Who is the Boss?
Family Control without Ownership in Publicly-traded Japanese Firms

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Abstract

We document that 50% of public listed Japanese family firms are still under the control by the founding family 50 years after the IPO. The control of top management is persistent even when ownership stakes becomes insignificant and without the use of dual class shares or pyramids. Examples include eponyms such as Casio, Toyota and Suzuki. The families' reputation, networks of financiers, and talent correlate with longevity of family control. Our results challenge the lifecycle view of corporations in advanced economies and highlights the importance of intangible "family" assets in understanding the evolution of family control.

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"Ever since he was a little boy, his mother always told him, 'One day you'll be president.'" [1]
About Toyota's President, Akio Toyoda

1. Introduction

Family control of the modern corporation is ubiquitous even in countries with well-developed capital markets. [2] How founding families keep control over their firms in the face of growth imperatives is a continuing puzzle. Rajan and Zingales (1996) suggest that the ease of external financing for capital investments dictates both the evolution of founding control over time, as well as the realized level of growth. Their contention finds support in Frank, Mayer, Volpin and Wagner (2011), who show that family ownership dilution in the UK and continental Europe is largely determined by the firm's need for external financing for both capital investments as well as mergers and acquisitions. These studies per force focus on control derived from equity ownership and conclude in favour of finance as the single biggest, if not the sole, determinant of the loss of founder control over time.

In this study, we extend the literature on family control beyond ownership by studying the dilution of the founding family's ownership as distinct from a loss of top management control. We explore the determinants of how families keep control with little or no ownership. Anecdotal evidence exists from other advanced countries including the U.S[3], however, they share two features: the use of control enhancing ownership mechanisms, such as dual class shares or pyramids, and a generally diluted ownership structure with no other significant owners. Thus, this is the first large scale sample to document the prevalence of

[1] Jason Clenfield and Yuki, Doubting Toyota Prince Defeats Crisis to Prove Self Wrong: Cars, Bloomberg, November 21, 2013, accessed on January 18, 2018, http://www.bloomberg.com/news/2013-11-20/doubting-toyota-prince-defeats-crisis-to-prove-self-wrong-cars.html.

[2] See, for example, La Porta, Lopez-de-Silanes and Shleifer (1999), Morck, Stangeland and Yeung (2000), Anderson and Reeb (2003), Morck, Wolfenzon, and Yeung (2005), and Villanlonga and Amit (2006).

[3] The J. M. Smuckers Company has been run by the eponymous family for four generations now, even though the Smuckers' family equity stake in the firm is now less than 6%. A unique aspect of their share structure is Time Phased Voting. Under this set-up, 1 share in Smuckers equals 1 vote if held for less than 4 years and equals 10 votes if held for more than 4 years. A few other well-established companies such as Ford Motor Company and the New York Times also have control in the hands of the founding family with very little equity ownership, albeit in both cases, dual voting shares provide the founding family with majority control.

family control without ownership in an advanced country with little use of control enhancing mechanisms.

We employ a unique dataset of all listed firms in post-war Japan and begin by charting the evolution of family control from the early 1960s through 2010. Our panel data allow us to move beyond static analysis and to document the factors that have allowed founding families in Japan to maintain control over their firms with or without significant ownership. Unlike the U.S., Japan does not permit dual class voting shares, so the one-share-one-vote rule applies. Unlike other Asian countries, pyramidal family group ownership, as a rule, is absent in Japan.[4] Thus voting control and ownership go hand in hand and a loss in ownership is identical to a loss in voting control. Furthermore, our data include family characteristics such as the educational attainment of the executives, founders, their heirs, as well as details on family structure. This allows us to assess the relative importance of finance vs. family assets in determining the dilution of control by founding families in IPO time.

The literature has used various thresholds such as 25%, 20%, 10% or even 5% of outstanding shares to define family firms.[5] We find that such cut-offs are *ad hoc* and excessively restrictive in describing family control. For instance, based on the ownership cut-off definition, many firms where the founding family holds the top management position, but has very low ownership stakes, risk being classified as non-family firms. To illustrate we highlight the three eponymous family firms, Casio, Toyota and Suzuki. Family members have taken turns to hold the leadership positions as President or Chairman for generations even when the families' ownership stakes have been diluted to insignificant levels. We generalize and document that between 10% and 30% of listed Japanese firms are managed by heirs of the founding family who have little ownership to report.

To our knowledge, this paper is the first documenting the commonplace nature of family control in the absence of material ownership. Our finding also explains why existing

[4] The famous post-war keiretsu system is not a family-based structure (Morck and Nakamura, 1999 & 2000) and is largely seen as a web of horizontal cross-shareholdings (Nakatani, 1984)[4].
[5] See, for e.g., La Porta, Lopez-de-Silanes and Shleifer (1999), Faccio and Lang (2002), Anderson and Reeb (2003), Villalonga and Amit (2006), Franks, Mayer, and Rossi (2009), and Foley and Greenwood (2009).

studies have found a very low number of family firms among large businesses in Japan and elsewhere (e.g., Claessens, Djankov, and Lang, 2000; and Masulis, Pham, and Zein, 2011). We show that including families that control firms without ownership more than doubles their share among Japanese listed firms. We also document the longevity of family involvement following the firm's IPO – almost 50% of listed firms are family controlled (managed and/or owned) up to 50 years following their IPO. We are not aware of corresponding statistics from other countries.

This paper also contributes to the literature by providing insights into the important issue of why families *exit* the firms their ancestors have founded. Existing empirical studies focus on the dynamics of family ownership and show that finance plays an important role in the dilution of ownership. Typically this happens when growth imperatives require external equity infusions, and when equity markets provide a ready source of capital.[6] Well-functioning equity markets step in to finance growth, and this process is generally responsible for the decline of founders' ownership after she lists her firm.

We show that an important and hitherto overseen determinant of future family ownership and control is the strength of intangible "family assets" as contended by Bennedsen and Fan (2014) and Bennedsen et al. (2015). Family assets are the relationship specific (Williamson, 1986), and often intangible, investments made by the founding families that add to firm value, much as organizational capital does.[7] Key examples of family assets are the legacy of the family business as embodied in the family name and reputation, family networks in business and politics, and the family talent pool.

We document how variation in family assets correlate with variation in time persistence of family ownership and family control. We include an array of proxies for family

[6] For example, Frank, Mayer, and Rossi (2009) show that founding family equity stakes got diluted in the U.K. largely as a result of capital investments via M&A activity. Helwege, Pirinsky and Stulz (2007) show that the ownership by blockholders declines rapidly after the IPO, and that this happens faster for firms with more liquid stocks. Frank, Mayer, Volpin and Wagner (2011) confirm these findings in a larger international setting, linking the ease of equity dilution specifically to investor protection, again underscoring the importance of finance in determining post-IPO ownership decline in the United States. Finally, Klasa (2007) documents that the founding family's sale of their controlling interest is correlated to poor performance and firm age among the U.S. firms.

[7] See, for e.g., Lev and Radhakrishnan, (2005) and Eisfeldt and Papanikolaou (2013, 2014).

assets and finance variables in exploring the determinants of the decay in the founding family's control over time. Our main results are that more profitable firms, and those managed by younger CEOs, are less likely to transition to lower levels of family control, whereas firms that need external capital are more likely to do so. We show that family control is more likely to be maintained in firms that bear the founding family name, have capable heirs[8] and trusted employees. Families also sustain control through establishing a close partnership with investors. In short, our evidence underscores the *joint* importance of financial and family factors in the evolution of ownership and management control.

The rest of the paper is organized as follows. Section 2 presents three cases of Casio, Toyota and Suzuki to illustrate how families organize control of their companies when ownership is diluted. Section 3 presents our data measuring the evolution of ownership and control of public traded firms in Japan. Section 4 divides firms into four categories depending on families being dominant owners and/or in control of management. We then describe the evolution of family ownership and family control over management. Section 5 analyses factors that impact the transition of firms among all four categories of ownership and control composition. We conclude in Section 6.

2. Family control in the absence of material ownership: The Casio, Toyota Motors, and Suzuki Motors Cases

The three well known Japanese companies, Casio, Toyota Motor, and Suzuki Motor illustrate how the founding family maintains management control in situations where they have very little ownership. The cases illustrate how families use particular and sometimes elaborate family assets and governance structures to secure and maintain control of their firms even when they do not have significant ownership stakes.

We describe the ownership evolution as well as management transitions in these three firms over a forty-year period spanning 1960-2000 in Figure 1. In all cases, ownership

[8] Mehrotra, Morck, Shim and Wiwattanakantang (2013) describes how the practice of adult adoptions, where founders, faced with either non-existent or inadequate blood heirs, frequently adopt outsiders into the family and appoint him as a successor, has been a common governance feature in Japanese business families.

stakes of the founding families are reduced to insignificant levels by the end of the sampling period (and in one case were never significant) and yet, as we describe below, scions of the founding family continue to hold sway over management in important ways. These three firms reflect different ways that families retain management control even when their ownership is very small: First, Casio illustrates how, even while growth and financial needs dilute family ownership, the founding family keeps control through a line of very talented family managers. Second, Toyota Motor Company illustrates how management control can persist via complex cross ownership and management of companies within the Toyota group of firms by the extended family of the founder.[9] We note that such a structure of inter-corporate control by the extended Toyoda clan is distinct from the well-known *keiretsu* structure, which represents a group of firms tied by cross-shareholdings but loosely linked in terms of management.[10] Third, Suzuki Motor Company, where the family never had significant ownership, illustrates how the practice of adult adoptions can broaden the talent pool for succession purposes and provide able and competent heirs (Mehrotra et al, 2013).

2.1 Casio Computer Co.: Ownership dilution through global expansion.

We start with Casio, the iconic calculator and electronic watch company, and show how high growth, financed via equity, dilutes founding family ownership over time. We submit that family talent nevertheless has kept the founding family in control to this day.

Casio was founded in 1946 as *Kashio Seisakujo* by a team of founders, father and four sons from the Kashio family. The Kashio men worked together to develop the world's first electronic calculator which was launched in 1957. To finance expansion, Casio went public in 1970 on the Tokyo Stock Exchange, with the family retaining 61% of shares. Three years later, Casio also listed on the Amsterdam Stock Exchange, and on the Frankfurt Stock Exchange in 1979. The net impact of these public offerings was a steep decline in the founding family's relative share ownership. Indeed, the family's direct shareholdings in Casio declined dramatically to 8% in 1990 (see Figure 1). For comparison, we note that the average

[9] See Bennedsen, Henry and Wiwattanakantang (2016).

[10] See, among others, Nakatani (1984), Prowse (1992), Flath (1993) and Weinstein and Yafeh (1995).

ownership by the least and most restrictive definitions of family firms in Villalonga and Amit (2009) is 16% and 28%. The ownership stake of the Kashio family continued to decline further, dipping under 6% in 2000 and under 4% in 2014.

In reality, however, the Kashio family has always been running Casio. The Kashio brothers took turns to hold the top management positions, namely the President and the Chairman, as well as to serve on its board[11]. Casio's first president was the father, and then his first son, Tadao, who succeeded him. Tadao with a reputation as a financial wizard served as president for 28 years, during which period his three younger brothers served on Casio's board. Tadao finally retired as president at the age of 71 in 1988 and remained as Casio's adviser until his death in 1993. The second brother, Toshio (born in 1925), who was the inventor of many of Casio's hit products, became Casio's Chairman from 1988 until his retirement in 2011 at the age of 86.

The third brother, Kazuo (born in 1929), with an expertise in sales and marketing, led Casio as its third President from 1988 and assumed dual positions as the both President and Chairman after Toshio's retirement in 2011. The fourth brother, Yuiko (born in 1930), was the production chief and served as vice president from 1991 until his retirement in 2014 at the age of 84.

Kazuo worked with the company well into his 80s to groom his successors which included his eldest son as well as three nephews. In June 2015 when Casio's profit hit an all-time high, Kazuo promoted his 49-year-old son, Kazuhiro as the President, while he himself served as Casio's executive Chairman. By spring 2019, Kazuo who turned 90 and has been running Casio for more than 30 years, has shown no sign of disengagement from Casio's management.[12]

The largest shareholder group in Casio is represented by financial institutions, followed by foreign investors. The ownership dilution of the founding family was a direct

[11] See Casio history at the company website, accessed on January 18, 2018, https://www.casio.co.jp/company/history/.

[12]Changing of the Guard: Casio president set to hand reins to son, Nikkei Asian Review, May 12, 2015, accessed on January 19, 2018, https://asia.nikkei.com/Business/Companies/Casio-president-set-to-hand-reins-to-son.

consequence of Casio's rapid growth financed by equity capital. The presence of the Kashio founders and heirs in the top management cadre of Casio has not been challenged by the continued erosion of their equity ownership in the company, and points to family resources playing an important role in maintaining control.

2.2 Toyota Motor Corporation: Control through group ownership and strong family assets

Toyota Motor is one of the world's largest automobile manufacturers, with a market capitalization at its peak of USD 220 billion in fiscal year 2015. The Toyota case illustrates how complex ownership and management structures over a group of firms can empower the family - even when direct family ownership stakes are insignificant. Specifically, Toyota Motor Company sat at the apex of the Toyota Group which comprised a network of companies connected to each other via cross-shareholdings and shared top executives from the extended Toyoda clan.

Given its size and status as a multinational corporation, as well as extremely low direct ownership stakes of the founding family, Toyota does not fit into the conventional definition of family firms. Based on widely accepted ownership thresholds (for e.g., 10% of voting rights), Toyota would be defined as a widely held firm. Table 1 shows Toyota's ten largest shareholders at six points in time in the last 50 years. Almost none of its 10 largest shareholders held more than 5% of outstanding shares from 1950 to 2000. Toyota's large shareholders were mostly financial institutions that held their shares for several decades. Among the top shareholders is Toyota Industries Corporation, which held a stake of 5.3% in 2000 and 6.6% in 2015. Setting aside the ownership in Toyota Motor by Toyota Industries, the family's direct ownership stake in Toyota Motors was and remains insignificant.

The group name, Toyota, was derived from the founding family name, Toyoda.[13] The founder was Sakichi Toyoda (1867 – 1930) who established Toyota Industries as a successful loom maker. The second-generation patriarchy was handed to his adopted son-in-law, Risaburo (born 1884), whose biological son, Kiichiro (born 1894), went on to start Toyota Motor Company to manufacture cars in 1937. Toyota Motor went through financial difficulty

[13]Toyota history, Toyota's website: http://www.toyotaglobal.com/showroom/emblem/history/

in the 1940s and eventually was on the brink of bankruptcy in 1949. The main house, Toyota Industries, sent its president, Taizo Ishida, to rescue Toyota Motor.[14] Ishida, who had inherited the founder spirit, acted as the family's caretaker (Hino, 2005). Following the death of the two Toyoda brothers in the same year in 1952, Ishida continued running Toyota until 1961, while grooming young Eiji Toyoda, the founder's nephew, as the next successor.

Eiji was named as Toyota's 5th President in 1967. He led Toyota as the chairman and honorary advisor until his death in 2013 at the age of 100. During his helm, Eiji was instrumental in transforming Toyota into the world's top automobile company and developed what became known as the "Toyota Production System".

Toyota's 6th president was Shoichiro Toyoda, who was the first son of Kiichiro and therefore a designated heir by birth. As the clan's patriarch, he groomed his younger brother, Tatsuro, who was promoted to the presidency in 1991. Shoichiro remained as Toyota's executive chairman during 1991-1999, and then as honorary chairman and a board member until 2009. Shoichiro also supervised other Toyota group firms, serving as Aisin's auditor and Denso's board until 2015 when he turned 90 years old.

Tatsuro, however, ended his term shortly in 1995 due to health problems. Toyota's next three presidents were loyal employees (or *sararimen*) namely Hiroshi Okuda (1995-1999), Katsuaki Watanabe (1999-2005), and Fujio Cho (2005-2009). During this high growth decade, Toyota looked as if it had absolutely transformed itself to become a non-family firm run by professional managers. The two Toyoda seniors (Eiji and Shoichiro), however, had continued providing advice on corporate policies, in particular installing Toyoda scions in senior management positions.[15] In fact, by this time, two of the Toyoda family descendents were promoted as Toyota Motor's board members.

Akio Toyoda, the only son of Shoichiro, was told by his mother since he was little that

[14] Toyota history at the company website.

[15] Family tensions and succession manoeuvring darken Toyota's top ranks, *Sentaku,* D*ecember 2016,* accessed on January 18, 2018, https://www.sentaku.co.jp/articles/view/16445.

"One day you'll be president."[16] The family dream came true in June 2009 when 49-years old Akio was named as Toyota Motor's 11th President. His appointment came on top of the largest recall scandal, Toyota's worst crisis in a century. Perhaps the company needed the Toyoda name to signal that it was returning to its roots and would restore the values, quality and reputation upon which the business was founded.

Top executives bearing the extended Toyoda name – uncles, nephews, and cousins from the three family branchesRisaburo, Eiji, and Kiichiro – have also served at key Toyota group companies. Three sons from the Eiji brnach have run other group firms as president and chairman for decades. Kanshiro headed Aisin, while Tetsuro has been in charge of Toyota Industries since 2005. The youngest brother, Shuhei, took the leadership at automotive component manufacturer and group member firm Toyota Boshoku Corporation (Bennedsen, Henry, and Wiwattanakantang, 2016), serving as its Chairman since 2015.

The Toyota group illustrates that the founding family's corporate control can be much more than the size of the family ownership stake alone would warrant. Backed by the ownership stakes of the member firms belonging to the Toyota group, management control by the Toyoda clan continues unimpeded to present day. Furthermore, the case also illustrates that time gaps between capable family leaders are often filled out by long serving employees that are loyal to the family.

2.3 Suzuki Motor Corporation: Control through adult adoptions

Suzuki Motor offers an interesting case that challenges the conventional wisdom of family control. Ever since it went public in in 1949, the founding family has *never been* listed among the top ten shareholders. Suzuki's largest shareholders have been banks and insurance companies that have held its shares for decades.

Suzuki Motor, a major global manufacturer of small cars, was established by Michio Suzuki in 1909. Osamu Suzuki, the current patriarch of the Suzuki family, assumed the

[16] Jason Clenfield and Yuki, Doubting Toyota Prince Defeats Crisis to Prove Self Wrong: Cars, Bloomberg, November 21, 2013, accessed on January 18, 2018, http://www.bloomberg.com/news/2013-11-20/doubting-toyota-prince-defeats-crisis-to-prove-self-wrong-cars.html.

leadership position in 1978. Osamu's entry into the Suzuki family came about courtesy of his marriage to the eldest daughter of Suzuki's 2nd President, Shunzo Suzuki. Osamu adopted the Suzuki surname and began working at Suzuki in 1958 and rose through the ranks to senior management positions. In 1978 when Chairman Shunzo passed away and Suzuki's 3rd President, Jitsujiro Suzuki, had health problems, Osamu was promoted as the President at the age of 48. Like Osamu, his two predecessors, Shunzo and Jitsujiro, were also the founder's adopted sons-in-law who took on the Suzuki name after marriage.

Osamu followed his family tradition when planning for succession by grooming his son-in-law (Hirotaka Ono) for President but unfortunately, Ono died of cancer in 2007 at the young age of 52.[17] In 2008, partly to cope with the financial crisis, Osamu, aged 78 at the time, assumed the firm's top positions as combined President/CEO/Chairman. In 2015, his 55-years old eldest son, Toshihiro Suzuki, was appointed as the President, while Osamu continued serving as chairman and has showed no signs of retiring even as he turned 88 years old in 2018.

To sum, the three cases described above illustrate some common themes: First, Japanese families often retain control over corporations founded by them even without material ownership stakes. Second, the head of the firm often serves in the joint consolidated positions of chairman of the board and the CEO or presidency. Third, control is sustained over time through cross ownership and the use of specific governance mechanisms such as trusted *sarariman* as CEOs during times when there are no suitable family members, or adoptee candidates, to run the firm. These cases motivate our focus on separating ownership and control in the following analysis and in understanding the role of financial constraints and family assets in determining the temporal variations in family ownership and control.

[17] Reuters, "Suzuki Motor Exec, CEO's son-in-law Dies at 52," December 13, 2007, accessed on January 29, 2018, https://www.reuters.com/article/suzuki-obit/suzuki-motor-exec-ceos-son-in-law-dies-at-52-idUST4050820071213.

3. Data Sources and Descriptive Statistics

We start our dataset construction by including all companies that went public in the 1949-2000 period. We exclude a small number of the firms where financial or ownership data are missing. The final sample covers almost the entire universe of public listed firms in post-war Japan.

To identify family firms, we follow the procedure and the dataset used by Mehrotra et al (2013). We extend their sample as theirs only includes firms that went IPO prior to 1970. Our extension covers IPOs through 2000. 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 board composition from 1989 through 2000. For prior years and missing data, Mehrotra et al (2013) constructed the data by hand-collecting ownership, board structure 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, year made president (*shacho*) or Chairman (*kaicho*), and prior work experience.

We identify each firm's founder by consulting the following sources: (1) commemorative volumes (*shashi*) celebrating company 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 post-war 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 onwards in the Nikkei group of 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 family firms using both ownership and management information. On the ownership side we will in most of our analyses define a family firm as one where the aggregated family ownership is at least 5%. Family ownership is measured as both direct ownership by family members and indirect ownership through family foundations and companies controlled by the family. Our ownership data contains the largest ten shareholders for each firm in each year. It is therefore theoretically possible that we underestimate family ownership in situation where there are family owners that are not among the largest ten shareholders. In almost all cases, the number 10^{th} largest shareholder owns less than 2% of the shares, well below our threshold of 5%. Thus we believe that the potential error in our categorization is small.

Figure 2 shows the listing of new 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) and the Osaka Stock Exchange (OSE) 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. We divide the firms into those that were listed by individuals or families (family firms) and those that were listed by other entities such as corporations (non-family firms). In most of the following analysis we will focus on the former group and examine how ownership and management evolve over time.

Table 2 provides descriptive statistic for the firms in our sample. It reports the mean, standard deviation, minimum and maximum for all 30,138 firm-year observations. We have grouped the variables into the three categories that we focus on in the following analysis: Finance Variables, Family Variables and Control Variables. Finance variables include those that are related to the need for capital and thus provide tests of the extent to which finance can explain the evolution of ownership and control. We find that average ROA is 4.75%, similar to the value of 4.64% documented in Mehrotra et al (2013) and comparable to the figure of 3.1% documented for a more recent period (1986-2000) in Delios and Beamish (2005) based on Japanese multinational firms. The mean Tobin's Q ratio is 1.5, similar to the value documented in Mehrotra et al (2013) – the corresponding Q-ratio for the 1986-2000 is 1.30 in Delios and Beamish (2005). The mean volatility of industry sales is 20.7. The mean firm size in natural log is 17.345 and equals ¥ 34 billion. The mean leverage (based on the long-term debt to assets ratio) is 0.20. Equity issuance happens on average in 17.4% of the firm years, corresponding to a frequency of approximately once every six years. The mean foreign ownership is 1.02% of outstanding shares, lower than the more recent figure of 11.8% by Foreign Institutional Investors reported in Miyajima and Hoda (2015).

The family variables are our proxies for intangible family assets. To measure family legacy we employ an indicator variable that captures if the firm name is related to the family name, which occurs in roughly one-third of the sample (see Belenzon, Chatterji and Daley, 2017). Our proxies for family resources are the presence of family members on the board of the company, as well as the presence of family members with elite education on the board[18]. A little more than 28% of firms have a family member on their board, while 24% of firms have a member with Elite education on the board, indicating that most family members that serve on the firm's boards have Elite education.

The next variable in this set is stable ownership, defined as the percentage of shareholdings by the top 10 shareholders who have held the firm's shares for at least five consecutive years. We submit that stable ownership indicates the presence of friendly block-

[18] We follow Mehrotra et al (2013) in defining Elite education as a degree from one of Top 5 national universities in Japan.

holders. The average share of stable ownership is 24%, which is around 10% more than the average family ownership. We note that stable ownership may also proxy for entrenchment, and recognize that as such, its effect on firm value may be ambiguous.

Finally, we have a group of control variables that are hypothesized to influence ownership and control but do not identify clearly as Finance or Family Assets – these are left as Control variables. The average CEO age is close to 60 years. On average CEOs have been in their position for 12 years and 23% of them have an education from an elite Japanese university. We find that the mean family ownership is 14%. When there are many elite non-family members on the board, we conjecture that there is an impending transition away from the family. The average number of elite non-family members on the board of directors is 0.8.

4. Evolution of family control and family ownership

In this section we categorize family firms based on ownership thresholds and management control and describe the evolution of each over time. We then explore factors that affect families' attrition of ownership and loss of management control – these factors include both Finance and Family variables as discussed above in section 3.

4.1 Categorising family firms according to ownership thresholds and management control

We begin the analysis by categorising publicly traded Japanese firms into four groups according to the size of family ownership and the presence of the founding family in top management. On the ownership side it is common to use particular ownership threholds to define family firms. As discussed above, common cut-off levels in the literature are 5%, 10% and 20% ownership.[19] We go with the lowest cut-off, and repeat all our tests with higher thresholds as robustness checks.[20] With respect to management we define family control based on whether the CEO position (the President position in most Japanese firms in our

[19] In Japan this corresponds exactly with voting rights share as well since dual voting shares are not permitted, and vertical pyramidal ownership structures are rare.

[20] Since the results do not change qualitatively we only present tables using the 5% threshold. Results using higher ownership thresholds are available from the authors upon request.

sample) is occupied by a member of the founding family. Based on the above dual screens, we define the four types of firms as follows.

Type 1 firms are the classical closely-controlled family firms where the family's ownership stake is above the cut-off level and a founding family member serves as the CEO of the firm. *Type 2* firms are those where the family ownership is below the cut-off level, but a family member nonetheless serves as the CEO. In section 2 we saw that this was indeed the case for the families behind Toyota, Casio and Suzuki. *Type 3* firms are those where the family's ownership stake is above the cut-off level, but the CEO position is occupied by a *sarariman* CEO.[21] *Type 4* categorizes ex-family firms, where the family ownership is below the cut-off level and the family no longer holds the top management position. It is important to note that *Type 4* firms were family firms at the IPO date in our sample.

4.2 Evolution of family ownership and family control

Panel A in Figure 3 describes the distribution of firms across the four types in IPO time. At the end of the IPO year, more than 85% of the newly listed firms are categorized as Type 1 where the family controls top management and has significant ownership. It takes almost 20 years after the IPO to reduce Type 1 firms to less than 50% of all listed firms. It is remarkable that the share of Type 2 firms with family management and no significant ownership increases in IPO time. At the IPO time Type 2 firms are rare, but 10 years after the IPO, Type 2 firms account for more than 10% of all firms, and after 20 years they represent almost one out of five listed firms – this fraction is maintained for the remainder of the 50-year post-IPO period. Type 3 firms (significant family ownership with non-family CEO) show the most stability following IPO, varying between 10% and 15% of all firms over the 50 years following the firm's IPO. It takes more than 10 years for Type 4 firms (ex-family firms) to reach a level of 10% of all listings. Twenty-five after the IPO, almost one in four listed firms is classified as Type 4 firms.

[21] *Sarariman*, a Japanese term, connotes a company employee who works for salary – we use the term to denote professional managers unrelated to the founding family.

As we argued earlier, when family firms are defined based on ownership alone, all Type 2 firms risk being mis-categorised as non-family firms. Panel A showed that Type 2 represents a large group of firms even when we use an ownership threshold of 5%. The mis-categorization is obviously even larger when a higher ownership cut-off is applied. We show this in Panel B where we apply a 20% ownership cut-off. Not surprisingly, the share of Type 1 firms declines relatively faster vis-à-vis Panel A. After 10 years, Type 1 firms represent 33% of all listings, almost half as big as their share under the 5% ownership threshold. After 25 years Type 1 firms represent only 1 in 10 of the sample, vs. 40% in Panel A. On the other hand, as expected with the higher threshold, Type 2 firms are more common in all years following the IPO. After 12 years the share of Type 2 firms among listed firms is close to 50%.

We have already noted that if ownership alone is used to identify family control, a significant under-reporting bias against family firms results. An additional source of potential bias in counting family control among listed firms comes from ignoring new listings and de-listings from the exchange. To address this bias, we expand the sample to all listed firms, including those that were not family firms at the time of the IPO. We call them *never* family firms to distinguish them from Type 4 (ex-family) firms. We re-plot figure 3 in calendar time with the new data, first using a 5% ownership cut-off level and present the plot in figure 4.

We find that, first, the share of never-family firms among listed firms declines over time. In the 1950s, it was more than 70%, in the 60s and 70s it was more than 50% and in the late 90s it fell to less than 40%. A significant jump in the fraction of family-controlled firms occurs in the early 1960s, with the opening of the second tier of the Tokyo Stock Exchange when the share of Type 1 firms almost doubles to 30% of all listed firms (and stays at this level through the end of 2000). The share of Type 2 firms has been stable around 10% over most of the last 50 years with a slight decline in the late 90s. By comparison, the share of family owned, but professionally managed, firms (Type 3 firms) has been increasing over time and represents around 15% of all listed firms in the year 2000 – this marks the extent of the Chandler transformation among Japanese listed firms. Finally, and not surprisingly, the share of former family firms (Type 4 firms) has also increased over time as firms age and families sell out.

In Figure 4 Panel B we repeat the exercise using a 20% ownership cut-off. Whereas the share of firms that were *never* family firms is by definition unchanged, we see a few interesting variations across the other types: The share of Type 1 firms drops to 20% in the late 90s while the share of Type 2 firms is much larger – note that these are the firms most likely to be mis-classified as non-family firms under the ownership threshold criterion. Not surprisingly, there are also fewer Type 3 firms and more Type 4 firms. This exercise shows the twin dangers of using higher ownership cut-offs as well as ignoring family management when defining family firms. This mis-categorization is material. If a 20% ownership cut-off level is used, more than 20% of all listed firms in the last fifty years are categorized as non-family firms even when a family member serves as the CEO. Counting Type 1, 2 and 3 firms as family firms, we find that approximately four out of ten listed firms in Japan qualify as family firms. This number has been relative stable since the 1960s. We conclude that families control a significant fraction of public traded Japanese firms, either through ownership, and/or via top management.

4.3 Transition across family firm types

As we have seen in Figure 3, in the years after their IPO, a large share of family firms either loosen their control over ownership, or their control over management. Whereas the figure provides a general picture of transition, it is not a complete picture of the path towards exit from control. To complement the figure, Table 3 provides the transition matrix of how family firms move between different categories. We find considerable movement across the four firm types in our dataset. 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 involve the family ownership declining to insignificant levels, or both. For e.g., when a family relinquishes ownership, but retains control in an executive office, we have a transition going from Type 1 to Type 2. Retaining ownership but hiring a professional CEO results in a transition from Type 1 to Type 3 firm. Selling out completely with no management role results in a transition to Type 4.

Table 3, Panel A describes firms originating as Type 1 firms, Panel B describes firms originating as Type 2 firms, and Panel C describes firms originating as Type 3 firms. Panel A

shows that the most common exit for Type 1 family firms is from management; this marks a transition where a family CEO is replaced with a *sarariman* CEO (or non-family CEO). These transitions account for a little over six out of ten exits for Type 1 firms. More than three out of ten exits (36%) involve the family's ownership shrinking below the 5% threshold while retaining management (exit from Type 1 to Type 2 firms). Interestingly only 3% of exits from Type 1 firms are to Type 4 firms, underscoring the limitation of relying on a loss of ownership and management as the defining feature of exits by family firms.

Panel B describes the exit path for Type 2 firms. Not surprisingly, 100% of exits are to Type 4 firm, essentially noting that for family managed (but not owned) firms, exit involves the loss of management but no gain of ownership. Similarly, panel C describes the transition path for Type 3 firms. We notice that that there are two types of transitions here. First there is the transition where firms replace the professional manager with a family member and thus go from Type 3 back to Type 1. These transitions suggest that families sometimes use professional managers as placeholders before ready and capable heirs re-position themselves in management roles. Second, and slightly more frequently, the family gives up the ownership of the firm and moves to Type 4.

5. Determinants of the evolution of ownership and management

In this section we analyse factors that influence the evolution of family ownership and management. The aim is to understand why some families end up with management control without ownership (Type 2 firms in our classification); some families retain ownership and either keep management control (Type 1 firms) or professionalize management (Type 3 firms); while others exit both on the ownership and the management side (Type 4 firms). The existing literature has focused on financial needs and constraints as key determinants for ownership dilution that would be relevant in transitions from Type 1 to Type 2, Type 1 to Type 4, and Type 3 to Type 4 transitions that involve a loss of material ownership

We show that in addition to financial constraints, relation-specific family assets are equally important factors in explaining the evolution of family ownership and control. In the

following subsections we first analyse ownership dilution alone since the literature has focused on this variable. We provide a cross-sectional analysis of the determinants of ownership dilution in IPO time, and repeat the exercise with a novel measure of ownership dilution based on the concept of half-lives denoting the time for ownership to decay to half its level. We then investigate the twin questions of why firms relinquish management to outsiders (the Chandlerian professionalization of management), and how families retain control over management despite having little share ownership. We end this section by analysing determinants of family exits from both ownership and management.

5.1 Univariate differences across family firm types

Table 4 provides firm year mean statistic for the four types of firms. We group our variables into three categories: Financial variables, family variables and control variables. We have 30,138 firm years which include 14,697 Type 1 firm years, 4,606 Type 2 firm years, and 3,821 Type 3 firm years (the rest are Type 4 firm years). The table begins by providing the mean of all variables for the various firm types and follows this by providing mean differences across pair types. For e.g., the column titled Type 3-4 (read as *Type 3 minus 4*) is the mean difference for the variable between Type 3 and Type 4 firms.

We begin by comparing mean statistics for the financial variables. Looking at the relationship between family control and operating performance we find that family ownership on average is correlated with higher accounting performance measured as operating return over assets (ROA). ROA for Type 1 firms is the highest at 5.3%, vs. 3.4% for Type 4 firms. Type 2 and Type 3 firms are in the middle with ROAs of 4.2% and 4.7%. The pairwise differences across each category are statistically significant. However, valuations, based on Q-ratios, are not statistically distinguishable across the firm types. Likewise, there is little variation among the four groups when we look at the volatility of industry sales. In general, family owned firms (Type 1 and Type 3) are smaller than Type 2 and Type 4 firms. That is only natural since family ownership dilution is correlated with asset growth. We also notice that in firms where families retain 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. Lower family ownership is correlated positively with firm age – Type 4 and Type 2

firms tend to be older than Type 1 and Type 3 firms. Foreign ownership tends to be low across all types of firms. Shares held by foreigners are the highest for Type 4 firms, but even there mean ownership by foreigners is less than 2%. Comparisons with other studies are muddied by the fact that we do not look at non-family firms in our study, which may attract disproportionate investment from foreigners.

Next, we focus on variables we will use as proxies for family assets. By construction, the share of family ownership is significantly higher for Type 1 and Type 3 firms than for the other two types. More interestingly, family ownership and involvement are higher in Legacy firms that share their names with the founding family. Type 1 firms are more likely to be Legacy firms compared to Type 2 and Type 4 firms, indicating a reluctance of legacy heirs to disengage from their firms. For the same reason, both Type 2 and Type 3 firms are more likely to be Legacy firms compared to Type 4 firms. Type 2 and Type 3 firms are more likely to have a family member on their board vis-à-vis Type 4 firms; they are also more likely to be graduates of Elite universities in Japan. These two results point to the unique resources families bring to the board – when these are not in evidence, the family's departure is hastened. It is worth noticing that Type 2 firms are more likely to have elite family members on their boards than Type 1 and Type 3 firms. This is consistent with the idea that stronger family assets empower families to control firms even when their ownership stakes are small.

Finally, we focus on the set of control variables. Type 1 firms have the youngest albeit longest-serving CEOs, while CEOs of Type 4 firms have the shortest tenures and tend to be the oldest. Type 2 and Type 3 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. It is also clear that family CEOs (Type 1 and 2) are less likely to have education from elite universities relative to non-family CEOs (Type 3 and 4).

5.2 Determinants of ownership dilution

We start by graphing mean and median family ownership following the exchange listing in Figure 5. 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, mean ownership declines to 26.6%, and by year 10, it is 19.6%. Twenty years after IPO, average ownership declines further to 12.4%, and after thirty years, it is 8.9%. Median ownership is significantly smaller in all years indicating that there is a group of firms that keep a relatively high family ownership for a longer time after IPO.

The model we use to study the determinants of post-IPO ownership decay is given in equation (1). $\boldsymbol{o_{i,t}}$ is the family ownership in firm ***i*** and at time ***t***, ***x***'s are explanatory variables such as ROA, Q-ratio, Family legacy, Stable ownership, ***z***'s are control variables such as firm age, CEO age, CEO tenure and CEO eliteness. ***a***'s and ***b***'s are coefficient estimates, $\boldsymbol{c_1}$'s are fixed year effects, and ***e***'s represent error terms. We cluster standard errors at the firm level, and include fixed year effects in all regression specifications.

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

In Table 5 Panel A we present the first results on ownership decay. In Column 1 we test the Finance explanations for ownership decay. First, we expect more profitable firms to retain family ownership for a longer period, while firms that need external finance face faster ownership decay. We find that ROA and Tobin's Q are both highly positively correlated with family ownership, confirming that families tend to maintain control over more profitable firms. Firms in industries with higher volatility of sales have smaller family ownership stakes. Letting industry volatility of sales be a measure of competition, this is consistent with competitive industries hastening the exit of family ownership. Larger firms and firms with

higher levels of leverage have lower levels of family ownership. This is consistent with the idea that firms with higher leverage and greater past growth (resulting in current larger size) have lower family ownership. Similarly, firms that have issued equity in the prior two years are associated with faster ownership decay due to the dilutive effects of the equity offering. Overall our results confirm the importance of Finance in explaining the dynamics of ownership in the post-IPO period, and are consistent with the narrative and results in Rajan and Zingales (1996).

In all regressions we control for firm age, the age and tenure of the CEO, and the elite-ness of the CEO, measured as an indicator variable if the CEO has a degree from an elite university. In all Tables we find that firm age, CEO age and having elite CEOs are correlated with lower levels of family ownership while CEO tenure is positively correlated. The latter can be explained by the fact that family CEOs in general have longer tenure than non-family CEOs and that having a family CEO is correlated with larger family ownership.

Column 2 analyses the importance of family assets in explaining ownership decay. First, we affirm the importance of family legacy – firms eponymous with the founding family tend to have higher family ownership. Second, the presence of family members on the firm's board is associated with higher family ownership, as is the presence of family members from Elite Universities. By contrast, the presence of Elite non-family members on the firm's board is associated with a lower level of family ownership. Stable ownership, which we define as shares held by group firms that have not changed hands in the last five years, is associated with higher family ownership. All these results are strongly significant in statistical terms.

The split between finance and family variables in Column 1 and 2 makes it possible to do a horse race between the two explanations. We do this by comparing the variation in family ownership that each of the two models can explain as measured by the pseudo R^2 statistic. It is interesting to note that the explanatory power of the family model in Column 2 is higher (Pseudo R^2 = 34.1) than for the finance model (Pseudo R^2 = 20.7).

Column 3 estimates the decay in ownership adding both financial and family variables in the same model. This only has a marginal impact on the coefficients. For the financial

constraints we notice that the results are almost identical to when we run the financial model without the family variable. For the family variables, we also notice that all variables are significant in statistically terms and have the same sign as in Column 2.

Overall, we find support for both family as well finance variables in explaining the cross-sectional variation in family ownership. While the role of finance has been explicitly noted in the literature, our results point to the hitherto overlooked importance of family assets in determining the dynamic nature of family ownership.

In Panel B, we repeat the regressions using ownership half-lives as the dependent variable. 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 $\boldsymbol{t}$ be W_t, with initial ownership = W_0

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

$$\boldsymbol{\tau} = \boldsymbol{t}_{1/2} = \boldsymbol{t}.\log(2)/\log(W_0/W_t) \qquad \text{Eq. [2]}$$

To test the variation in half-life across time we replace the actual ownership level with the half-life measure defined above in Equation (1). Results are provided in Table 5 Panel B. They are in general very similar to the results in Table 5 Part A. Column 1 shows that financial constraints matter. First, ROA is associated with longer half-lives for ownership, indicating that a loss of profitability is an important driver of ownership dilution. However, Tobin's Q is not significantly related to ownership decay; neither is the volatility of the firm's industry sales. Second, both firm size and leverage are correlated with shorter half times, confirming that the need for finance (to support growth) is a key factor for ownership dilution. Third, foreign ownership is negatively correlated with ownership half-lives, indicating that foreigners tend to be associated with faster decay of family ownership. Equity issuance has no impact on the half-life of ownership decay – note that this is a key Finance variable since

it implies that ownership dilution is hastened via sale of equity to outsiders. The half-life results do not support such a role for Finance.

Column 2 presents a model based on proxies for family assets. Family legacy (measured as eponymous firms and families) is strongly positively correlated with longer half-lives, affirming our conjecture that family legacy tends to prolong family control. Family and Elite Family members on the board and business networks (measured by stable ownership) are also positively correlated with longer half-lives. Finally having elite non-family members of the board is negatively correlated with half-lives. These results portray the following picture – ownership decay is hastened by the presence of smart non-family members on the firm's board and retarded by the presence of smart family members on the firm's board and by the importance families place on legacy. All family assets variables are statistically significant at conventional levels.

Column 3 presents the results of including both financial and family variables in the same model. The results are similar to the partial analysis in Column 1 and 2. For the financial variables we notice that the coefficients have very similar size and statistical significance. For the family variables, we note that Elite Non-family members on the board loses significance both in economic and statistical terms. For the other variables we notice a marginal increase in the strength of the coefficients. In all three columns we notice that older firms, older CEOs and CEO Eliteness increase the speed of ownership decay.

To sum, Table 5 shows that family ownership decay over time is related to both financial needs and the strength of family assets. Relative to existing literature we have documented that intangible family assets are important factors in understanding how and when families exit their ownership stakes.

5.3 Determinants of professionalization

In Table 6, we analyse the determinants of families exiting from management of the firm while retaining ownership – the so-called professionalization of management talked about by Chandler (1977). Strong family assets leverage the value of family management (Bennedsen et al 2014). Thus, the loss of family assets in business families should predict that

families are more likely to professionalize the family firm. By contrast, in the transition from Type 1 to Type 3, ownership remains unchanged. Hence, we predict that family assets proxies are more important than financial variables in understanding the transition from Type 1 to Type 3.

This is to a large extent confirmed in Table 6, Model 1, with two exceptions. First accounting performance is negatively correlated with professionalization. This is consistent with the idea that a crisis is often the trigger for implementing professionalization. When profits are strong, it is easier to postpone the decision to give up the private benefits associated with running the firm. However, when deficits accumulate, the pressure to bring in professional managers increases. Second, we also note that more valuable firms are correlated with transition to professional management.

In Model 2 we again focus on family variables. First, we notice that strong family ownership makes professionalization more likely. This is consistent with the idea that the families retain sufficient power via ownership to delegate management decisions without the fear of losing control. We also note the significant influence of family members on the board of the firm. Thus, when the family is able to control professional managers through their board presence, it is also easier to embark on a professionalization path. Finally, stable ownership is negatively correlated with professionalization. This is consistent with the view that new owners and changes in the distribution of ownership may increase the pressure on family to give up the management position, while stable ownership preserves the status quo.

With respect to the control variables we notice that both CEO age and CEO tenure (which are correlated) are positively correlated with professionalization. Thus, older CEOs are more likely to retire, and this may be the timing for which the family decides to put a new-non family CEO.

In Model 3 we add both financial and family variables in the same model. The results are similar but emphasize the importance of family variables for understanding the professionalization process. We notice that firm age is not statistically significant any more. It appears that only ROA and firm value from the set of finance variables correlate with

professionalization. On the other hand, we find that having elite non-family members on the board increases the odds of replacing the family CEO with an outsider. Overall, the results affirm the importance of family assets in addition to the role played by finance in determining the odds of professionalization of the family firm.

5.4 Determinants of control without ownership

Perhaps the most puzzling finding in this study is the large fraction of firms where families retain the top management job even when their ownership stake becomes insignificant. In Table 7 we explore the determinants of such Type 1 to Type 2 transitions. We follow the same analytical path as in Table 6 by presenting two partial analyses and one that combines both financial and family variables. By definition, this transition is about loss of ownership. As we saw in our three cases the dilution of ownership has much to do with the imperative of financing growth. Thus, a priori, we expect the finance variables to be important for this transition.

As Model 1 shows, several finance variables do matter. As in Table 5, we find a positive correlation between firm size and the odds of transitioning from Type 1 to Type 2. This is consistent with larger firms needing more capital for their investments. Leverage is also positively correlated with ownership transition, underscoring a rising need for external capital for firms with tighter balance sheets. Finally, equity issuance is also seen as hastening the exit from Type 1 to Type 2 firms. Contrasting this with the insignificant coefficient on Equity Issuance in Table 6, we conclude that equity issuance is related to the loss of family ownership, but not to the loss of family managerial control.

Under the assumption that family resources create value through active management, and since Type 1 to Type 2 transitions preserve family management, we do not expect them to be directly relevant in these transitions. Nevertheless, family resources may be important in allowing families to retain control without ownership in Type 2 firms, and hence may indirectly be relevant in the likelihood of these transitions. We let the data tell the story.

Indeed, Model 2 in Table 7 shows that the only family variables that are significant are family ownership and stable ownership. Unsurprisingly, when family ownership is small it is

more likely that a given reduction pushes the family under the 5% threshold, which triggers the transition to Type 2. However, networks do matter. It is interesting to observe that when the family has a strong network as measured by the stability of ownership, they are also less likely to dilute the ownership. Looking at the control variables, we notice that younger CEOs are more likely to be asked to stay on as CEOs even as ownership declines into insignificance. On the other hand, CEO tenure is positively correlated with the transition – for a given CEO age, tenure on the job increases the odds of being retained as the CEO. Puzzlingly, CEOs from Elite universities are less likely to be associated with these transitions. We would have thought that such CEOs are more likely to be retained as ownership levels became insignificant. Perhaps more talented CEOs find opportunities elsewhere as their ownership stake is reduced to zero. In Model 3 we add both financial and family variables in the same Model. The results are robust. We notice that now firm age is negatively correlated with ownership dilution and that elite family members on the board are marginally correlated with ownership dilution. Else the results are very similar to the two partial models.

5.5 Determinants of exit paths.

Table 8 explores the transfer to total exit (to Type 4) regardless of whether the firm is Type 1, Type 2 or Type 3. Most of these exits originate in Type 2 and Type 3 firms, very few firms are sold when the family controls both ownership and management, as we documented in Table 3.

Model 1 focuses on financial variables. Consistent with the existing literature, we find that profitable firms are less likely to exit. It may be that profitable firms are able to both raise outside capital for investments, as well as finance investments via retained earnings. Larger firms are more likely to be sold. This is consistent with the notion that larger firms have more interested buyers and have capital needs that exceed that of families' private wealth. We also notice that firms with higher leverage are more likely to be sold. Leverage puts pressure on the family to find new capital and one way to do that is through sale of equity. Foreign ownership appears to expedite exits as well – we cannot distinguish if this is because of a selection bias where foreign investors shun firms with family ownership, or if foreign owners somehow actively advocate for an exit. All of these effects are both economically relevant and

statistically significant at a one percent level. Interestingly, the equity issuance dummy is not significant. This is contrary to the extant literature that has argued that equity issuance is related to the dilution of ownership by founders (see for example Helwege, Pirinsky and Stulz, 2007, who show that both equity issuance as well as sales of shares by insiders explain the decline in post-IPO founder ownership).

Model 2 explains exit using the set of variables that proxy for family assets. Not surprisingly, we find that family ownership lowers the odds of an exit for a couple of reasons. First, higher family ownership may represent a younger earlier stage of these firms when exit is less likely, as in Klasa (2010). Second, to the extent insider stakes face dilution from equity issuance, smaller stakes are more likely to risk falling below our 5% threshold following equity issues than larger stakes.

Perhaps more interestingly, we find that our proxy for family legacy – eponymous firms – is significantly associated with a lower likelihood of exit. This is consistent with the view that the presence and visibility of the family creates value in firms where family legacy is an active part of the business history and the business branding Belenzon, Chatterji, and Daley (2017). Alternately, it could be also true that founders who name the firm after themselves place a higher value on control.

We employ two measures to gauge the intensity of family resources associated with the firm. The first variable is an indicator variable to check whether one or more family members serve as board members. The second proxy is an indicator variable that measures whether the family board appointee has a degree from an elite Japanese university – this variable has been used as a proxy for talent in Perez-Gonzales (2006) and Mehrotra et al (2013). We find that in general having family members on the board reduces the likelihood of exit, and, furthermore, the interaction of board presence with elite education, is also negative. This indicates that both monitoring and talent are important family resources that have the effect of delaying exits. We believe that while monitoring considerations have been addressed in the literature, the idea that talent as a family resource plays a role in control is a novel one.

Finally, we investigate whether stable ownership retards the likelihood of exits. We base this on the assertion that strong family networks engender stable blockholders that can preserve the status quo for a longer time. The results in Table 8 do not support such an assertion – in fact, we find that stable ownership is associated with a higher likelihood of exit. We do not investigate further the reasons behind this – perhaps it is possible that stable blockholders facilitate sale of equity by insiders or allow families to retain management positions despite ownership loss.

In all regression specifications, we notice that succession concerns loom large – the presence of older CEOs increases the odds of an exit. This has been noted in the literature (see Klasa, 2010) and indeed, succession is often seen as the Achilles' heel of family firm longevity. Similarly, CEO tenure is seen as inversely related to exits – this is not surprising since a longer tenure has the natural effect of postponing exits. The last of the control variables is the educational attainment of the outgoing CEO. We find that CEOs with elite university pedigrees seems to face higher odds of exits. This is perplexing since we were expecting that smarter CEOs (those with elite degrees) would be associated with a lower likelihood of exits. As noted above, perhaps elite CEOs find superior career options elsewhere and are not beholden to the firms founded by their ancestors.

It is interesting to notice that when we compare the Finance and Family models, they have very similar R-squares – this is noteworthy since the literature has largely focused on Finance as a propeller of exits. Our results show that Family is equally important (indeed, Model 2 has a marginally higher pseudo R2 than Model 1) in explaining exits. The literature's focus on Finance has the effect of missing out on a set of family factors that are statistically similar in their ability to jointly explain the exit probabilities. In principle, omitting the family variables could also bias the observed coefficients on the Finance variables. We include both sets of variables in the third specification presented in Model 3.

Barring a few differences, the results are very similar to the partial analysis in Model 1 and 2. However, firm size is no longer significant in explaining exit likelihood. This may be due to firm size and family ownership being correlated and omitting either variable has the potential to introduce bias in the estimated coefficients. Similarly, we also notice that firm

age is now significant, such that older family firms are seen as less likely to exit, controlling for the set of Finance and Family variables. This is interesting since it implies that Firm Age per se is not a handicap for family control – rather, it may be other variables that are correlated with Firm Age that are fundamentally more important in determining exits. Our measure of family legacy is no longer significant at the 5% level, though the point estimate is similar in magnitude to that in Model 1. Finally, we note that the impact of the control variables remains unchanged.

In Table 8 Panel B we split up the starting points and look independently on the transfer from Type 1 to Type 4, Type 2 to Type 4 and Type 3 to Type 4. The first model is less interesting since it is based on only 18 observations indicating that a direct exit of a family-owned and controlled company is rare in Japan. When families exit by giving up management, we notice that family legacy, and family and elite family members' presence on the board, significantly reduce the odds of exit. Similar observations can be noticed when Type 3 firms (professionalized firms) are sold.

Overall, the results in tables 5 through 8 provide new insights into why families exit their corporation. First, across all panels, we find that both family and finance variables are important in explaining the partial exit probabilities (based on comparing partial R-squares from model 1 and model 2 across the three tables). Second, we notice that financial variables seem to be relatively more important in explaining ownership dilution (the transition from Type 1 to Type 2) whereas family variables are relatively more important in the decision to professionalize the family firm (the transition from Type 1 to Type 3). This is consistent with the arguments put forward in Bennedsen and Fan (2014) who argue that family assets are key in determining the optimal management structure of firms, whereas financial roadblocks are key to understanding a firm's ownership structure.

6. Conclusion

Using a novel dataset for the evolution of ownership and control of publicly traded firms in Japan we show that intangible family assets are important factors in understanding

the persistence of family control. In fact, we find that families exercise control over corporate assets even in the absence of material share ownership – aided in part by a nexus of friendly and stable investors around them, and in part by what are best described as soft family assets such as a family's name and reputation. The bottom line is that family control in Japan is more persistent than the very low equity ownership by founding families would indicate.

We also conclude that family and financial factors jointly determine the dilution of family ownership and loss of management control. We find suggestive evidence that financial variables are more important in explaining the dilution of ownership, whereas family assets are relatively more important in explaining the decision to delegate the top management job to outsiders.

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Figure 1
Family Ownership of Casio, Toyota Motor, Suzuki Motor (1960-2000)

This figure presents the founding family ownership of Casio, Toyota Motor and Suzuki Motor. The percentage of family shareholdings includes the ownership by the members of the founding family as well as by group companies. Vertical axis numbers are in percent.

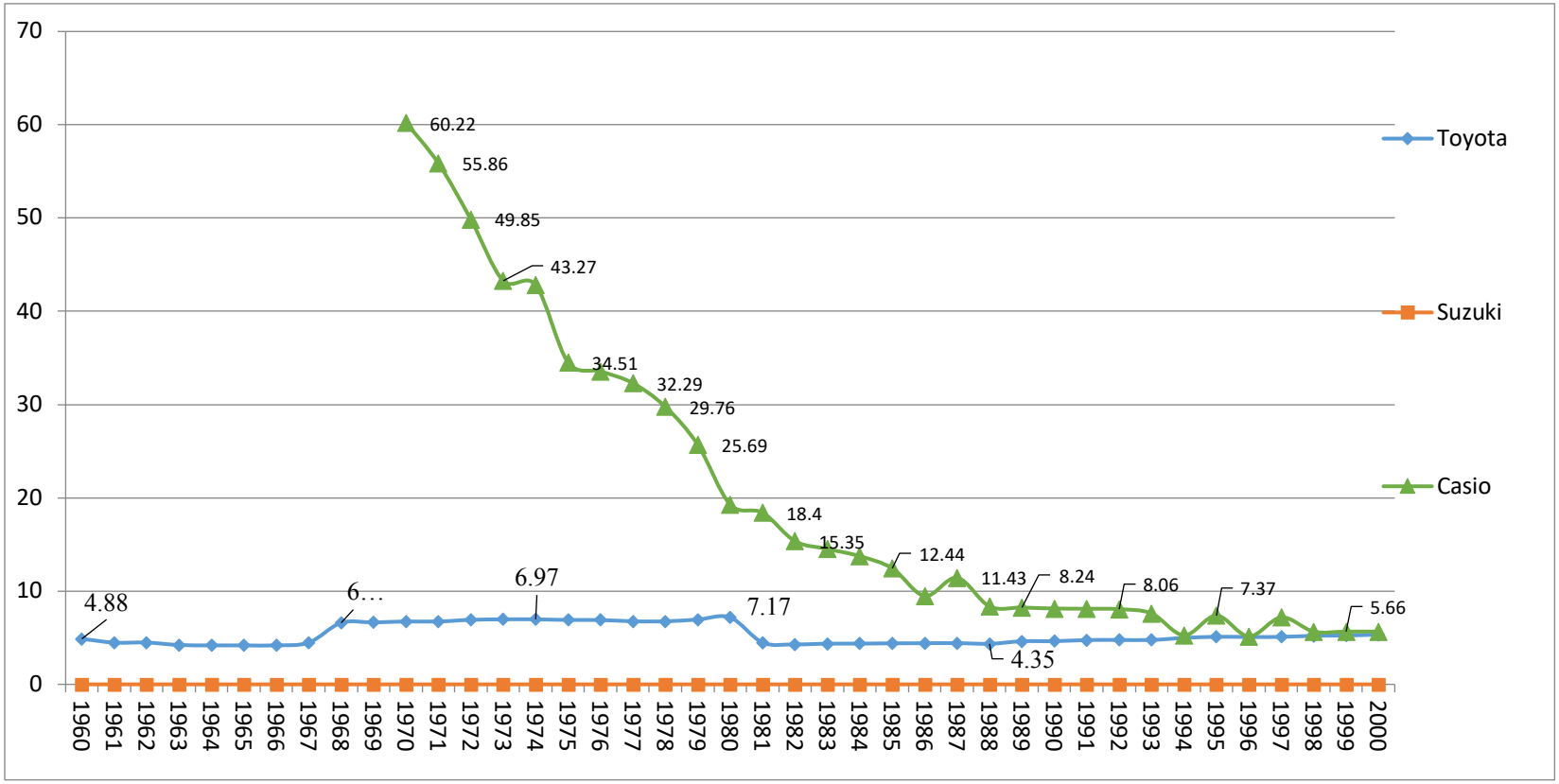


Figure 2
New listings on the Japanese Stock Exchanges (1949-2000)

This figure presents IPOs on all stock exchanges in Japan during the 1949-2000 period. 1949 marks the re-opening of the Tokyo Stock Exchange after the war. 1961 marks the spurt of new listings when the second tier of the Tokyo Stock Exchange was opened. Family firms are defined as those where the founding family either has at 5% ownership or serves as the CEO. Non-family firms are the remaining ones.

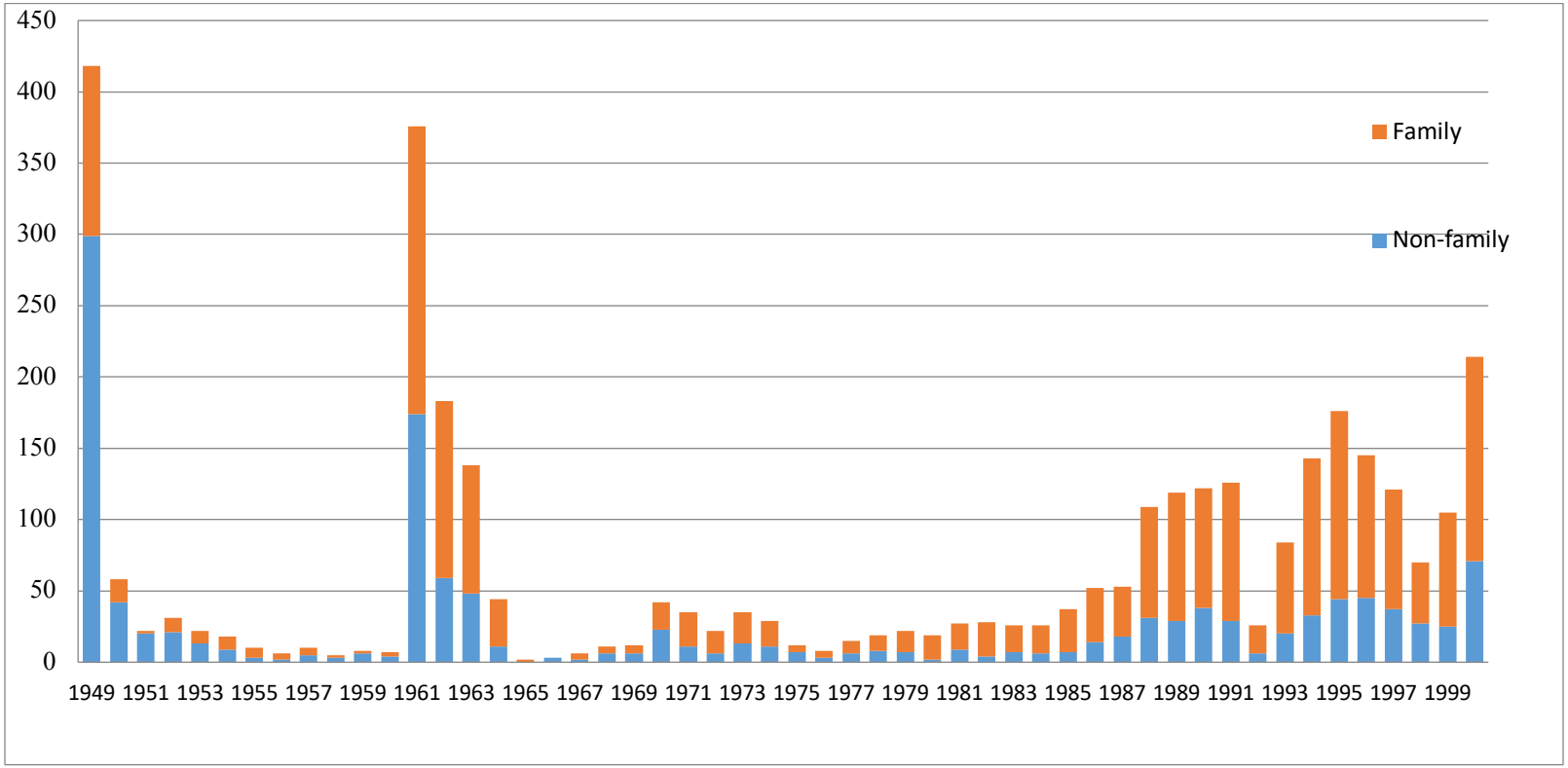
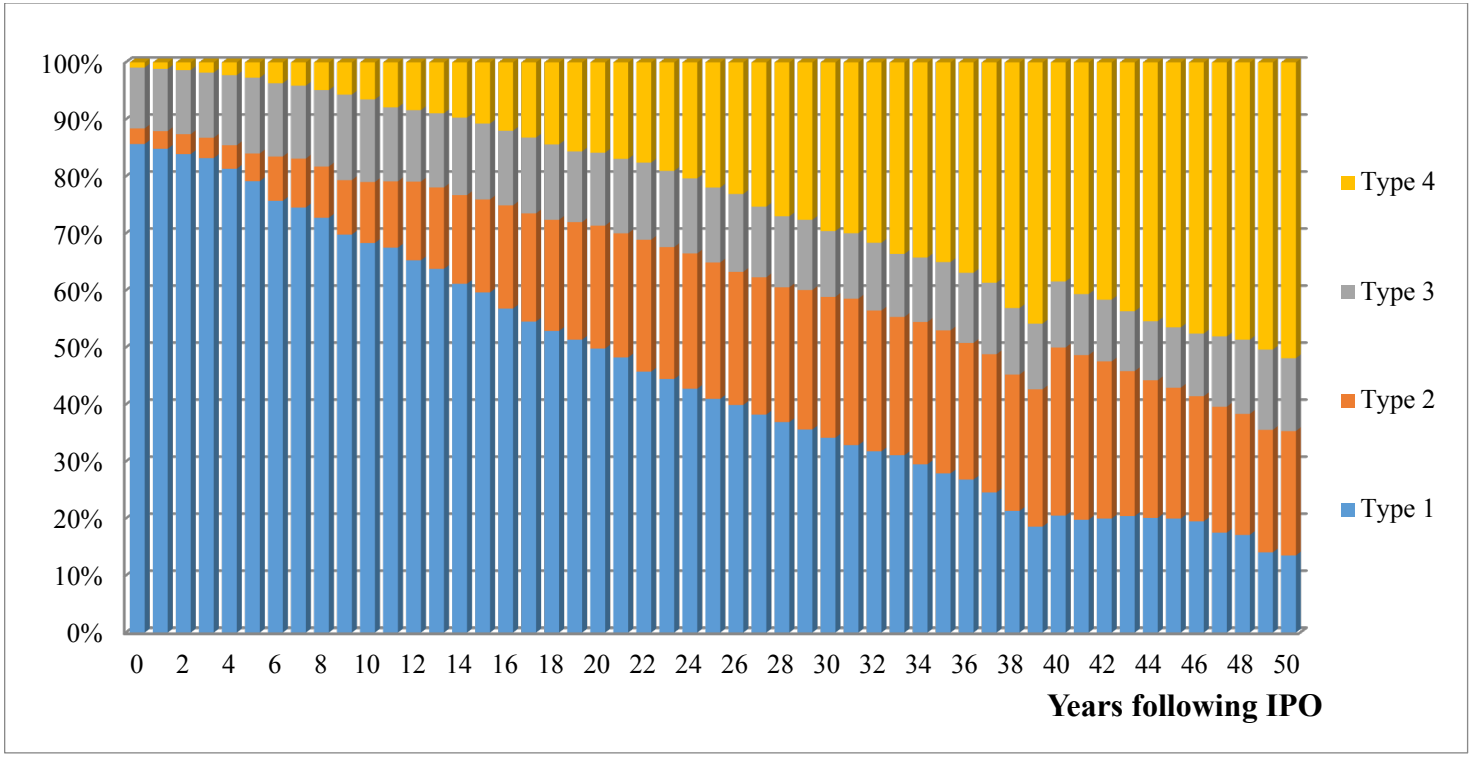


Figure 3
Panel A: Family's ownership & management in IPO Time, 5% ownership definition.

Type 1 are firms where the founding family has at least 5% ownership and the top management position. *Type 2* are firms where the family has less than 5% ownership but a family member serves as the top management position. *Type 3* are firms where the family has more than 5% of the shares but the top management position is not a family member. *Type 4* are ex-family firms, where the family ownership is no longer significant and the founding family does not hold the top management position. IPO time is measured in years past the IPO year. The sample includes all publicly traded firms in Japan covering the period of 1955-2000.



Panel B: Family's ownership & management in IPO Time, 20% ownership definition.

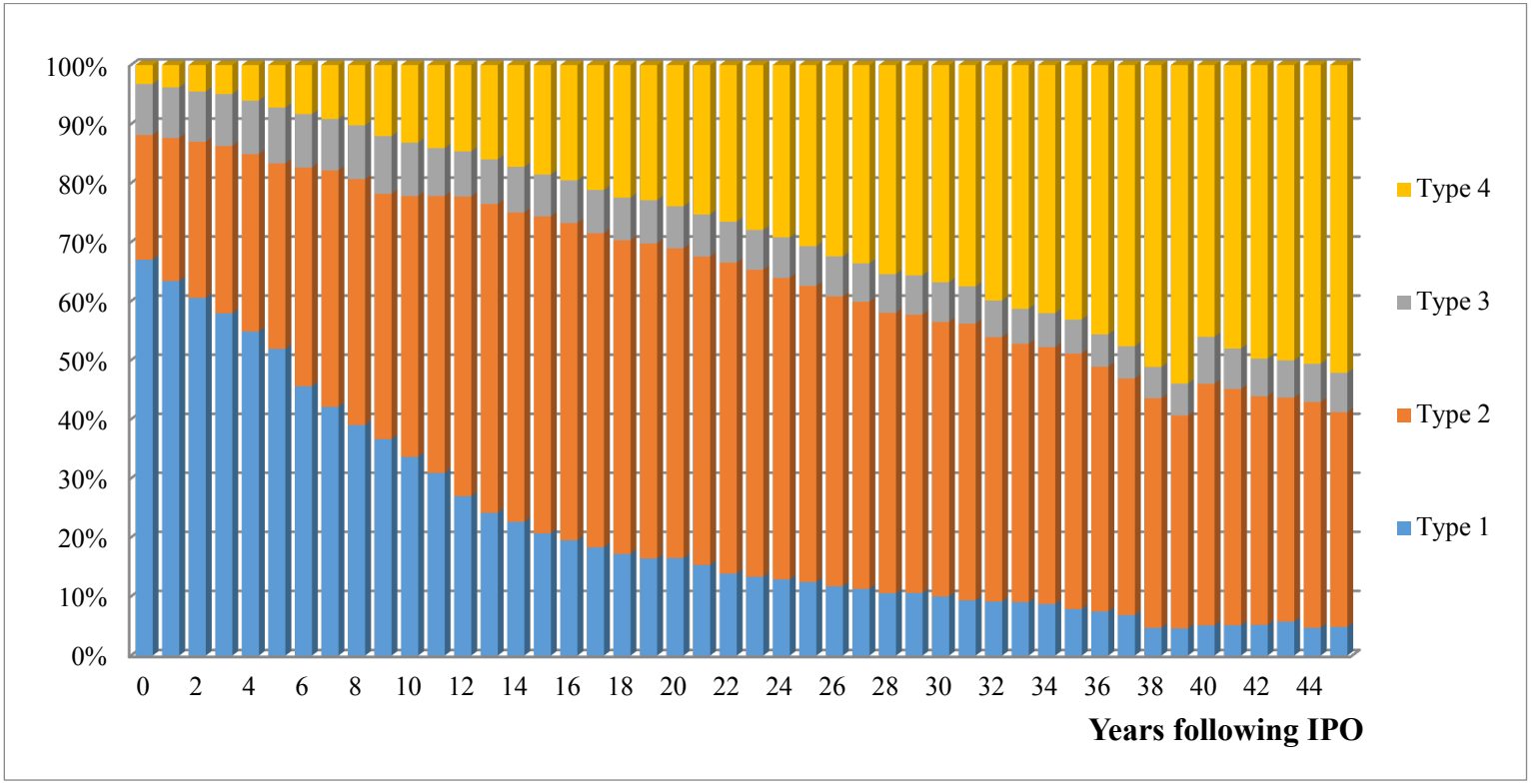
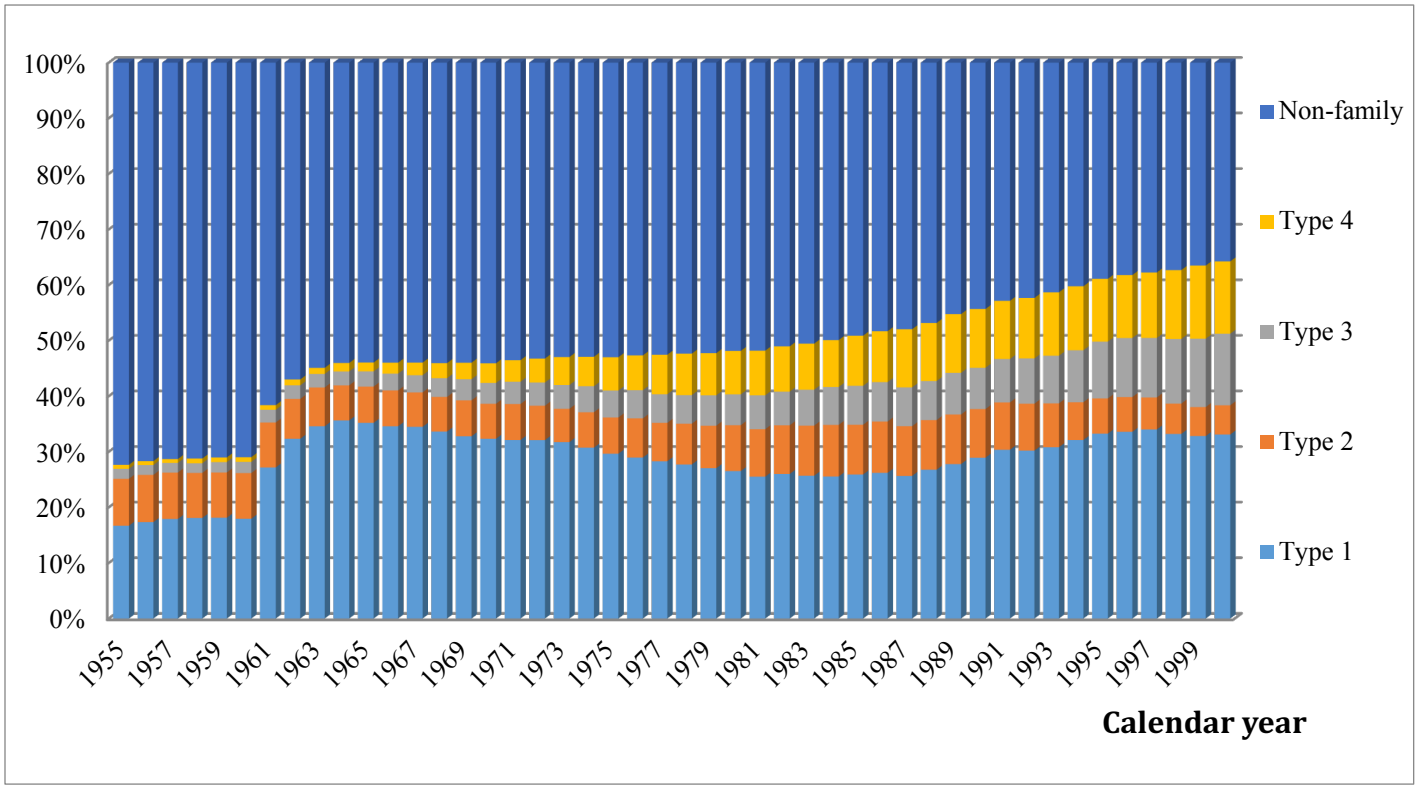


Figure 4
Panel A: Family's ownership & management in calendar years (1955-2000), 5% ownership definition.

Type 1 are firms where the founding family has at least 5% ownership and the top management position. *Type 2* are firms where the family has less than 5% ownership but a family member serves as the top management position. *Type 3* are firms where the family has more than 5% of the shares but the top management position is not a family member. *Type 4* are ex-family firms, where the family ownership is less than 5% and the founding family does not hold the top management position. These firms were family firms at the date of the IPO. *Non-family* are firms that were not family firms when they did an IPO. The sample includes all publicly traded firms in Japan covering the period of 1955-2000.



Panel B: Family's ownership & management in calendar years (1955-2000), 20% ownership definition.

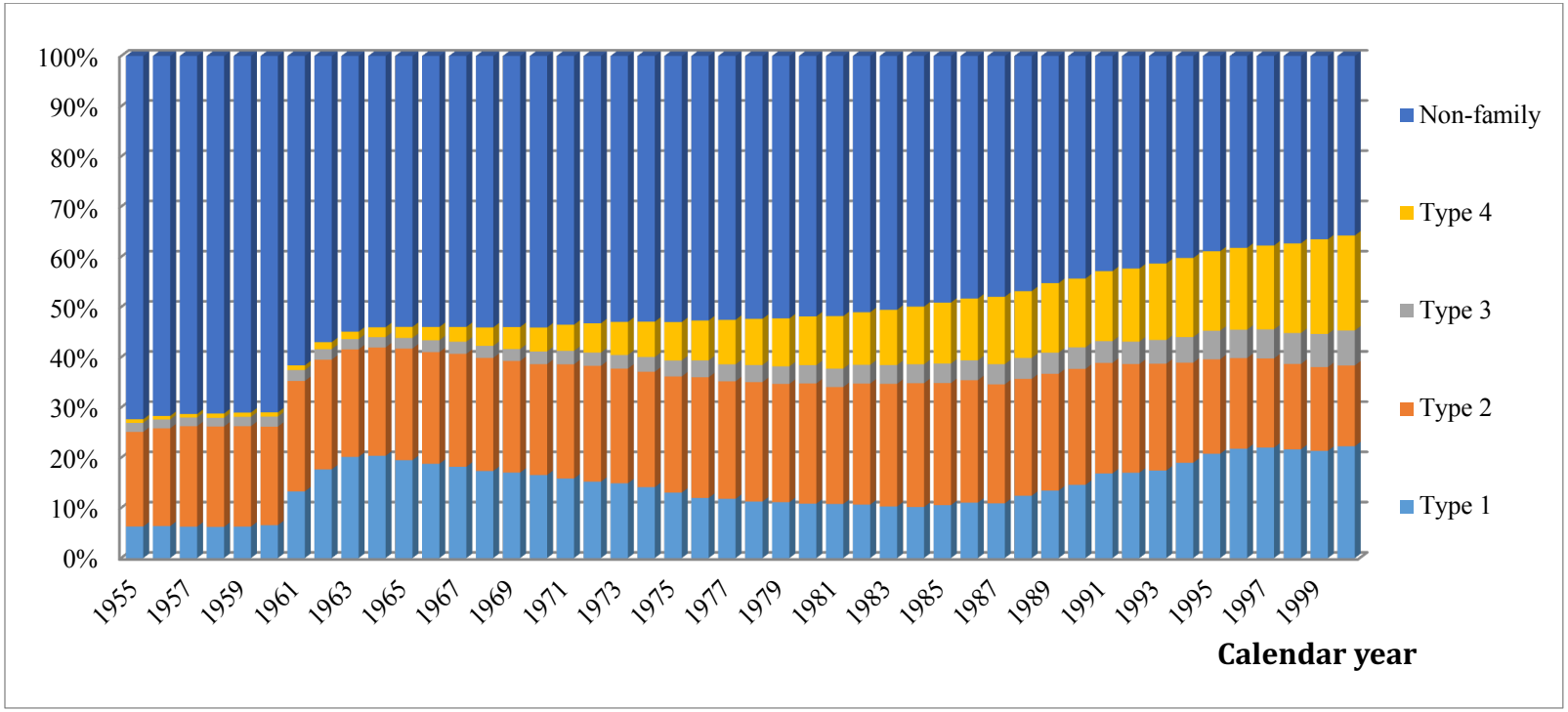


Figure 5
Family Ownership from IPO (1949-2000)

Family ownership for each firm in a given year is calculated as the percentage of total shares outstanding owned directly by the founding family as well as indirectly via companies that the family ultimately controls. The mean and median ownership level is calculated each year since the IPO time. The sample includes all publicly traded firms in Japan covering the period of 1949-2000.

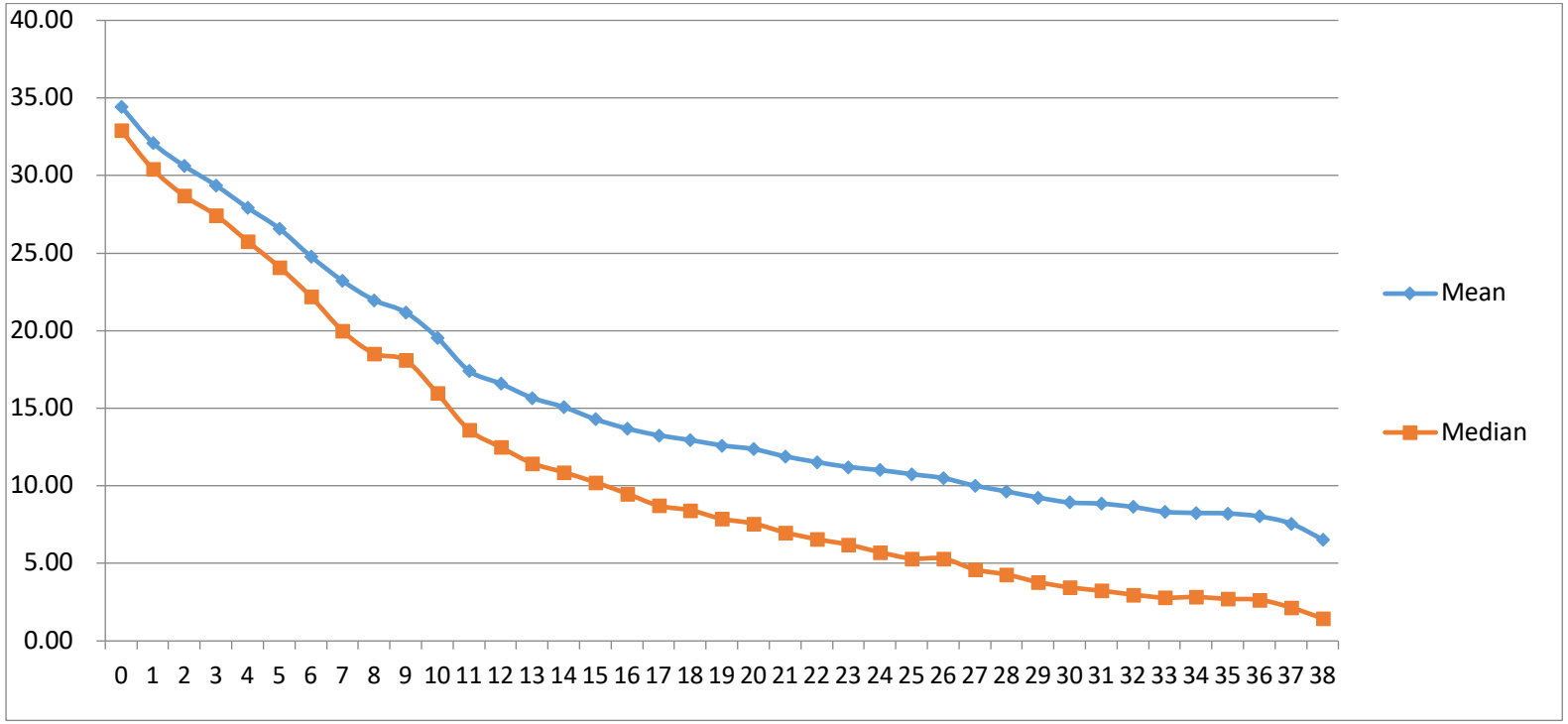


Table 1
Toyota Motor's Top 10 Shareholders

This table presents the top 10 shareholders of Toyota Motors at a fiscal year ending on March 31.

Fiscal year	Top 1	%	Top 2	%	Top 3	%	Top 4	%	Top 5	%	Top 6	%	Top 7	%	Top 8	%	Top 9	%	Top 10	%
1962	Toyo Trust	7.86	Toyota Industries	4.48	Mitsubishi Trust	3.82	Mitsui Bank	3.04	Tokai Bank	2.94	Daiwa Bank	2.86	Nippon Life	1.79	Sumitomo Trust	1.50	Sanwa Bank	1.45	Kyowa Bank	1.43
1970	Toyota Industries	4.48	Mitsui Bank	4.46	Tokai Bank	4.40	Sanwa Bank	4.02	Nippon Life	3.48	LTCB	3.35	Daiwa Bank	2.80	Toyo Trust	2.56	Kyowa Bank	2.28	Toyota Tsusho	2.16
1980	Mitsui Bank	4.98	Tokai Bank	4.94	Sanwa Bank	4.79	Toyota Industries	4.56	Nippon Life	3.90	LTCB	3.47	Toyota Tsusho	2.61	Daiwa Bank	2.56	Dai-ichi Life	2.46	Taisho Marine & Fire	2.26
1990	Sanwa Bank	4.96	Mitsui Bank	4.96	Tokai Bank	4.96	Toyota Industries	4.63	Nippon Life	3.75	LTCB	3.11	Mitsui Marine	2.46	Daiwa Bank	2.29	Mitsui Life	2.23	Dai-ichi Life	2.23
2000	Toyota Industries	5.34	Sanwa Bank	4.75	Mitsui Bank	4.33	Nippon Life	4.32	Tokai Bank	3.92	Chuo Trust	3.87	Japan Trustee Srvcs Bank	3.83	Chiyoda Bank	3.05	Mizuho Trust Bank	2.96	LTCB	2.73
2010	Japan Trustee Srvs Bank	####	Toyota Industries	5.83	Master Trust Bank	5.55	Nippon Life	3.78	State Street Bank & Trust	2.54	Trust & Custody Srvcs Bank	2.51	Bank of New York Mellon	2.31	Tokio Mar. & Nichido Fire	2.24	Mitsui Sumitomo Insurance	1.88	Denso	1.70
2015	Japan Trustee Srvs Bank	9.99	Toyota Industries	6.57	Master Trust Bank	5.29	State Street Bank and Trust	3.73	Nippon Life	3.39	Bank of New York Mellon	2.51	Trust & Custody Srvcs Bank	2.05	Denso	2.03	Mitsui Sumitomo Insurance	1.93	Capital Group	1.75

Table 2
Descriptive Statistics

Summary statistics for the variables used in the remaining tables. All variables are described in Appendix 1. ***, **, and * denote significance at the 1%, 5% and 10% levels.

Factors	Variables		Mean	S.D.	Min	Max
Control factors	CEO age	(1)	59.577	8.572	26	95
	CEO tenure	(2)	11.958	10.577	1	53
	CEO eliteness	(3)	0.228	0.420	0	1
Family factors	Family ownership	(4)	14.633	15.789	0	95.79
	Family legacy	(5)	0.319	0.466	0	1
	Family on the board	(6)	0.284	0.451	0	1
	ELITE family on the board	(7)	0.240	0.427	0	1
	Elite non-family on the board	(8)	0.804	0.397	0	1
	Stable ownership	(9)	23.688	18.077	0	95.79
Finance factors	ROA	(10)	4.750	4.572	-21.983	32.654
	Tobin Q	(11)	1.497	0.521	0.289	5.478
	Volatility of industry sales	(12)	20.710	1.413	14.331	23.995
	Firm size	(13)	17.345	1.409	12.782	23.226
	Leverage	(14)	19.960	14.124	0	91.963
	Equity issuance dummy	(15)	0.174	0.379	0	1
	Firm age	(16)	42.766	15.524	7	107
	Foreign ownership	(17)	1.026	4.687	0	89.8
	Time value for Cox regression	(18)	12.770	9.419	1	46

Table 3
Succession Transition Matrix

Panel A, Panel B, and Panel C describe the transition from Type 1, Type 2, and Type 3 to other categories, respectively. The statistics refer to the fraction of firms ending up in that Type. All variables are defined in Appendix 1.

Panel A: Transition from Type 1

	Family ownership	**No family ownership**
Family CEO	TYPE 1 Start stage	TYPE 2 0.36
Non-family CEO	TYPE 3 0.62	TYPE 4 0.03

Panel B: Transition from Type 2

	Family ownership	**No family ownership**
Family CEO	TYPE 1 0	TYPE 2 Start stage
Non-family CEO	TYPE 3 0	TYPE 4 1

Panel C: Transition from Type 3

	Family ownership	**No family ownership**
Family CEO	TYPE 1 0.45	TYPE 2 0
Non-family CEO	TYPE 3 Start stage	TYPE 4 0.55

Table 4
Univariate Differences Across Firm Types

Type 1 are firms where the founding family has at least 5% ownership and retains the top management position. *Type 2* are firms where the family has less than 5% ownership but a family member serves in the top management position. *Type 3* are firms where the family has more than 5% of the shares but the top manager is not a family member. *Type 4* firms are ex-family firms, where the family ownership is less than 5% and the founding family does not hold the top management position. All variables are defined in Appendix 1. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Family firm classification	Type 1	Type 2	Type 3	Type 4	Type 1-2	Type 1-3	Type 1-4	Type 2-3	Type 2-4	Type 3-4
ROA	5.292	4.225	4.740	3.432	1.0663***	0.5518***	1.8595***	-0.5145***	0.7932***	1.3077***
Tobin Q	1.490	1.493	1.575	1.454	-0.0059	-0.0953***	0.0261**	-0.0894***	0.0320***	0.1214***
Volatility of industry sales	20.68	20.59	21.049	20.71	0.0920***	-0.3681***	-0.0179	-0.4600***	-0.1099***	0.3501***
Firm size	16.96	17.84	17.578	17.84	-0.886***	-0.6219***	-0.8793***	0.2637***	0.0064	-0.2574***
Leverage	20.45	21.30	17.647	19.66	-0.857***	2.7979***	0.7901***	3.6548***	1.6470***	-2.0078***
Equity issuance dummy	0.195	0.165	0.162	0.12	0.0308***	0.0337***	0.0754***	0.0028	0.0446***	0.0418***
Firm age	38.61	48.55	41.908	50.03	-9.941***	-3.3005***	-11.4244***	6.6413***	-1.4825***	-8.1239***
Foreign ownership	0.668	1.137	0.894	2.133	-0.469***	-0.2262***	-1.4648***	0.2434*	-0.9953***	-1.2387***
Family ownership	21.26	0.00	26.404	0.00	21.2555***	-5.1483***	21.2555***	-26.4038***	0.00	26.404***
Family legacy	0.349	0.288	0.354	0.238	0.0605***	-0.0058	0.1103***	-0.0663***	0.0498***	0.1161***
Family on the board	0.316	0.251	0.316	0.141	0.0646***	-0.0001	0.1753***	-0.0647***	0.1107***	0.1754***
ELITE family on the board	0.262	0.295	0.254	0.106	-0.0336***	0.008	0.1561***	0.0417***	0.1898***	0.1481***
Elite non-family on the board	0.738	0.865	0.825	0.907	-0.1267***	-0.0866***	-0.1692***	0.0401***	-0.0425***	-0.0826***
Stable ownership	22.25	15.83	30.059	31.84	6.4220***	-7.8071***	-9.5899***	-14.2291***	-16.011***	-1.7828***

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CEO age	57.95	59.34	61.110	62.17	-1.3920***	-3.1636***	-4.2248***	-1.7715***	-2.8328***	-1.0613***
CEO tenure	16.57	14.03	5.009	4.569	2.5389***	11.5611***	12.0012***	9.0222***	9.4623***	0.4401***
CEO eliteness	0.145	0.219	0.287	0.387	-0.0742***	-0.1417***	-0.2419***	-0.0675***	-0.1677***	-0.1002***
Number of observations	14,697	4,606	3,821	5,393						

Table 5
Determinants of Ownership Dilution

This table presents pooled *OLS* regression estimates of Family Shareholdings (Panel A) and Family Half-life Ownership (Panel B) as dependent variables against family and finance factors. The regression includes fixed year and industry effects. All variables are as defined in Appendix 1. Standard errors are clustered by firms. *t*-statistics are reported in parentheses. ***, **, and * denote significance at the 1%, 5% and 10% levels.

Panel A: The dependent variable is the Percentage of Family Shareholdings

		Model 1	Model 2	Model 3
Finance factors	ROA	0.2393***		0.1784***
		(9.12)		(8.14)
	Tobin Q	1.8326***		1.5496***
		(7.42)		(7.60)
	Volatility of industry sales	-0.4937**		-0.4131**
		(2.57)		(2.49)
	Firm size	-1.7946***		-1.6165***
		(24.74)		(24.43)
	Leverage	-0.0543***		-0.0405***
		(7.50)		(6.64)
	Equity issuance dummy	-0.8419***		-0.8259***
		(3.87)		(4.52)
	Firm age	-0.2317***		-0.2047***
		(33.67)		(34.10)
	Foreign ownership	-0.2282***		-0.0590***
		(14.64)		(3.96)
Family factors	Family legacy		2.0228***	2.7292***
			(12.71)	(17.75)
	Family on the board		3.3226***	3.0317***
			(20.44)	(19.33)
	ELITE family on the board		4.1872***	5.1170***
			(21.24)	(27.06)
	Elite non-family on the board		-3.7619***	-2.0828***
			(19.69)	(11.21)
	Stable ownership		0.3977***	0.3721***
			(65.47)	(63.60)
Control factors	CEO age	-0.1653***	-0.2853***	-0.2132***
		(15.09)	(30.58)	(23.59)
	CEO tenure	0.1557***	0.3017***	0.2280***
		(18.08)	(41.94)	(32.48)
	CEO eliteness	-1.0674***	-3.9650***	-3.3263***
		(5.47)	(18.42)	(16.00)
	Constant	58.3212***	18.8215***	49.9143***
		(14.60)	(16.31)	(14.53)
	Number of observations	28303	28303	28303
	Pseudo R2	0.2069	0.3414	0.4059

Panel B: Dependent variable is Family Half-life Ownership

		Model 1	Model 2	Model 3
Finance factors	ROA	0.0621***		0.0638***
		(4.65)		(4.79)
	Tobin Q	-0.0692		-0.1590
		(0.60)		(1.38)
	Volatility of industry sales	0.0541		0.0722
		(0.61)		(0.81)
	Firm size	-0.7296***		-0.7926***
		(18.95)		(20.33)
	Leverage	-0.0083**		-0.0071**
		(2.39)		(2.04)
	Equity issuance dummy	0.0698		0.0732
		(0.62)		(0.65)
	Firm age	-0.0142***		-0.0180***
		(3.98)		(5.02)
	Foreign ownership	-0.0143**		-0.0277***
		(2.51)		(4.88)
Family factors	Family legacy		0.2831**	0.3502***
			(2.97)	(3.67)
	Family on the board		0.4798***	0.5702***
			(4.79)	(5.75)
	ELITE family on the board		0.7845***	1.0758***
			(6.53)	(9.03)
	Elite non-family on the board		-0.6337***	-0.0593
			(5.29)	(0.50)
	Stable ownership		-0.0263***	-0.0294***
			(11.38)	(12.85)
Control factors	CEO age	-0.0880***	-0.0879***	-0.0782***
		(15.48)	(15.32)	(13.66)
	CEO tenure	0.1363***	0.1306***	0.1240***
		(27.89)	(26.34)	(24.97)
	CEO eliteness	-0.0048	-0.4650***	-0.3446***
		(0.05)	(4.52)	(3.40)
	Constant	24.9892***	15.2289***	25.3672***
		(12.01)	(12.20)	(12.23)
	Number of observations	15396	15396	15396
	Pseudo R2	0.4056	0.3954	0.4201

Table 6
Determinants of Non Family CEO: Transition from Type 1 to Type 3

The dependent variable in the logistic regressions is defined as an event when a Type 1 firm transitions to become a Type 3 firm. All variables are defined in Appendix 1. *t*-statistics are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

		Model 1	Model 2	Model 3
Finance Factors	ROA	-0.0750***		-0.0817***
		(4.30)		(4.62)
	Tobin Q	0.3039**		0.3047**
		(2.21)		(2.22)
	Volatility of industry sales	0.0536		0.0731
		(0.43)		(0.58)
	Firm size	0.0173		-0.0012
		(0.31)		(0.02)
	Leverage	0.0002		0.0000
		(0.04)		(0.01)
	Equity issuance dummy	0.1990		0.2132
		(1.11)		(1.19)
	Firm age	-0.0094*		-0.0084
		(1.90)		(1.52)
	Foreign ownership	0.0065		0.0087
		(0.34)		(0.52)
Family Factors	Family ownership		0.0116***	0.0117**
			(2.60)	(2.32)
	Family legacy		-0.0895	-0.0788
			(0.61)	(0.54)
	Family on the board		0.5751***	0.6101***
			(4.36)	(4.55)
	ELITE family on the board		-0.2154	-0.2049
			(1.25)	(1.15)
	Elite non-family on the board		0.2761*	0.2964*
			(1.74)	(1.81)
	Stable ownership		-0.0099**	-0.0099**
			(2.19)	(2.19)
Control Factors	CEO age	0.0614***	0.0577***	0.0604***
		(7.03)	(6.55)	(6.70)
	CEO tenure	0.0240***	0.0265***	0.0253***
		(4.19)	(4.67)	(4.32)
	CEO eliteness	0.0784	0.1529	0.1569
		(0.43)	(0.78)	(0.79)
	Number of observations	21110	21110	21110
	Number of transitions	299	299	299
	Pseudo R2	0.1125	0.1107	0.1205

Table 7
Determinants of Control without Ownership: Transition from Type 1 to Type 2

The dependent variable in the logistic regressions is defined as an event when a Type 1 firm transforms to become a Type 2 firm. All variables are defined in Appendix 1. *t*-statistics are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

		Model 1	Model 2	Model 3
Finance factors	ROA	-0.0239		-0.0091
		(1.33)		(0.44)
	Tobin Q	0.0603		0.1364
		(0.38)		(0.90)
	Volatility of industry sales	0.3332		0.2796
		(1.79)		(1.46)
	Firm size	0.1544***		-0.0339
		(2.65)		(0.49)
	Leverage	0.0207***		0.0220***
		(3.70)		(3.82)
	Equity issuance dummy	0.5114***		0.5206***
		(3.31)		(3.31)
	Firm age	0.0025		-0.0134**
		(0.52)		(2.34)
	Foreign ownership	0.0253		0.0007
		(1.32)		(0.03)
Family factors	Family ownership		-0.1002***	-0.1109***
			(7.78)	(7.72)
	Family legacy		-0.2146	-0.0782
			(1.42)	(0.50)
	Family on the board		-0.1281	-0.1635
			(0.80)	(1.01)
	ELITE family on the board		0.2033	0.3007*
			(1.15)	(1.65)
	Elite non-family on the board		0.1823	0.1944
			(0.96)	(1.00)
	Stable ownership		-0.0402***	-0.0398***
			(4.80)	(4.73)
Control factors	CEO age	-0.0174**	-0.0290**	-0.0245***
		(2.08)	(3.13)	(2.61)
	CEO tenure	0.0154**	0.0268***	0.0208***
		(2.49)	(3.84)	(2.98)
	CEO eliteness	-0.2406	-0.4639**	-0.4517**
		(1.28)	(2.36)	(2.26)
	Number of observations	19626	19626	19626
	Number of transitions	233	233	233
	Pseudo R2	0.0574	0.1414	0.1566

Table 8
Determinants of Exit: Transition to Type 4

The dependent variable in the logistic regressions is defined as an event when a Type 1, 2, and 3 firm transforms to become a Type 4 firm. All variables are defined in Appendix 1. *t*-statistics are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Panel A: Determinants of transformation of family firms (Type 1, 2, and 3) to Type 4

		Model 1	Model 2	Model 3
Finance factors	ROA	-0.0873***		-0.0748***
		(5.02)		(4.15)
	Tobin Q	0.0060		0.0730
		(0.04)		(0.47)
	Volatility of industry sales	-0.0057		-0.0518
		(0.05)		(0.44)
	Firm size	0.1239***		0.0109
		(2.68)		(0.21)
	Leverage	0.0115***		0.0094**
		(2.75)		(2.09)
	Equity issuance dummy	-0.1969		-0.2001
		(1.15)		(1.15)
	Firm age	-0.0032		-0.0162***
		(0.74)		(3.38)
	Foreign ownership	0.0400***		0.0319**
		(3.10)		(2.32)
Family factors	Family ownership		-0.0804***	-0.0828***
			(10.10)	(9.59)
	Family legacy		-0.2712**	-0.2275*
			(2.14)	(1.69)
	Family on the board		-0.4622***	-0.4166***
			(3.43)	(3.06)
	ELITE family on the board		-0.8904***	-0.8927***
			(5.03)	(4.88)
	Elite non-family on the board		0.1481	0.1705
			(0.91)	(1.02)
	Stable ownership		0.0235***	0.0239***
			(5.97)	(6.12)
Control factors	CEO age	0.0561***	0.0525***	0.0560***
		(8.47)	(7.51)	(8.03)
	CEO tenure	-0.0251***	-0.0235***	-0.0250***
		(4.62)	(3.86)	(4.08)
	CEO eliteness	0.2800**	0.7412***	0.7812***
		(2.14)	(4.60)	(4.72)
	Number of observations	22622	22622	22622
	Number of transitions	369	369	369
	Pseudo R2	0.0758	0.1343	0.1500

Panel B: Determinant of transformation for each type of family firms to Type 4 Firms

		Type 1 to 4	Type 2 to 4
		Model 1	Model 2
Finance factors	ROA	-0.2015**	-0.1267***
		(3.20)	(5.83)
	Tobin Q	0.8060	-0.2120
		(1.71)	(0.85)
	Volatility of industry sales	-0.9772**	-0.1186
		(2.19)	(0.70)
	Firm size	-0.2019	0.3276***
		(0.70)	(4.89)
	Leverage	0.0199	0.0078
		(0.98)	(1.32)
	Equity issuance dummy	-0.4256	-0.3534
		(0.58)	(1.43)
	Firm age	-0.0394	0.0166***
		(0.85)	(3.26)
	Foreign ownership	-0.0146	0.0449***
		(0.43)	(3.43)
Family factors	Family ownership	0.0092	
		(0.45)	
	Family legacy	0.1216	-0.3769**
		(0.18)	(2.10)
	Family on the board	-0.7092	-0.3561**
		(0.86)	(1.99)
	ELITE family on the board	-2.8273**	-0.4631***
		(2.12)	(2.62)
	Elite non-family on the board	0.5052	0.3021
		(0.65)	(1.25)
	Stable ownership	-0.0418***	0.0006
		(2.66)	(0.11)
Control factors	CEO age	-0.0091	0.0527***
		(0.18)	(5.14)
	CEO tenure	0.0961***	0.0155***
		(2.62)	(2.62)
	CEO eliteness	1.7525	0.4059**
		(1.57)	(2.30)
	Number of transitions	18	204
	Pseudo R2	0.2457	0.1176

Appendix 1

Variable Definitions

Variable	Variable Definition
Ownership & control variables	
Family shareholdings	Fraction of total shares controlled by the founding family
Half-life Ownership	Family half-life ownership
Type 1 firms	Firms where the founding family retains both significant ownership (at least 5% of the shares) and top management position as the CEO.
Type 2 firms	Firm where the founding family's ownership is insignificant but one of its members is the CEO
Type 3 firms	Firm where founding family retains significant ownership but none of its members is the CEO
Type 4 firms	Firm where founding family neither retains significant ownership nor as the CEO
Family factor variables	
Family legacy	Dummy variable set to 1 when the founding family name and firm name are the same; set to 0 otherwise
ELITE family on the board	Dummy variable set to 1 when there is at least one ELITE family on the board; set to 0 otherwise
ELITE non family on the board	Dummy variable set to 1 when there is at least one ELITE non-family on the board; set to 0 otherwise
Elite Education	Dummy variable set to 1 if an executive has a bachelor degree from a top national university, defined as former Imperial universities (Tokyo, Kyoto, Osaka, Nagoya, Kyushu, and Hokkaido University) as well as Kobe and Hitotsubashi University; set equal to 0 otherwise
Stable ownership	The percentage of shareholdings by the shareholders who were listed in the top 10 shareholders for at least 5 consecutive years
Financial factor variables	
ROA	Return on Assets defined as operating income scaled by total assets
Tobin Q	The market value of equity plus the book value of debt scaled by total assets
Volatility of industry sales	Standard deviation of sales of the industry where the firm operates in the past 5 years. The industry is measured at the 2-digit SIC code.
Firm size	The natural log of total assets
Leverage	Total outstanding debt scaled by total assets
Equity issuance dummy	Dummy variable set equal to 1 if firms experience the change of share outstanding from previous year more than 10%; set 0 otherwise
Firm age	The number of years since incorporation
Foreign ownership	Fraction of shares held by foreign investors who are listed in the top ten shareholders

Variable	Variable Definition
Control variables	
CEO age	Age of the CEO
CEO tenure	Number of years as the CEO
ELITE CEO	Dummy variable indicating whether the CEO has a bachelor degree from an elite university