financial slack (low leverage) appear to prolong half-lives. Ownership by other corporations, financial institutions and foreigners are all inversely related to half-lives, though this relation may stem from an additive constraint where family plus outside all outside ownership must sum to one.

In the next section, we explore ways in which family ownership involvement in the business may diminish over time.

4.3   Types of Exits

Extant studies on family capital have focused largely on ownership and performance (see, among others, Bertrand and Schoar, 2006; Bennedsen et al. 2010; Perez-Gonzalez 2006; Villalonga and Amit 2006; Miller et al., 2007; Morck et al., 2000; Franks et al., 2004). Our data allow us to take decompose family involvement along two dimensions – management control and ownership. In most cases, families retain both active control via top management positions in the company, as well as significant ownership. However, in many instance families exit one of these dimensions; for instance, a firm may retain a member of its founder's dynasty as a CEO well after the family's ownership stake has passed into irrelevance. Similarly, there are many instances where the family has retained ownership control, but has relinquished the top job to an outsider agent, a typical CEO. Finally, in the remainder cases, families exit totally – selling their ownership claims, as well giving up on top level positions. The scheme below summarizes these possibilities (sample size, in firm-years, in parentheses).

	OWNERSHIP	NO OWNERSHIP
MANAGEMENT/CONTROL	*TYPE 1 (24,625)*	*TYPE II (1,733)*
NO MANAGEMENT/CONTROL	*TYPE III (6,612)*	*TYPE IV (4,292)*

Thus, in the above scheme, Type I firms are those where the founding family retains both ownership as a top 10 shareholder, as well as a key management position (either CEO or Chairman of Board). Type IV firms are ex-family firms, where the family ownership is no longer significant, and no member of the founding family has an executive position with the firm. Type II and Type III firms are in intermediate stages of family involvement; with the former, a family member is a CEO/Chairman, with the latter, the family retains ownership but has relinquished management to an outsider sarariman.

Figure 3 describes the presence of different firm types in IPO time. It takes almost 26 years after the IPO to reduce Type I firms to less than 50% of all firms. Type III firms show the most stability following IPO, varying between 15% and 20% of all firms over the 38 years following the firm's IPO. It takes almost 20 years before the sell-outs to Type IV reaches a level of 10%. In the next ten years, the transitions to Type IV reach almost a quarter of all firms in the sample.

Key characteristics associated with each Type are presented in **Table 2**. Type I firms have the youngest though longest serving CEOs, while CEOs of type IV firms have the shortest tenures and tend to be the oldest. Type II and Type III firms are situated in the middle. We note that ownership bestows executive roles at an early age, and tends to be associated with long tenures when the CEO is an heir of the founding family. Where the CEO is a sarariman, tenures are shorter, and such a position comes at a more advanced age.

Where the family retains both management as well as ownership, financial leverage is lower vis-à-vis firms where the family has lower ownership and/or no executive positions. The presence

of family in control or executive positions and higher leverage is consistent with the hypothesis that such a connection is helpful in attracting bank financing. Indeed, bank ownership is highest in Type II firms, where family has relinquished ownership but retains the top executive position.

Sales growth is highest for Type I firms and lowest for Type IV firms. While Type I firms may have high growth due to the fact they tend to be younger firms, when we examine Type II and Type III firms, we see that higher growth is associated with Type II firms, an indication that a reduction in family ownership is associated with higher sales growth – this category also has the highest leverage and bank ownership.

Employee growth within the firms is also highest for Type I firms and lowest, indeed negative, for Type IV firms. This result is consistent with the literature on employee retention and family ownership documented in Sraer and Thesmar (2007), where French family firms tend to enjoy lower labor wages apparently as a quid-pro-quo for more stable employment.

Profitability, as measured by ROA (operating income scaled by assets) is highest for Type I firms, and lowest for Type IV firms. Interestingly, even in cases (Type III firms) where family ownership is insignificant, but where the CEO is a member of the founding family, ROA is higher than Type IV firms. These results go against the grain of evidence on the performance of family controlled firms in other advanced economies (Morck et al., 2000; Smith and Amoako-Adu 2005; Bertrand and Schoar 2006; Perez-Gonzalez 2006; Bennedsen et al. 2007). Mehrotra et al (2013) explore the origins of the superior performance of family controlled firms in Japan, and link it to the uniquely Japanese practice of adult adoptions, where founders, faced with either non-existent or inadequate blood heirs, frequently adopt outsiders into the family and anoint him as a successor (daughters almost never succeed as heirs, nor are adopted as adults unless the adoption is of a husband-wife pair). In Mehrotra et al (2013) the causality is established going from family succession to performance, rather than families retaining ownership in superior performance firms. It is also consistent with Sraer and Thesmar's evidence from France.

Q-ratios tell a similar story. Where family ownership is significant, Q-ratios are higher. Type IV firms display the lowest mean Q-ratios. Type II firms are closer to Type IV firms, while Type I firms and Type III firms are very similar. These results are also consistent with the portrayal of family firm performance in Japan in Mehrotra et al (2013).

Family ownership patterns obviously reflect our classification scheme where Type II and Type IV firms have zero mean ownership by families. Both Type I and Type III firms maintain a mean family ownership level of approximately 21% - this figure is comparable to family ownership levels in the U.K. and Germany approximately 20 and 30 years after the IPO respectively (Franks et al, 2009).

While bank ownership is higher in cases where the family ownership is low, there are differences between Type II and Type IV. In both cases family ownership is insignificant, yet bank involvement via ownership is significantly higher in Type II firms (where the family retains an executive role) than in Type IV firms, echoing a similarly higher level of bank debt for the former group. We do not explore the reasons for this difference except noting that family reputation and network may play a role here.

We next turn to cross-shareholdings by other corporations, a Japanese tradition originating in the late 1950s (after the departure of the U.S. GHQ from post-war Japan). Cross-ownership is highest for Type III firms where family ownership is significant but management role has been ceded to non-family agents. We note that cross-shareholding is smallest where the family ownership is insignificant but the family retains an executive presence. It is possible that cross-shareholding allows family executives to persist in these cases, perhaps even insulating the firm from takeover threats.

We find considerable movement across the four firm types over our panel. We define such events as exits when they are associated with either a loss of executive position by a family member with the incoming CEO being unrelated to the founding family, or involving the family ownership

declining to insignificant levels, or both. Thus, when a family relinquishes ownership, but retains control in an executive office, we have a transition going from Type I to Type II. Retaining ownership but hiring a professional CEO results in a transition from Type I to Type III firm. Selling out completely with no management role results in a transition to Type IV. Earlier studies of ownership dynamics have focused primarily on fractional ownership – we augment such evidence by adding a management/control dimension to family involvement and studying factors that influence such transitions (we refer to these as partial exits).

In **table 3** we provide the frequencies of each transition event. The most common transition is from Type I to Type III firms: 682 events where a family retains ownership but transfers management to a *sarariman*. In more than 200 cases, management is transferred back to the family. Interestingly, Type I to Type IV transitions, the most common events in the literature where a family firm exits both ownership and management, account for only 27 cases. The low frequency of this type of transition suggests that the literature is missing a substantial part of the evolution of family control to a diffused ownership firm. In fact the most popular route to get to Type IV is via Type III firms – that is, family firms first transfer management to a *sarariman*, and then in a subsequent transition event, the firm's ownership is sold.

4.4   Determinants of different exit modes

A common theme in the literature on corporate ownership (see, among others, Mayers et al., 2011) is that growth and finance work together to dilute the founder's ownership stake over the life of the firm. Whether this occurs actively as in the early 20th century United States via equity offerings facilitated by intermediaries such as J. P. Morgan, or passively via mergers and acquisitions as in the United Kingdom is more a matter of form than substance – the end result is that the founder's stake is diluted by external equity. Indeed, in much of the literature, such dilution has led many to believe

that both ownership and control attenuate hand in hand over time, an inference that we challenge in this study. We capture Finance using the following variables:

(i)   Finance

Leverage, defined as the ratio of total debt to assets, captures the financial constraints facing the firm, and is likely associated with a higher likelihood of exit. *ROA* is defined as the ratio of operating income to assets, and is expected to delay transitions to outside ownership and control; *Sales_growth* is the year on year change in sales; whereas *Capex* is the annual capital expenditure scaled by sales. Both these variables are expected to hasten transitions to non-family ownership and control. Finally, *Firm_age* is defined as the number of years since IPO – older firms are more likely to be held by non-family.

Other factors that may retard exit have to do with family amenity, such as family structure, legacy and network. For e.g., Bennedsen et al (2007) find that male children improve the odds of an intra-family succession. Burkart et al (2005) discuss amenity potential as a plausible reason for family succession. We include the following sets of variables under family amenity.

(ii)   Family Structure

Within family structure, we include *Elite_*, defined as a dummy variable indicating graduation from an elite university in Japan; *CEO_Age*; *CEO_Tenure;* and *Fam_board*, defined as the number of family members on the board of the firm.

(iii)   Family Legacy

Fam_name is defined as a dummy variable indicating a shared name for the firm and the family – Burkart et al (2005) argue that such firms offer greater family amenity.

(iv)   Network

An important amenity of family firms is their inter-generational networks. We proxy for this by the variable labelled *Stable*, defined as the ratio of the firm's shares held by other long-

term shareholders to total shares. Long-term shareholders are other firms (likely in the same keiretsu) that are classified as a top 10 shareholder in the treatment firm for more than 5 continuous years.

Based on the above set of variables, we estimate the following regression:

$$\text{Exit}[\lambda_{pre} \rightarrow \lambda_{post}] = a + b.\text{Finance} + c.\text{Family Structure} + d.\text{Family Legacy} + f.\text{Network} + e \quad ...\text{Eq.}[2]$$

where λ = firm type I, II, III or IV, *pre* and *post* are defined relative to transition events, and *a* and *e* are the intercept and error terms, respectively.

We first start with amalgamating types I, II, and III into one category, and study the transition to type IV regardless of origin type. We then repeat the regression for individual transition types. These results are presented in **table 4**. Starting with exits that lead to Type IV firms, regardless of origin, we find that Family Amenity variables (presented in panels B and C) are in general significant in explaining these transitions, though we find that Finance also matters. Specifically, older CEOs and the presence of Elite non-family directors on the board facilitate such exits, while CEO tenure on the job, both the number and Elite status of family members on the board, appear to hinder such transitions. Most interestingly, *Fam_name* is significantly associated with lowering the probability of such exits. This is consistent with the evidence in Bennedsen et al (2007). The evidence favoring Finance is based on the positive link between such exits and the need for financing as proxied for by the Equity Issuance dummy and Leverage. In both cases, it appears that financial constraints are associated with increasing the odds of such transitions. This inference is further supported by the positive sign and significance of the Foreign Ownership variable.

When we look at specific types of transitions, we find first of all that their determinants are not identical. For instance, the transition from Type I to Type IV is associated with younger CEOs, while the transition from Type I to Type III (*sarariman*) is associated with older CEOs. In general,

stable ownership appears to impede transitions to Type IV, regardless of origin type. We also find evidence consistent with Mayer et al (2011) in that equity issuance is associated with a higher likelihood of transitions involving ownership dilution (Type I to Type IV and Type I to Type II) – this is not surprising since equity dilution should not affect the decision to transfer management to a professional. Profitability and sales growth do not appear to matter, except in transitions to *sarariman* (Type III) firms, where they are associated with a lower likelihood of transition.

Overall, the transition regressions in table 4 provide support for both the family amenity theory and the finance theory of exit by founding families. Perhaps most interesting is the differential response of certain variables such as CEO age, profitability, equity dilution, Elite education status and even firm age to different transition types. These results question the practice prevalent in extant literature of grouping all exits into one category.

5.   Conclusion

Why and how family control transitions to widely-held firms is attracting more attention from financial economists. In this study, we provide two novel contributions to this literature. First, we develop a new technique to measure the decay in fractional firm ownership by founding families. We call this the half-life of ownership, and find considerable variation in half-lives across firms. Specifically, we find that half-lives are shorter firms with for older CEOs, higher growth opportunities, and lower liquidity – these results support a role for finance in explaining ownership dilution. Second, and unique to the literature, we describe various ways in which families may exit the firms that they found, either partially by retaining ownership but not control (e.g. hiring a professional manager, or by disposing off ownership but continuing to serve as CEO, or by doing a full exit by selling out. We provide evidence on the cross-sectional determinants of such exit.

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Figure 1

The number of family firms is plotted for post-war Japan (1949-2000). Family firm IPOs are determined based on the presence of a founding family member among the top 10 listed shareholders and/or CEO-Chairman office based on information at the time of the IPO.

Number of family firms
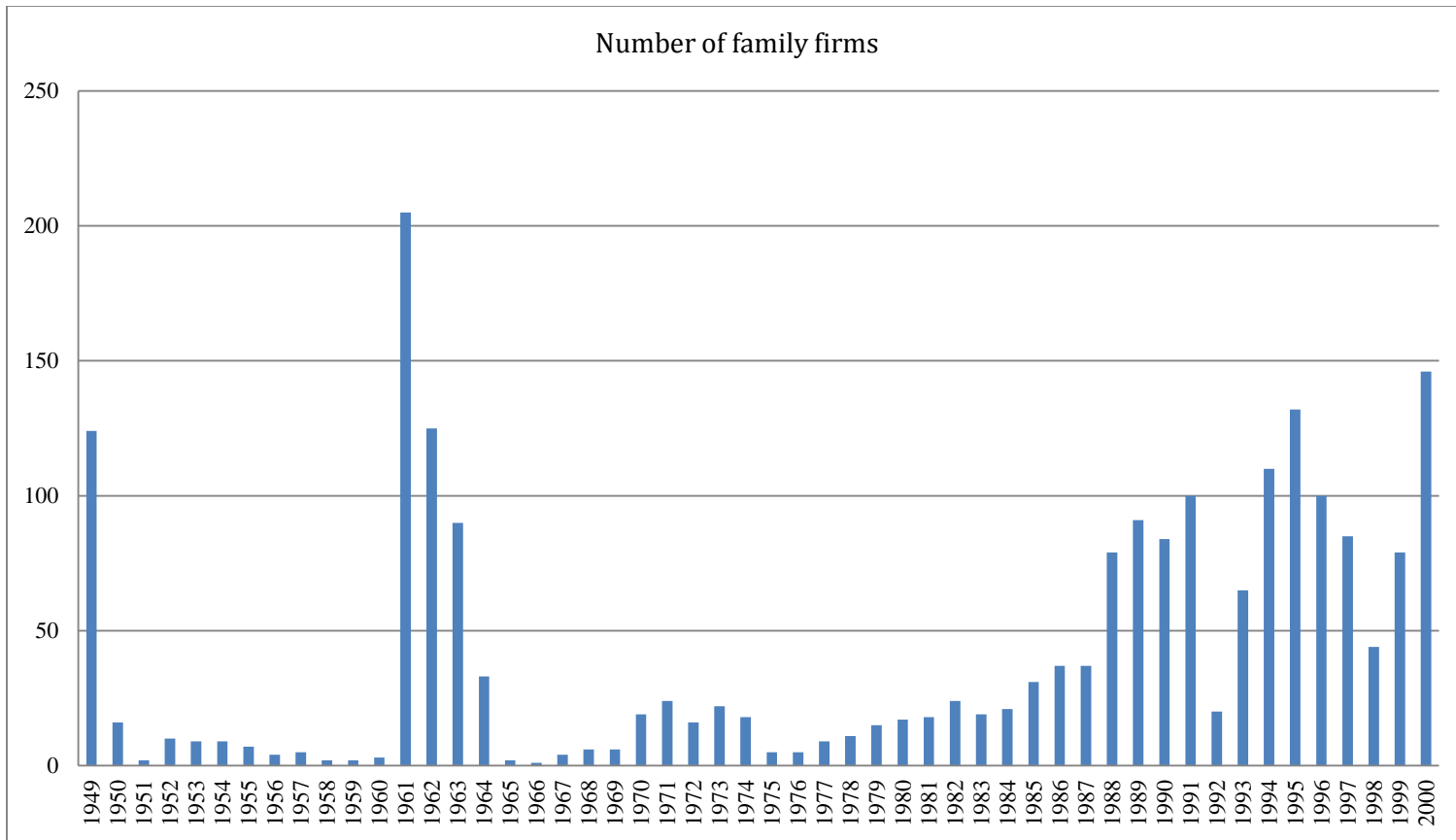
Figure 2

Family ownership for each firm in a given year is calculated as the percentage of total shares outstanding owned by the founding family, siblings, and immediate heirs (including sons, adopted sons, and daughters). Average ownership level is calculated each year in IPO time. The sample covers 40 years after the IPO.
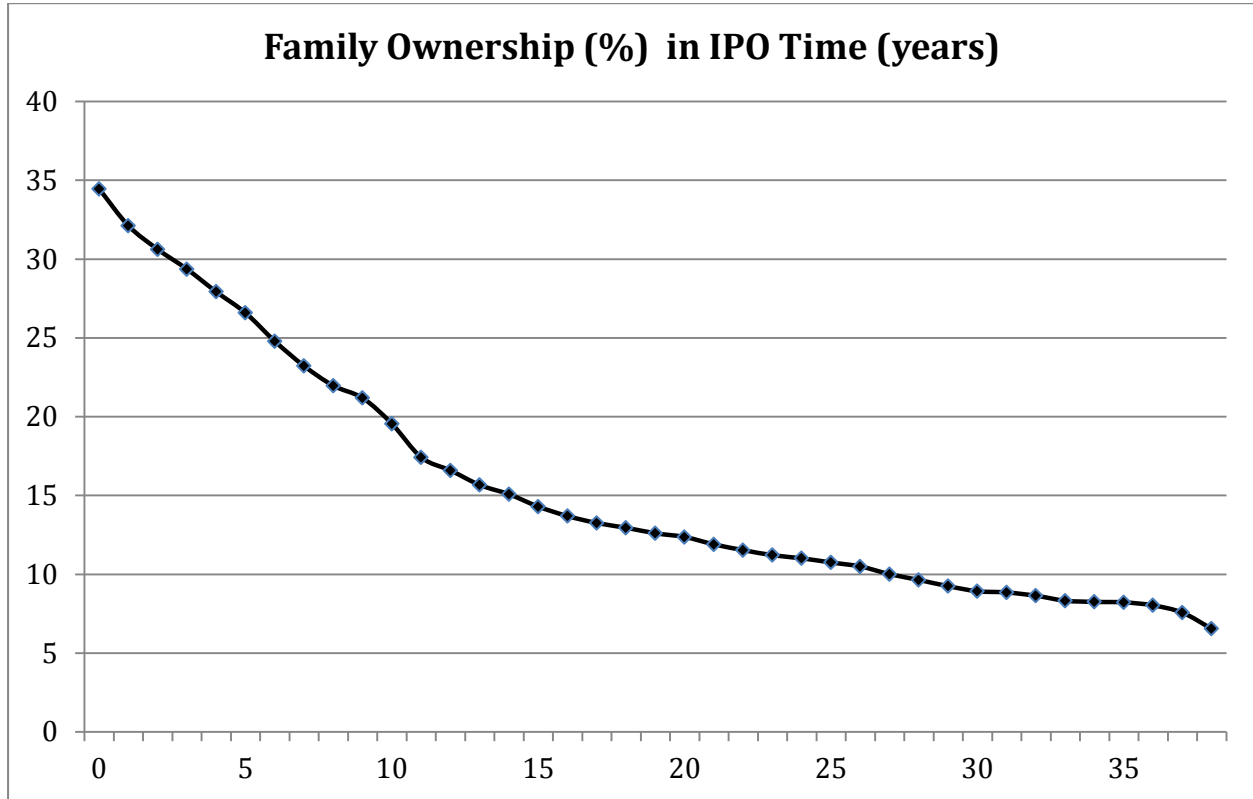
Figure 3
Family ownership and control in IPO Time

IPO time is measured in years past the IPO year. Type I firms (*Traditional Family* firms) are those where the founding family retains both ownership as a top 10 shareholder, as well as a key management position (either CEO or Chairman of Board). Type IV firms are *Former Family* firms, where the family ownership is no longer significant, and no member of the founding family has an executive position with the firm. Type II (*Family Management* firms) and Type III firms (*Sarariman* firms) are in intermediate stages of family involvement; with the former, a family member is a CEO/Chairman, with the latter, the family retains ownership but has relinquished management to an outsider sarariman.
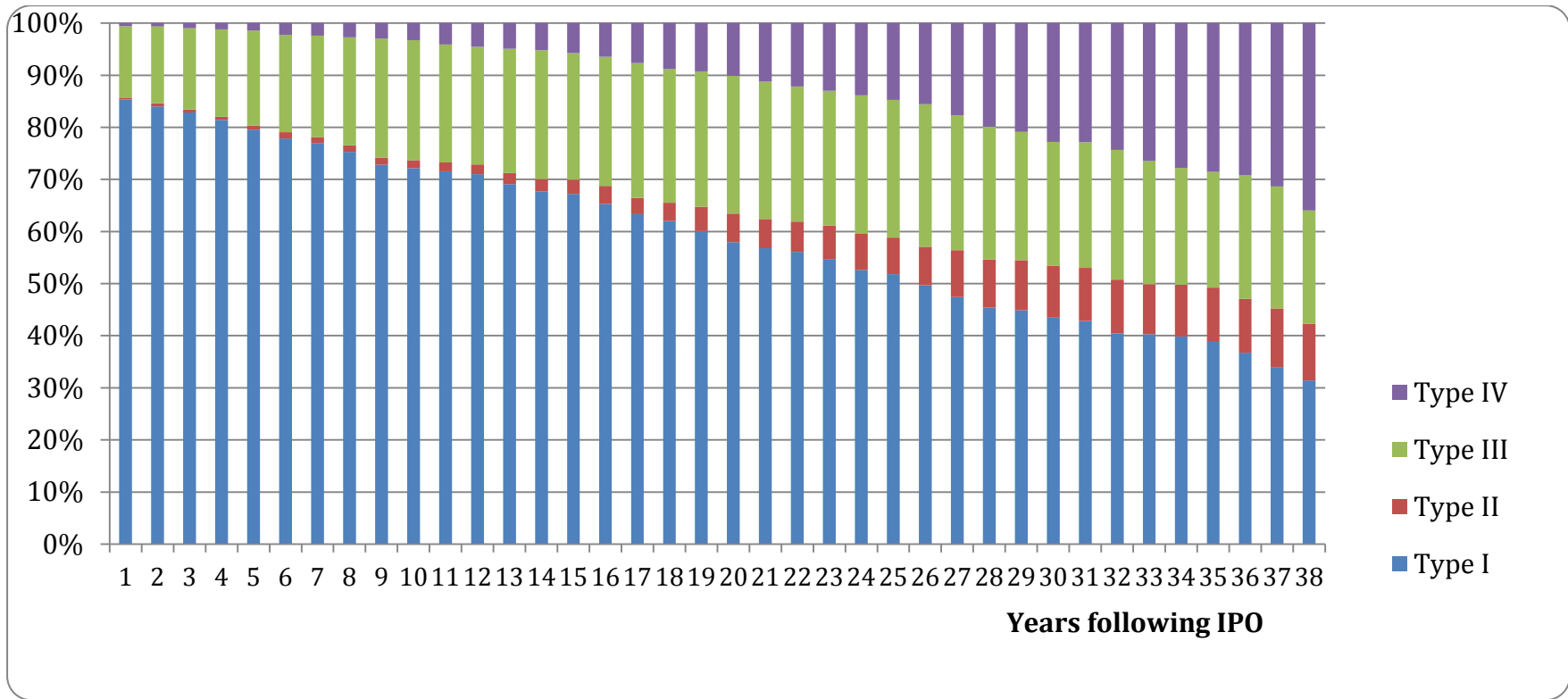
Table 1
Determinants of Ownership Half-lives

The dependent variable is ownership half-life. CEO tenure is the number of years served as CEO, CEO age is measured in years, long-term debt is measured as of the most recent fiscal year, ROA is defined as operating income scaled by assets, and is measured at the end of the most recent fiscal year, Tobin's Q ratio is measured at the end of the most recent fiscal year, Sales growth refers to the change in sales over the prior year, Firm age is measured as years following IPO, equity issuance refers to the sale of seasoned equity by the firm, concentration is a measure of industry sales concentration, financial, corporate, foreign, and stable ownerships refer to ownership stakes held in the hands of other financial and peer companies, foreign refers to non-Japanese institutions, and stable ownership refers to ownership in the hands of non-hostile bidders. ***, **, and * denote significance at the 1%, 5%, and 10% levels. Standard errors are clustered at the firm level. The model includes fixed year effects.

	Model 1	Model 2	Model 3
CEO Tenure	0.129***	0.122***	0.121***
CEO age	-0.077***	-0.072***	-0.073***
Long-term debt	-0.041***	-0.033**	-0.038***
ROA	0.046	0.052*	0.051*
Tobin Q	-0.236	-0.149	-0.231
Sales growth	-0.008**	-0.008**	-0.008**
Firm age	-0.108***	-0.075***	-0.111***
Equity issue dummy in year (t-1)	-0.202*	-0.241**	-0.212**
Equity issue dummy in year (t-2)	-0.184*	-0.243**	-0.186*
Industry Concentration	0.009		
Financial ownership		-0.105***	
Corporate ownership		-0.034***	
Foreign ownership		-0.056***	
Stable ownership			-0.032***
Constant	15.913***	18.322***	16.556***
N	17712	17712	17712
Adj. R-sq	0.4110	0.4265	0.4175

Table 2
Key Characteristics of Family Types

Type I firms are those where the founding family retains both ownership as a top 10 shareholder, as well as a key management position (either CEO or Chairman of Board). Type IV firms are ex-family firms, where the family ownership is no longer significant, and no member of the founding family has an executive position with the firm. Type II and Type III firms are in intermediate stages of family involvement; with the former, a family member is a CEO/Chairman, with the latter, the family retains ownership but has relinquished management to an outsider sarariman. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

	Family Type	Mean
CEO Tenure	I	16.3757
	II	12.4068
	III	4.9577
	IV	4.7251
CEO Age	I	57.7
	II	59.2
	III	60.9
	IV	62.5
Long-term debt	I	0.103
	II	0.116
	III	0.091
	IV	0.100
Annual Sales Growth	I	8.7%
	II	6.2%
	III	6.0%
	IV	3.6%
ROA (Operating Income scaled by Assets)	I	0.057
	II	0.040
	III	0.048
	IV	0.032

	Family Type	**Mean**
Family Ownership	I	20.9%
	II	0
	III	21.3%
	IV	0
Bank Ownership	I	9.8%
	II	16.5%
	III	10.7%
	IV	13.1%
Cross-share ownership by other firms	I	13.6%
	II	8.0%
	III	25.9%
	IV	21.1%
Employee Growth	I	1.2%
	II	0.5%
	III	0.1%
	IV	-1.4%

Table 3
Transition frequency

Type I firms are those where the founding family retains both ownership as a top 10 shareholder, as well as a key management position (either CEO or Chairman of Board). Type IV firms are ex-family firms, where the family ownership is no longer significant, and no member of the founding family has an executive position with the firm. Type II and Type III firms are in intermediate stages of family involvement; with the former, a family member is a CEO/Chairman, with the latter, the family retains ownership but has relinquished management to an outsider sarariman.

Transition	Frequency
Type I → Type II	133
Type I → Type III	682
Type I → Type IV	27
Type II → Type I	1
Type II → Type III	15
Type II → Type IV	104
Type III → Type I	236
Type III → Type II	36
Type III → Type IV	200

Table 4
Determinants of Partial Exits in Family Firms

Partial exits are defined as transition events where a founding family relinquishes ownership and management in a firm from a position of either (i) ownership and control; or (ii) ownership alone; or (iii) control in an executive office alone. The dependent variable is a binary variable denoting partial exits. CEO age is measured in years, long-term debt is measured as of the most recent fiscal year, ROA is defined as operating income scaled by assets, and is measured at the end of the most recent fiscal year, Tobin's Q ratio is measured at the end of the most recent fiscal year, Sales growth refers to the change in sales over the prior year, Firm age is measured as years following IPO, equity issuance refers to the sale of seasoned equity by the firm, concentration is a measure of industry sales concentration, financial, corporate, foreign, and stable ownerships refer to ownership stakes held in the hands of other financial and peer companies, foreign refers to non-Japanese institutions, and stable ownership refers to ownership in the hands of non-hostile bidders. Outgoing CEO ability is a binary variable denoting whether the outgoing CEO attended elite imperial university in Japan. ***, **, and * denote significance at the 1%, 5%, and 10% levels. Standard errors are clustered at the firm level. The model includes fixed year and industry effects. Dep Var: Partial Exit
F: Traditional Family firms; S: Sarariman; FM: Family Management firm; NF: Former Family firm

Former status	F+FM+S	F	F	S	F
New status	NF	NF	S	NF	FM
Constant	-1.326	-0.839	-2.721***	0.003	-3.067
Fam_Name	-0.127**	0.031	-0.047	-0.256***	-0.115
CEO age	0.014***	-0.029**	0.019***	0.022***	-0.006
CEO tenure	-0.010***	0.034***	0.019***	-0.070***	0.009**
Elite family on board	-1.913**	-1.690	-0.634	-4.723***	0.631
Elite non-family on board	0.298*	0.618	0.498***	0.465**	-0.434
Employee growth	-0.000	-0.020*	-0.004	0.005	0.003
Equity issue dummy	0.132*	0.546**	0.070	0.145	0.311***
Equity issue dummy - lagged	-0.113	-0.211	0.015	-0.036	-0.034
Family ownership	-0.015***	-0.008	0.004**	0.003	-0.027***
Financial ownership	-0.001	-0.008	-0.005*	-0.002	0.005
Firm Age	-0.001	0.002	-0.009***	-0.000	0.006
Firm size	-0.004	0.206	-0.002	-0.076	0.135**
Foreign ownership	0.010***	-0.020	-0.002	0.012***	-0.005
Industry Herfindahl index	1.261	1.012	2.950**	0.053	-0.365
Leverage	0.004**	0.010	0.004**	0.005**	0.004
No. Family on board	-1.693***	-2.979*	0.407	-2.382***	-0.772
ROA	-0.009	0.001	-0.019***	0.018*	-0.011
Sales growth	-0.001	-0.016*	-0.004**	0.001	0.002
Stable ownership	-0.001	-0.014**	-0.012***	-0.015***	-0.021***
Tobin's Q	0.011	-0.574	0.081*	-0.075	0.001
Volatility of industry sales	-0.090*	-0.043	-0.032	-0.095	-0.045
Volatility of sales	0.033	-0.235*	0.012	0.035	-0.043
Number of events	331	27	682	200	133
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.0869	0.2850	0.1121	0.1763	0.1688
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes

Panel A: Finance

Former status	F+FM+S	F	F	S	F
New status	NF	NF	S	NF	FM
Equity issue dummy	0.132*	0.546**	0.070	0.145	0.311***
Equity issue dummy - lagged	-0.113	-0.211	0.015	-0.036	-0.034
Firm Age	-0.001	0.002	-0.009***	-0.000	0.006
Firm size	-0.004	0.206	-0.002	-0.076	0.135**
Leverage	0.004**	0.010	0.004**	0.005**	0.004
ROA	-0.009	0.001	-0.019***	0.018*	-0.011
Sales growth	-0.001	-0.016*	-0.004**	0.001	0.002
Volatility of industry sales	-0.090*	-0.043	-0.032	-0.095	-0.045
Volatility of sales	0.033	-0.235*	0.012	0.035	-0.043

Panel B: Family Structure

Former status	F+FM+S	F	F	S	F
New status	NF	NF	S	NF	FM
CEO age	0.014***	-0.029**	0.019***	0.022***	-0.006
CEO tenure	-0.010***	0.034***	0.019***	-0.070***	0.009**
Elite family on board	-1.913**	-1.690	-0.634	-4.723***	0.631
Elite non-family on board	0.298*	0.618	0.498***	0.465**	-0.434
No. Family on board	-1.693***	-2.979*	0.407	-2.382***	-0.772

Panel C: Family Legacy & Network

Former status	F+FM+S	F	F	S	F
New status	NF	NF	S	NF	FM
Fam_Name	-0.127**	0.031	-0.047	-0.256***	-0.115
CEO age	0.014***	-0.029**	0.019***	0.022***	-0.006
CEO tenure	-0.010***	0.034***	0.019***	-0.070***	0.009**
Leverage	0.004**	0.010	0.004**	0.005**	0.004
Stable ownership	-0.001	-0.014**	-0.012***	-0.015***	-0.021***