

Adoptive Expectations: Rising Son Tournaments in Japanese Family Firms

Abstract

A uniquely Japanese custom of adopting male heirs into business families allows family firms in Japan to overcome the constraint of sub-optimal succession faced by family firms elsewhere. Using a very large panel of exchange-listed firms from post-war Japan, we show that heir-managed firms perform at least as well, and in most cases better than, non-family firms in Japan. We further show that adopted heirs display superior performance compared with direct descendants, with both groups outperforming non-family firms. Keiretsu-affiliated non-family firms stack at the bottom of the group in terms of performance as well as valuation. Adopted heirs, perhaps not surprisingly, have superior educational qualifications compared with direct descendants, who in turn are better educated than founders. The average tenure of adopted heirs is 18 years in the top executive's position, very similar to descendent heirs, and significantly longer than the tenure of professional CEOs (7 years).

“Wealth will not pass beyond three generations.” Chinese proverb.

1. Introduction

If business acumen, intelligence and skill are hereditary traits, family firms ought to dominate economic activity. If these traits are not inherited, family firms are doomed in due course. This is the essence of the argument against family firms. To be sure, there are agency cost benefits of family ties in business affairs. In a model of family firms proposed by Burkart, Panunzi and Shleifer (2003), family control arises endogenously by trading-off a sub-optimal succession search against the relative cost of agency that varies with the external contracting environment. In developed economies with strong legal systems, the broad thrust of the evidence suggests that the agency cost benefits assumed for family firms are small compared with the attendant costs of a shallow talent pool for succession purposes.¹ The reverse appears to be true for less developed economies.²

In this paper we examine the comparative performance of family firms in Japan, using a very large panel of data containing all new listings on major Japanese stock exchanges from

¹ Bertrand and Schoar (2006) sum up the evidence on heir-managed firms as follows: “How much systematic evidence is there for the economic superiority of family controlled businesses? A reading of the empirical literature so far suggests: not a lot.”

² For e.g., Khanna and Palepu (2000) find that family firms are associated with superior performance in India, and Khanna and Rivkin (2001) find similar evidence in other emerging economies. In fact, noting the differing fortunes of family firms in developed and emerging economies, Morck, Wolfenzon and Yeung (2005) observe that family firms do best in the worst countries, and the worst in the best countries.

1949 through 1970, and track their performance through 2000. A distinctive feature of succession among Japanese family firms is the possibility of adopting outsiders into the family should own progeny be uninterested, unwilling, or unable to do the job. This willingness to bring in outside blood into family business succession from time to time can potentially overcome to a large extent the issue of sub-optimal successions in family firms put forward in Burkart et al (2000) by increasing the size of the talent pool available to successive generations of family control.³

We believe that Japan is unique among Western economies where such a custom flourishes – in fact, even among other East Asian countries, the custom of adoption has played a negligible role as an heir management strategy.⁴ To the best of our knowledge, prior research has not examined the case of succession in Japanese family businesses, and the performance of family controlled businesses in Japan. Whether the uniquely Japanese custom of adoptions into business families is widespread, and whether it has a material impact on the performance of family firms, is the subject of the investigation in this study.

³ Quote from a scion of the Mitsui family: "...much rather have daughters than sons, because then I can choose my sons."

⁴ See for e.g., an excellent survey of adoptions in mid to late 19th century Japan by Kurosu and Ochiai (1995). The authors document the widespread prevalence of male heir adoptions during this period in the Japanese peasantry, with the majority of adoptees being in the 20-30 age group.

Recent research has shown that family firms are generally the most common firms among listed companies in most countries around the world today.⁵ For example, La Porta, Lopez-de-Silanes, and Shleifer (1999) find that among wealthy countries, concentrated ownership, typically held by families, is the norm rather than the exception. Faccio and Lang (2002) and Claessens, Djankov, Fan, and Lang (2002) find that family firms are prevalent in several Western European and East Asian countries. Anderson and Reeb (2003), Palia and Ravid (2003) and Villalonga and Amit (2006) find that in the U.S. too family firms are more widespread than generally assumed, although the definition of what constitutes family firms in these studies is looser than those based on European or Asian data. A prominent feature of family firms is that the founding family members often own a large cash flow stakes and play multiple roles in managing and governing the firm family firms. The ownership and direct participation in the top management give the founding family a considerable power over these firms which sometimes the family is very dominant and uncontested.

Two stylized facts emerge from recent evidence and establish a sort of pecking order of performance vs. control. Firms that are run by the founder display superior performance

⁵ The U.K. seems to be one of a handful of exceptions to the family dominance rule in business. Franks, Mayer and Rossi (2004) argue that an important feature of family firms in the U.K. was their separation of ownership from board presence. Acquisitions further marginalized the family in these firms, such that today the ownership structure of U.K. and continental European firms diverged further in the post-war period.

compared to non-family firms. Second, the current state of research on family firms has generally cast second or later generation heir-managers in an unfavorable light. In fact, many family businesses do not survive beyond the second generation. A failure to develop the founder's business, together with disputes over dividing up the spoils, is usually instrumental in the demise of family firms. This finding indicates a serious problem not only to family businesses and their employees, but also to resource allocation in the larger economy.

In this study we focus on the performance of family firms in Japan, utilizing a sample of nearly all listings on the major Japanese exchanges between 1949 and 1970. We classify all listings based on detailed ownership and control data not only at the time of listing, but also each year until the end of 2000. Our performance range spanning 1962 until 2000 is also unique in that it provides a rare opportunity to examine family firms over a long period of time allowing an examination of generational effects, as well as firms where the family has slipped out of control and ownership.

The data also allow us to generate very detailed family influence groupings. Specifically, as in Villalonga and Amit (2006), we are able to separate the effects of family ownership from family control and management. We are also able to separate founder members of the family from their heirs, and we split heirs into direct biological descendents and adoptees. We separately categorize firms where families have significant ownership stakes, but

stay out of top management – these firms are referred to as *salariman*⁶-managed firms. Our data also allow us to compare the educational qualifications of these various groups.

Among non-family groups, we distinguish between keiretsu and non-keiretsu affiliated firms. Finally, given the panel nature of our data, we have many firms that start out as family firms, but where families eventually lose both significant ownership as well as management control. We refer to these firms as former family firms, and designate a separate category for them.

Our main results are that founder-managed firms display superior performance relative to all other groupings. This is consistent with the prior literature on family firms. However, we believe that the apparent success of founder-managed firms is largely driven by a sampling selection bias in our study, and indeed, in many of the studies referred to earlier. Specifically, an examination of founder-managed firms that are listed on an exchange constitutes a positively biased sample because we do not get to see founder-managed firms that did not make it to exchange listing. A similar bias exists in prior studies using samples drawn from elite lists such as Fortune 1000 or S&P 500, where founder-managed firms are found to be associated with superior performance and valuations. Without knowing the performance or valuation of

⁶ Salariman is a uniquely Japanese term denoting white collar workers, who tend to be overwhelming male. We use the term somewhat loosely here, including top management in the group, though strictly speaking executives are excluded from the Salariman moniker.

founder-managed firms that do not get listed, or are not part of S&P or Fortune lists, it is difficult to draw inferences regarding the performance of the population of founder-managed firms.

Our main focus is on heir-managed firms. We distinguish between direct descendants and adopted heirs. In contrast to the literature, we find that heir-managed firms do not under-perform and are not under-valued relative to non-family firms. In fact, most of our results show that heir-managed firms perform better and are valued significantly higher than non-family firms. Within the heir-managed group of firms, we find that adopted heirs display superior performance relative to direct descendent heirs. We believe there are two explanations for our results on heir-managed firms.

First, the possibility of adoptions implies that really poorly performing firms are somewhat more compelled to take in suitable candidates as adoptees, given natural bequest motives. Second, the very possibility of adoptions provides additional incentives to descendent heirs to work hard lest their family fortune be diluted by non-family blood. On both counts the observed performance of heir-managed firms is expected to be superior relative to heir-managed firms in other countries where the custom of adoptions is non-existent.

In some cases the family continues to own significant shares in the firm, but is absent from active management. We call these cases *salariman*-managed firms, and find that they neither out-perform nor under-perform non-family firms, though their performance is marginally

inferior to family managed firms. Within non-family firms, keiretsu affiliation appears to be associated with the worst relative performance.

Other results show that there is no material difference between the longevity of family vs. non-family firms. Founders typically have a lower educational qualification than heirs, and adopted heirs have superior educational qualification than direct descendents. The tenure length in the CEO's office is similar for descendent and adopted heirs, but considerably shorter for professional managers.

The rest of the paper is organized as follows. In section 2 we describe our sample and data. Section 3 presents our results, and section 4 concludes.

2. Data Description

2.1 Sample selection and data sources

We study only non-financial that went public on the Tokyo, Nagoya, Fukuoka and Osaka Stock Exchanges from 1949 (when the stock exchanges reopened after the war) through 1970. We investigate these firms from 1962 and follow them through 2000 or until they are no longer listed on the exchanges, whichever comes first.⁷ We start our analysis from 1962 simply

⁷ Between 1950 and 1990, we found only 12 incidents of delisting from the exchange. An additional 97 firms were de-listed between 1990 and 2000. The remarkable longevity of Japanese firms prior to 1990 has not been commented upon in the literature to the best of our knowledge.

because of the availability of the financial data. From 1962 onwards listed firms began to disclose detailed financial data in the annual report following the stock exchanges' disclosure requirement. Sample firms include firms that have the complete data on the ownership, board, and financial variables during that period. Our sample includes 1,355 firms out of 1,435 new listings between 1949 and 1970, and comprises 50,674 firm-year observations. **Table 1** provides the sample description.

We construct our dataset using different data sources. The *Development Bank of Japan* database provides equity ownership data from 1981 through 2000 and accounting data from 1962 through 2000. The *Toyo Keizai* database provides board data from 1989 through 2000. For prior and any years with missing data, we hand-collect additional ownership, board, and financial data from print copies of the company annual reports. Ownership data in Japanese annual reports contain the holdings of the top 10 shareholders. Board data include detailed information on board members such as the education backgrounds (university name, major, and graduation year), date of birth, the year entering the firm, the year assuming each board position, and previous working experience.

We obtain the personal information on the founder, the founding family, the family relationships, and the company history from multiple data sources: (1) the company anniversary books (that were published to celebrate its 30th, 50th, 70th, and 100th year of establishment), (2)

various books in Japanese published by Toyokeizai Shimposha (1995), Jobanshoin (1977), Jihyosha (1994), Zaikai Kenkyusho (1983), and University of Tokyo Press (2002), (3) corporate websites, (4) the Nikkei telecom 21 database which provides corporate news from 1972 collected from the four Nikkei newspapers namely the Nikkei's Japanese daily newspapers (Nihon Keizai Shimbun), the Nikkei Business Daily, the Nikkei Financial Daily and the Nikkei Marketing Journal, and (5) web searches on family relationships from various Japanese news websites. We use all the information to construct family trees which show the names of all the members of the founding family and the relationships among the family members. This information is used to identify the founder(s), the ultimate owners, and whether the Chairmen/CEOs are related to the founding family by blood, marriage or adoption.

2.2 Definition of founders and family firms

We define family firms first in the broadest possible way, and then narrow it down to include only those firms where a member of the original founding family remains in control or retains significant ownership. The broad definition of family firms includes all firms where the founder or his progeny hold significant equity and/or control. Within this broad genus of family firms, we provide sub-classifications based on generation and blood lineage. Exact thresholds are described below.

Our definition of founder is similar to the one used by Villalonga and Amit (2006). We consider the individual who established the company as the founder. He may or may not be the same one who incorporated the company or who took the company public. A few remarks are in order. First, in a few cases, we find individuals who took control over a company by acquisition – for example, Seiji Tsutsumi acquired Credit Saison in early 1970s. We label these individuals as the founder of the company in question even though they did not found the company. For older firms, the founder is defined as the individual whose family members have remained as a top-ten shareholders or have retained a board position after the founder died. Family is defined as individuals who are related to the founder by blood, marriage, or adoption.

To define family firms, we start the classification process by recording all firms where the founding family is among the top 10 owners and/or occupying the board positions. All firms that do not meet these thresholds are classified as non-family firms. We define firms where the founder is the CEO/Chairman or a board member with the company's representative power as *founder-run firms*. The firms are defined as *heir-run firms* when the CEO/Chairman is a descendant of the founder. We further classify the *heir-run firms* into two categories: *descendent-run firms* and *non-blood heir-run firms*. Non-blood heirs are outsiders who are related to the founding family by marriage, adoption, or both. More specifically, we define a non-blood heir as (1) an adoptee that legally took the founding family's surname and (2) a

son-in-law who is married into the founding family, and (3) a son-in-law who is also adopted into the family.⁸ In addition, we include a few cases when the CEO who is related to the founding family via marriage but does not fall into the three definitions. Finally, when a firm is owned by the founding family but none of the family members is the CEO/Chairman, the firm is professionally managed and we refer to these firms as *Salariman managed firms*.

A total of 775 firms of our sample of 1356 firms, approximately 57%, are non-family firms by the above definition. Of the 581 family firms, 268 (46%) are founder managed, 216 (37%) are heir-managed, and 41 (7%) are managed by professionals (by the so-called Salariman in Japan). We distinguish between salariman cases that are transient (replaced by family members) vs. those that are not. Approximately 10% of the family-controlled firms are managed by adopted heirs. **Table 1** provides these details.

We classify non-family firms into two groups: keiretsu-affiliated firms and non-keiretsu firms. We use a broad definition of keiretsu based on keiretsu no kenkyu – this grouping includes firms belonging to the Mitsui, Mitsubishi, Sumitomo, Fuji, Daiichi Kangyo or Sanwa group.

⁸ The institution of marriage-based adoptions is very different from sons-in-law. For e.g., businesses often use marriage as an alliance in many parts of the world; however, marriage based adoptions are uniquely Japanese. In other East Asian countries, adoptions through marriage are exceedingly rare and generally frowned upon.

2.3 Description of Data

We measure performance using two variables: return on assets (ROA) and a measure of Tobin's Q ratio. ROA is defined as the ratio of operating income to book assets⁹. Q is defined as the market value of equity plus book value of all other liabilities divided by the book value of assets. Control variables used in panel regressions are defined as follows. Leverage is defined as the ratio of long-term debt to total assets. Other variables definitions are self-explanatory.

3. Results

We start first with a three-way comparison of founder managed vs. heir-managed vs. non-family firms (see **table 2**). Founder managed firms display superior performance (ROA) as well as valuation (based on Q -ratios) vis-à-vis both heir-managed and non-family firms. Heir-managed firms, in turn, out-perform and are valued higher than non-family firms. The hierarchy of performance established here is confirmed in the multivariate analyses to follow below.

Our multivariate results are based on pooled OLS regressions with industry and year fixed effects; all t-statistics are corrected for clustering using the Huber-White correction. We

⁹ Assets are adjusted for both cross shareholdings (using the Nikkei Index) and real estate holdings (using the Japanese real estate index).

use the following equations (1a) and (1b) to estimate the regression coefficients. Family Dummy describes the type of family ownership and/or management. Control variables are as discussed before. We start first with the broadest definition of family firms, including founders and heirs.

$$ROA_{i,t} = a_i + \sum_{j=1}^M b_{j,i} \cdot FamilyDummy_{i,t} + \sum_{j=1}^5 c_{j,i} \cdot Control_{i,t} + \sum_{j=1}^{38} d_{j,i} \cdot YearDummy_{i,t} + \sum_{j=1}^{26} h_{j,i} \cdot IndustryDummy_{i,t} + e_{i,t} \quad (1a)$$

$$Q_{i,t} = a_i + \sum_{j=1}^M b_{j,i} \cdot FamilyDummy_{i,t} + \sum_{j=1}^5 c_{j,i} \cdot Control_{i,t} + \sum_{j=1}^{38} d_{j,i} \cdot YearDummy_{i,t} + \sum_{j=1}^{26} h_{j,i} \cdot IndustryDummy_{i,t} + e_{i,t} \quad (1b)$$

Table 3 presents these results. In both the ROA and Q regressions, the coefficient for the dummy variable for family firms is positive and significant at better than 1% level. These results indicate the family firms on average display superior performance and are more highly valued than non-family firms, and are consistent with the evidence provided in Villalonga and Amit (2005).

Control variables generally display predicted signs. For instance, leverage is seen as negatively related to performance, consistent with the evidence from cross-sectional studies and with the pecking order view of capital structure. Firm size and sales growth are both positively related to performance, perhaps a consequence of higher profitability. We are therefore careful not to infer any causality in these coefficients. Firm age is seen as negatively related to

performance – perhaps a reflection of life-cycle effects. When we split the family group into founders and heirs, we get similar results. Coefficients on both founders and heirs dummies are significant at the 1% level, confirming the superior performance and valuation of family firms managed by founders as well as second and later generation heirs.

In the next set of tables, we divide family firms into finer divisions based on generation, blood-lineage, and separation of ownership and control as described in section 2.2. In **Table 4**, the categories of family and non-family control groups are (1) Founders, (2) Descendants, (3) Non-blood Heirs, (4) Interim Salariman, (5) Professional Salariman, (6) Former Family Firms, (7) Non-family & Non-keiretsu Firms, and (8) Non-family keiretsu-affiliated firms. The default category in these regressions comprises the last group, that is, non-family keiretsu firms.

Results are again broadly consistent with the conclusion that family involvement is associated with superior performance. Within the family groupings, though, interesting patterns emerge. First, we again note that founder-managed firms display superior performance relative to the default group of non-family keiretsu firms. Second, and in sharp contrast to the evidence from the U.S. and Canada, we find that heir-managed firms also out-perform non-family firms. This is certainly at odds with both the theory on family firms (e.g., Burkart et al, 2003) and with the stylized facts on heir-managed firms in the U.S. We find that both descendent and non-blood heir managed firms out-perform non-family keiretsu firms. Interestingly, *salariman*

managed firms' performance is statistically indistinguishable from that of non-family keiretsu firms, while former family firms are seen to outperform non-family keiretsu firms.

A difficulty with the regressions reported in **table 3** and **table 4** is that we cannot directly compare the coefficients among the several control categories. Significance levels for all coefficients are estimated with respect to the default grouping of non-family keiretsu firms. To address this concern, we re-estimate the regressions with a different default group in a number of separate regressions. E.g. to compare the descendent and non-blood heir groups, we re-estimate the regression with the descendent heir group as the default group. The coefficient on the non-blood heirs will then denote the difference between non-blood heirs and the default group of descendent managed firms. These results are presented in the form of a matrix. To conserve space, coefficients on control variables are omitted from the tables.

In **Table 5**, we compare the coarse groupings of Founders vs. All Heirs vs. Non-family firms. The *All Heirs* group contains firms controlled by direct descendents, non-blood heirs, and salariman. *Non-family* firms include both former family firms and all other non-family firms. The table contains the coefficients on each family group with the comparator group defined as the default group in the panel regressions. For e.g., in the column titled Founders, the positive coefficient for *All Heirs* (from Panel A, ROA regressions) indicates that *Founder* firms' ROA is superior to that of *All Heir*-controlled firms. In fact, founder firms are seen to

out-perform heir-managed firms as well as non-family firms both in terms of ROA and in Q ratios. These results are consistent with the extant literature on the performance of founder managed firms.

What is interesting and at variance to the extant literature is the performance of heir-managed firms. Heir-managed firms are seen to be superior to non-family firms both in ROA and in Q ratios. Thus it appears that the superiority of family firms in Japan is not driven by the founder managed sample; rather, heir-managed firms too are seen as delivering superior performance and achieving higher valuations compared to non-family firms.

Next, in **table 6**, we further sub-divide the family and non-family groups to examine whether heir-managed firms do better after controlling for non-blood heirs and professional management. Specifically, we compare the following groups: (1) Founders, (2) Descendents, (3) Non-blood Heirs, (4) Interim Salariman, (5) Professional Salariman, (6) Former Family Firms, (7) Non-family & Non-keiretsu Firms, and (8) Non-family keiretsu-affiliated firms.

Founders are again seen to dominate every other group in both performance as well as valuation, although not all performance differences are statistically significant. In particular, founder managed firms' performance and valuation are not significantly superior to those of adopted heirs. Of particular interest is the performance of adopted heirs vis-à-vis other groups. In the ROA regressions, adopted heirs are seen to out-perform all groups except founders. For

the Q regressions, adopted heirs are seen to display significantly higher valuations than all categories of non-family firms except former family firms.

Overall it appears that the superior performance of family firms is supported in no small measure by non-blood heirs. We next turn to the question of skill for non-blood heirs. Our proxy is the education level of the adopted heirs. If the adoptions are indeed engineered to improve the family lineage, one would expect the adopted son to be more skilled than blood heirs. In **table 7** we present evidence on the university degrees of all heirs. Founders are generally not as well educated as their heirs. This could be because founders are generally from an earlier period in our sample when prosperity levels in Japan were not as high as they are today. More strikingly, we note that adopted heirs are generally better educated than direct descendents. Within the ranks of elite universities, we find that adopted heirs are more likely to have attended national elite universities (vs. private elite universities) compared with direct descendents. This is an important distinction since admission to elite national universities is strictly based on merit via nation-wide entrance examinations, whereas admission into elite private universities can be gained both via entrance examinations, as well as through university owned high schools. We also find, but do not tabulate, that bankruptcy rates for heir-run firms in Japan in our sample is half of that of non-family firms.

Finally, in **table 8**, we report the tenure in the CEO's office for founders, descendents, non-blood heirs, and Salariman. Founders tend to stay on as the CEO for an average of 30 years. Descendents and non-blood heirs have an average tenure of 18.7 and 18.1 years. These results show that adoptees are not treated any different from family members, and are certainly not used as a stop-gap measure and eventually displaced by direct descendents. Finally, professional salariman CEOs have an average tenure of 6.9 years – most likely the shorter tenure results from professional managers getting the top post close to their retirement age, in contrast to direct descendents and adoptee heirs.

4. Conclusion

We study the comparative performance of family firms in post-war Japan from 1962 through 2000. All companies listed between 1949 and 1970 comprise our sample. Our main result is that family firms in post-war Japan were not only quite common, but that they also displayed superior performance relative to non-family firms.

When we separate family firms into founder firms and heir-run firms, we find that both groups out-perform non-family firms. Within heir-run firms, we find that adopted heir-run firms are virtually indistinguishable from founder managed firms. Firms run by direct

descendents are next in the performance pecking order, while non-family keiretsu firms occupy the lowest performance rung.

The relative performance of heir-run firms is in sharp contrast to the evidence in the literature, which has generally cast second and later generation managers in family firms in a poor light. We believe that the uniquely Japanese custom of adopting non-family members into the family for business succession reasons mitigates an important criticism of family firms, namely their inability to pick heirs from a wider pool of talent than biology permits. We suspect the threat of acquiring new siblings to share the family fortune also has a salubrious effect on direct descendents.

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Table 1
Sample Description

Sample consists of 1355 out of population of 1435 firms that got listed on the Tokyo stock exchange between 1949 and 1970, and for which accounting and market data are available through the end of 2000, or the delisting date, whichever comes first. Family Firms are defined as those where the founding family is either a top 10 owner of the firm, or a member of the founding family occupies the office of the President or Chairman of the company. Within this category, founder-managed firms are those where the original founder is the President/Chairman at the time of the listing. Heir-managed firms are defined as those where a descendent of the founding family or an adoptee is the President/Chairman of the company. Salariman-managed firms are those where the family is a top-10 owner, but has let out the President/Chairman office to an outsider.

<i>IPO year</i>	<i>New Listings</i>	<i>Non-family Firms</i>	<i>Family Firms</i>			
			<i>Founders</i>	<i>Descendent Heirs</i>	<i>Non-blood Heirs</i>	<i>Salariman</i>
1949	408	311	27	47	15	8
1950	57	44	5	5	2	1
1951	22	20	0	0	2	0
1952	31	22	4	2	2	1
1953	21	16	2	2	1	0
1954	17	9	5	2	1	0
1955	10	3	2	4	0	1
1956	6	3	3	0	0	0
1957	10	5	2	2	1	0
1958	3	1	1	1	0	0
1959	8	7	0	0	0	1
1960	7	5	2	0	0	0
1961	362	184	89	58	15	16
1962	178	62	56	46	7	7
1963	116	40	40	27	5	4
1964	42	13	13	13	3	0
1965	1	0	0	1	0	0
1966	3	3	0	0	0	0
1967	5	2	1	2	0	0
1968	10	4	3	1	1	1
1969	11	5	3	2	0	1
1970	28	16	10	1	1	0
TOTAL	1356	775	268	216	56	41

Table 2
Univariate tests

In this table, we present two-sample t-tests on the equality of means. ROA is defined as the ratio of operating income to adjusted total assets. Q-ratios are defined as (Adjusted total assets - book value of equity + market value of equity)/adjusted total assets. Asterisks denote statistical significance at the 1% (***), 5% (**), and 10% (*) levels. [] denotes the number of observations.

	[1]	[2]	[3]	[1] - [3]		[1] - [2]		[2] - [3]	
Variables	Founder	Family	Non family	Difference	t-value	Difference	t-value	Difference	t-value
ROA	0.0722	0.0476	0.0431	0.0246***	28.89	0.0291***	36.62	0.0044***	10.01
	[4401]	[14506]	[31513]						
Q	1.445	1.412	1.367	0.0333***	4.42	0.0789***	11.14	0.0455***	11.30
	[4220]	[13903]	[29716]						

Table 3
Comparison of family and non-family managed firms in Japan.

The pooled-OLS regressions are based on observations spanning 1962 through 2000. ROA is defined as operating income divided by total assets. Q is defined as the sum of the market value of equity and book value of all non-equity liabilities divided by total assets. Family firms Dummy is set equal to 1 for firms where the President or the Chairman is a member of the controlling family. Leverage is defined as the ratio of long-term debt to total assets. Firm Age is based on the year of incorporation of the firm. Huber-White corrected t-statistics are presented in parentheses below the coefficient estimates. Asterisks denote statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

	<i>Dependent Variable</i>	
	ROA	Q
Family Control	0.0042*** (3.89)	0.0493*** (4.88)
Leverage	-0.0009*** (17.66)	-0.0073*** (15.54)
Log(Assets)	0.0008** (2.11)	0.0067* (1.81)
Sales growth	0.0009*** (41.85)	0.0034*** (20.37)
Log(Firm Age)	-0.0001*** (3.64)	0.0001 (0.36)
Constant	0.0227*** (3.29)	1.8465*** (29.00)
Number of obs	49593	47133
R-squared	0.4025	0.3845
Number of clusters	1356	1297
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes

Table 4**Comparison of family and non-family managed firms in Japan by detailed identity of management.**

The pooled-OLS regressions are based on observations spanning 1962 through 2000. ROA is defined as operating income divided by total assets. Q is defined as the sum of the market value of equity and book value of all non-equity liabilities divided by total assets. Non-family firms affiliated with a keiretsu are defined as the default benchmark group in these regressions. Leverage is defined as the ratio of long-term debt to total assets. Firm Age is based on the year of incorporation of the firm. Huber-White corrected t-statistics are presented in parentheses below the coefficient estimates. Asterisks denote statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

	<i>Dependent Variable</i>	
	ROA	Q
Founders	0.0098*** (4.89)	0.1032*** (6.33)
Descendent heirs	0.0035** (2.52)	0.0440*** (3.32)
Non-blood heirs	0.0084*** (3.54)	0.0706*** (2.74)
Interim Salariman	0.0055 (1.41)	0.0604** (2.21)
Professional Salariman	0.0012 (0.52)	-0.0069 (0.32)
Former Family Firms	0.0038* (1.92)	0.0537** (2.49)
Non-family / Non-keiretsu firms	0.0016 (1.24)	0.0014 (0.11)
Leverage	-0.0009*** (17.57)	-0.0073*** (15.46)
Log(Assets)	0.0008** (2.22)	0.0065* (1.74)
Sales growth	0.0009*** (42.02)	0.0033*** (20.18)
Log(Firm Age)	-0.0001*** (2.98)	0.0003 (0.84)
Constant	0.0194*** (2.63)	1.8345*** (27.84)
Number of obs	49593	47133
R-squared	0.4046	0.3879
Number of clusters	1356	1297
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes

Table 5
Performance difference for founders, heirs and non-family firms

$$ROA_{i,t} = a_i + \sum_{j=1}^M b_{j,i} \cdot FamilyDummy_{i,t} + \sum_{j=1}^5 c_{j,i} \cdot Control_{i,t} + \sum_{j=1}^{38} d_{j,i} \cdot YearDummy_{i,t} + \sum_{j=1}^{26} h_{j,i} \cdot IndustryDummy_{i,t} + e_{i,t}$$

The table presents pair-wise comparisons of coefficients, $b_{i,j}$, from multivariate regressions where each category of family and non-family control variable is compared with the second variable in the pair-wise comparison. This is done by estimating separate regressions where the second variable is assigned the default value of 0 in the multi-variate regressions described in Table 3. E.g. the row titled *Founders* presents coefficients from the multivariate regression where *Founders* is assigned a value of 0. The negative coefficient on *Heirs* and *Non-family firms* indicates that *Founder* firms perform better than *Heirs* and *Non-family firms*. Panel A presents coefficients from the ROA regressions, and Panel B presents coefficients from the Q regressions. ** and *** indicate significance at the five and one percent levels.

	<i>Founders</i>	<i>All Heirs</i>	<i>Non family firms</i>
Panel A: ROA			
<i>Compared to Founders</i>		-0.0058***	-0.0087***
<i>Compared to All Heirs</i>	0.0058***		-0.0029***
<i>Compared to Non family firms</i>	0.0087***	0.0029***	
Panel B: Q			
<i>Compared to Founders</i>		-0.0619***	-0.0982***
<i>Compared to All Heirs</i>	0.0619***		-0.0363***
<i>Compared to Non family firms</i>	0.0982***	0.0363***	

Table 6
Performance difference for founders, heirs and non-family firms: detailed classification

$$ROA_{i,t} = a_i + \sum_{j=1}^M b_{j,i} \cdot FamilyDummy_{i,t} + \sum_{j=1}^5 c_{j,i} \cdot Control_{i,t} + \sum_{j=1}^{38} d_{j,i} \cdot YearDummy_{i,t} + \sum_{j=1}^{26} h_{j,i} \cdot IndustryDummy_{i,t} + e_{i,t}$$

The table presents pair-wise comparisons of coefficients, $b_{i,j}$, from multivariate regressions where each category of family and non-family control variable is compared with the second variable in the pair-wise comparison. This is done by estimating separate regressions where the second variable is assigned the default value of 0 in the multi-variate regressions described in Table 4. E.g. the row titled *Founders* presents coefficients from the multivariate regression where *Founders* is assigned a value of 0. The negative coefficient on *Heirs* and *Non-family firms* indicates that *Founder* firms perform better than *Heirs* and *Non-family firms*. Panel A presents coefficients from the ROA regressions, and Panel B presents coefficients from the Q regressions. *, ** and *** indicate significance at the ten, five and one percent levels.

Panel A: ROA								
<i>Compared to below</i>	<i>Founders</i>	<i>Descendent heirs</i>	<i>Non-blood heirs</i>	<i>Interim Salariman</i>	<i>Professional Salariman</i>	<i>Former Family Firms</i>	<i>Non-family non-keiretsu</i>	<i>Non-family Keiretsu</i>
Founders		-0.0063***	-0.0015	-0.0044	-0.0087***	-0.0061**	-0.0082***	-0.0098***
Descendent heirs	0.0063***		0.0049**	0.0020	-0.0023	0.0003	-0.0019	-0.0035**
Non-blood heirs	0.0015	-0.0049**		-0.0029	-0.0072**	-0.0046	-0.0068***	-0.0084***
Interim salariman	0.0044	-0.0020	0.0029		-0.0043	-0.0017	-0.0038	-0.0055
Professional salariman	0.0087***	0.0023	0.0072**	0.0043		0.0026	0.0005	-0.0012
Former Family Firms	0.0061**	-0.0003	0.0046	0.0017	-0.0026		-0.0022	-0.0038*
Non-family non- keiretsu	0.0082***	0.0019	0.0068***	0.0038	-0.0005	0.0022		-0.0016
Non-family Keiretsu	0.0098***	0.0035**	0.0084***	0.0055	0.0012	0.0038*	0.0016	

Panel B: Q-ratio								
<i>Compared to below</i>	<i>Founders</i>	<i>Descendent heirs</i>	<i>Non-blood heirs</i>	<i>Interim Salariman</i>	<i>Professional Salariman</i>	<i>Former Family Firms</i>	<i>Non-family non-keiretsu</i>	<i>Non-family Keiretsu</i>
Founders		-0.0591***	-0.0325	-0.0428	-0.1101***	-0.0494**	-0.1017***	-0.1032***
Descendent heirs	0.0591***		0.0266	0.0163	-0.0510**	0.0097	-0.0426***	-0.0440***
Non-blood heirs	0.0325	-0.0266		-0.0103	-0.0775**	-0.0169	-0.0692***	-0.0706***
Interim salariman	0.0428	-0.0163	0.0103		-0.0673**	-0.0066	-0.0589**	-0.0604**
Professional salariman	0.1101***	0.0510**	0.0775**	0.0673**		0.0607**	0.0084	0.0069
Former Family Firms	0.0494**	-0.0097	0.0169	0.0066	-0.0607**		-0.0523**	-0.0537**
Non-family non- keiretsu	0.1017***	0.0426***	0.0692***	0.0589**	-0.0084	0.0523**		-0.0014
Non-family Keiretsu	0.1032***	0.0440***	0.0706***	0.0604**	-0.0069	0.0537**	0.0014	

Table 7
Educational qualifications of descendent and non-blood heirs

Non-blood heirs include both direct adoptees and adoptees by marriage. Elite national universities include the eight former Imperial universities, Hitotsubashi University and the Tokyo Institute of Technology. Elite private universities are Keio and Waseda. Admission into elite national universities is strictly by merit, based on entrance examinations. Admission into elite private universities is part merit, and part fast-track through own high-schools. Other universities include all other universities in Japan.

	Imperial university		Waseda & Keio		Other University		High school or lower		Missing data		All
	N	%	N	%	N	%	N	%	N	%	N
Founder	32	11.1%	22	7.6%	50	17.4%	109	37.8%	75	26.0%	288
Descendent heirs	156	22.3%	188	26.8%	240	34.2%	78	11.1%	39	5.6%	701
Non-blood heirs	48	33.6%	22	15.4%	42	29.4%	17	11.9%	14	9.8%	143
Interim Salariman	43	44.8%	8	8.3%	28	29.2%	12	12.5%	5	5.2%	96
Professional Salariman	128	40.8%	36	11.5%	113	36.0%	29	9.2%	8	2.5%	314
Former family firms	199	41.3%	60	12.4%	182	37.8%	37	7.7%	4	0.8%	482

Table 8
Tenure as CEO

Tenure is measured as the number of years in the CEO's position. Descendents are related to founders by blood. Non-blood heirs include both direct adoptees and adoptees by marriage. Salariman refers to outside managers when family retains control.

<i>Group</i>	<i>Mean</i>	<i>Median</i>
Founders	30.2	30
Descendent heirs	18.7	16
Non-blood heirs	18.1	16
Interim salariman	8.6	7
Professional salariman	6.7	6
Former family firms	5.9	5