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ABSTRACT

The practice of adopting adults, even if one has biological children, makes Japanese family firms unusually competitive. Our nearly population-wide panel of postwar listed nonfinancial firms shows inherited family firms more important in postwar Japan than generally realized, and also performing well – an unusual finding for a developed economy. Adopted heirs’ firms outperform blood heirs’ firms, and match or nearly match founder-run listed firms. Both adopted and blood heirs’ firms outperform non-family firms. Using family structure variables as instruments, we find adopted heirs “causing” elevated performance. These findings are consistent with adult adoptees displacing blood heirs in the left tail of the talent distribution, with the “adopted son” job motivating star managers, and with the threat of displacement inducing blood heirs to invest in human capital, mitigating the so-called “Carnegie conjecture” that inherited wealth deadens talent.

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You can't choose your sons, but you can choose your sons-in-law.

Adage explaining why Japanese business families rejoice at the birth of a girl¹

1. Introduction

If talent and intelligence were reliably inherited, biologically or environmentally, family firms should dominate economic activity. However, such traits are, at most, unreliably passed along (Herrnstein and Murray 1994; Heckman 1995). Moreover, restricting the top job to family truncates non-family executives' career options, inducing an adverse selection problem in the hiring and retention of outsiders (Aronoff and Ward 2000) and limiting the efficacy of CEO tournaments in eliciting lower-level executives' effort (Lazear and Rosen 1981; Demsetz 1996; Frank and Cook 1996). Perhaps most damning, the US Gilded Age tycoon Andrew Carnegie (1899) famously conjectures that inherited wealth "generally deadens the talents and energies" – a premise supported in US tax data (Holtz-Eakin et al. 1993). Given this threefold competitive disadvantage, the wisdom of the Chinese proverb "wealth shall not pass to a third generation" follows.

The benefits of entrusting corporate governance to business families are less definitive. Theses that family firms excel at long-term thinking or lessen agency conflicts lack empirical support (Bertrand and Schoar 2006). Rather, the evidence suggests that family control is a feasible second best solution around dysfunctional institutions, such as weak shareholder rights (La Porta et al. 1999; Burkart, Panunzi and Shleifer 2003) or widespread corruption (Khanna and Palepu 2000; Khanna and Rivkin 2001), which correlate strongly with families dominating big business (La Porta et al. 1999; Fogel 2007). Consistent with this, family firms generally perform better in less developed economies (Khanna and Yafeh 2007) and worse in more developed economies (Bennedsen et al. 2007; Morck, Wolfenzon, and Yeung 2005; Villalonga and Amit 2006).²

Japan is a high-income economy with well-developed institutions (La Porta et al. 1997), and its big businesses are generally described as professionally managed (Chandler 1977; Porter 1990). However, using a panel of nearly all nonfinancial firms listed from 1949 (when stock markets reopened) through 1970, and followed until 2000, we find inherited family control commonplace in large Japanese businesses. Moreover, we show firms controlled by heirs to outperform otherwise similar professionally managed firms. These results are highly robust and an analysis of succession events suggests family control "causes" good performance, rather than the converse.

To explain this seeming paradox, we highlight two unique facts about Japanese family businesses. First, business families in Japan continue to practice a form of arranged marriage called *omiai* (lit. arranged seeing), where the daughter meets an approved groom, selected by the patriarch. Second, Japanese families may adopt adult sons if nature fails to provide a natural son, or provides inadequate ones. Business families often select such sons from among their most promising top managers (Chen 2004). The "new" son usually takes the family name in a legal adoption process, swears allegiance to his new ancestors, and in most instances also marries a daughter of the current patriarch – hence the family business adage above. Remarkably, Edo and Osaka merchants traditionally celebrated a daughters' birth with red rice to mark the creation of a new space for an adopted son-in-law (Morikawa 1992).

¹ Referenced, with minor differences in wording, by Esaka (2001, p. 263-269), Nomura (2006, p. 134), and other major works on Japanese business families.

² For a counter example to this generalization, see Sraer and Thesmar (2007), who find that between 1994 and 2000, family firms, including those run by descendants, outperform non-family firms listed on the Paris bourse. They attribute the superior performance of family firms to lower labor costs, perhaps stemming from a quid-pro-quo where family firms offer better job safety in return for lower wages.

Adult adoptions are the predominant form of adoption in Japan, but are vanishingly rare elsewhere in Asia and the West.³ This propensity to adopt highly successful adults, rather than needy children, evokes stiff rebuke from foreign researchers and child advocates alike.⁴

Adult adoption could invigorate Japanese family firms in several ways, which could explain their persistence and prosperity. First, adult adoptions mitigate the suboptimal succession problem: A family that draws an exceptionally untalented blood son can recover by adopting a highly talented professional manager as a new son. This necessarily attenuates the lower talent tail of observed heirs and broadens the upper tail. Second, unlike their peers in foreign family firms, Japanese professional executives can aim for the top job of “son”, a prize not normally considered in discussions of Western family firms. Finally, blood sons, knowing adopted adult sons can displace them, dare not let their talents and energies be deadened. Just as the threat of a hostile takeover, more than its actual occurrence spurs professional managers to efficiency; the threat of displacement by a “better” son may well allay the Carnegie conjecture.

We posit that these efficiency-enhancing effects explain the incidence and prosperity of large old-money family firms in postwar Japan. More generally, these considerations raise the possibility that arranged marriage norms might help professionalize family firms in other countries, even absent adult adoptions. Consistent with this, Mehrotra et al. (2009) find sociological proxies for the incidence of arranged marriage highly positively correlated with the prevalence of family firms across countries. Finally, our findings linking firm performance to CEO characteristics associated with talent complements work by Bertrand and Schoar (2003), Bennedsen et al. (2010), and others linking management characteristics to firm policies and supports the basic theses that CEO talent – variously associated with unique creativity (Schumpeter 1911), rationality (Knight 1921, c. 9), and foresight (Hayek (1941, 334) – is a scarce and valuable factor of production.

The remainder of the paper is organized as follows. In section 2 describes Japanese adoption practices and highlights their stark distinctions from those of other countries – Western and Asian. Section 3 describes our data and variables; and section 4 contains our empirical test results. Section 5 concludes.

2. Family Firms and Japanese Traditions

Differences between Japan and other countries are easily exaggerated. However, Japan unquestionably has a unique concept of adoption, and this provides a unique set of institutional constraints around family firms.

2.1 Pitfalls of Dynastic Corporate Governance

Inherited corporate governance is subject to three fundamental problems: heirs who do not inherit business acumen, truncated career incentives for non-family executives, and heirs whose upbringing renders them unqualified.

Leading a great business requires intelligence; though perhaps of a form different from the general intelligence measured by IQ tests. Business acumen may depend on social or emotional intelligence (Thorndike 1920; Payne 1983), and perhaps on other traits (Gardner 2007), any of

³ Adult adoptions were known in the ancient West. The “good emperors” – Nerva, Trajan, Hadrian, Antonius Pius, and Marcus Aurelius – each an adopted son of his predecessor, ruled the Roman Empire from 96 to 180 A.D. – its longest span of good government (Gibbon, 1776, bk. 1 c. 1). The era ended when the stoic philosopher, the Emperor Marcus Aurelius, could not bear disinheriting his biological son, the eponymous Emperor Commodus, whose reign of terror ended with his assassination in 193 A.D.

⁴ See e.g. Hayes and Habu (2006), who describe the effect of adoptions on child welfare as “questionable” in Japan.

which may complement general intelligence (Cote and Miners 2006). Business acumen, like other human traits, is likely subject to “regression to the mean”. That is, outliers with extreme traits arise occasionally, but each successive generation of the family’s progeny averages ever closer to the global population mean (Galton, 1886). That is, general intelligence is, at most, only partially inherited (Herrnstein and Murray 1994; Heckman 1995; Devlin et al. 1997), so it seems implausible that business acumen would reliably run in families either.

Another reason for positing a competitive disadvantage to hereditary corporate control arises from work arguing that the CEO labor market is efficient in offering high compensation premiums for slight edges in talent because this induces tournament competition for the top job (Lazear and Rosen 1981; Demsetz 1996). This is relevant for two reasons. First, a small edge in CEO talent, applied over the assets of a large firm, is plausibly an economically significant competitive advantage for the firm (Frank and Cook 1996). Second, a tournament to become CEO elicits effort from middle and lower-level executives who aspire to the top job. Restricting the pool of CEO candidates to family should be costly on both counts: First, the most talented potential CEO in the family is unlikely to be better than the most talented potential CEO in the population (consistent with the model of family firms proposed by Burkart et al, 2003). Second, professional executives working for the family firm are not eligible for the tournament, and their effort is correspondingly lessened, or less aligned with the firm’s prosperity if ambitious executives must contemplate moving to a non-family firm to have a shot at the top job.⁵

A third reason for doubting the efficacy of dynastic corporate governance is the “Carnegie conjecture.” Arguing that the wealthy should bequeath their fortunes to schools, libraries, parks, music halls, and the like, the US steel tycoon Andrew Carnegie (1891) writes: “the parent who leaves his son enormous wealth generally deadens the talents and energies of the son, and tempts him to lead a less worthy and less useful life than he otherwise would.” Concluding that inherited wealth is destructive to both the heir and society, Carnegie argues that those who accumulate great fortunes have a duty to redistribute their wealth during their lifetimes to leave a legacy of elevated social welfare.

Empirical studies in developed economies generally find heir-controlled firms to underperform significantly (Morck et al. 1988, 2000; Bertrand and Schoar 2006; Bennedsen et al. 2007; Villalonga and Amit 2006; Miller et al. 2007; and others). Studies to the contrary generally use extremely broad definitions of “family firms” (Bertrand and Schoar 2006) – for example, Anderson and Reeb (2003) number founder-controlled firms such as Berkshire Hathaway and Microsoft among “family firms.” Inherited corporate control clearly “causes” depressed performance because firms’ share prices drop immediately upon news of the CEO job passing to an heir (Smith and Amoako-Adu 2005; Perez-Gonzalez 2006; and others). Holtz-Eakin et al. (1993) find evidence supporting the “Carnegie conjecture” by inferring “deadening” from heirs’ US tax returns before and after receiving legacies. Business historians Landes (1949) and Chandler (1977) attribute some countries’ superior economic performance to their professionalized big business sectors outpacing economies still relying on family firms.

Family firms in developing economies, in contrast, often exhibit superior performance (Khanna and Palepu 2000; Khanna and Rivkin 2001). This is attributed to a dearth of professional managers, family connections substituting for dysfunctional markets, and the value of business families’ reputational capital (Khanna and Yafeh 2007); or to leading business families’ political connections (Morck et al. 2005). These findings, plus the more generally persistent dominance of very large family firms in most economies, (La Porta et al. 1999; Landes 2006), suggest the

⁵ For example, Renault CEO Carlos Ghosn quit Michelin after it became clear a Michelin family member would supersede him to head the firm’s North American operations. He was with the firm for 18 years (see “Michelin Seeks Continuity after the Death of a Leader”, *New York Times*, May 29th, 2006.

existence of solutions to the pitfalls of inherited corporate governance enumerated above.

The great Tokugawa era merchant families - the Mitsui and Sumitomo especially - found workable solutions to these problems in adoptions, arranged marriages, and both (Morikawa 1992). Horie (1966) explains that “It was common practice in old Japan to adopt a son from other families, without discrimination among relatives or non-relatives, and let him inherit the *ie* (house), not only when the *ie* lacked lineal heirs, but even in case the heir lacked the capacity needed to inherit the *ie*.” Kondo (1990) and Bhappu (2000) remark on the longevity of many Japanese family firms, and link this to the practice of bringing adopted heirs into family successions. The practices persist in our postwar sample: the following is but one of many examples.

Kajima Construction, one of the largest construction businesses in the world, is a family firm run by a succession of adopted heirs for three generations. Morinosuke Kajima, a son-in-law adopted into the Kajima family, served as the first post-war CEO.⁶ He passed over his biological son to name his two adopted sons CEO and Chairman. Both married Kajima’s biological daughters. Only after the younger adopted son-in-law ascended from CEO to Chairman did Morinosuke’s biological son of serve as CEO – and then more briefly than either adopted son.

Adoption as a form of executive compensation is (as far as we know) a uniquely Japanese practice and may differentiate its family businesses fundamentally from those in other countries. Indeed, Chen (2004) argues that this point is “crucial to understanding the differences in ownership, organization, and management” of business groups in Japan and Korea. Certainly, the pay-for-performance dimension of becoming the next patriarch, and thus the steward of a vast family fortune, is not usually included as executive compensation (Kubo 2005).

However, arranged marriages feature in family businesses in many countries (James 2006; Landes 2006). Becoming the patriarch’s son, and thus the next patriarch of a great family business, is an immense reward for talent, but marrying into a powerful business family is a not inconsequential reward as well. Arranged marriage might thus also help attenuate problems associated with the uncertain inheritance of talent, blunted incentives for talented professional managers, and even the Carnegie conjecture. Indeed, in many succession cases in Japan, a carefully arranged marriage may beget a suitable son-in-law to assume the role of the head of the house in a manner similar to an adopted son.⁷

The general efficacy of arranged marriage in countering each of these problems is at present unknown. Moreover, where the spread of Western cultural norms replaces the traditional arranged marriage with “marriage for love”, family firms ought to be less viable. Consistent with this, Mehrotra et al. (2009) find family businesses to be more import in countries with higher scores on a set of sociological variables that they argue reflect the incidence of arranged marriages, and posit that a secular decline in arranged marriage in many countries bodes ill for family firms as an organizational form.

2.2 Japanese Adoption Practices

Adoption remains common in modern Japan. Paulson (1984) reports that 30% of her survey respondents affirm that “an adoptee was among their relatives”. Comparative statistics are difficult because many countries keep adoptions confidential, but Yamahata (1977) estimates adoption far more popular in modern Japan than in any other country, with the possible exception of the United States.

Moreover, Japanese adoptions retain a distinctly mercantile ethos. While most U.S. adoptees

⁶ The Japanese term *shacho* is variously translated as *president* or *CEO*. We adopt the latter throughout.

⁷ Japanese adoption-cum-marriage is perhaps an extreme variant of *matrilocal* marriage, wherein married couples reside with or near the wife’s family. Qing dynasty *uxorilocal* marriage let a son-in-law take the family name of a sonless couple; but carried a severe social stigma (Lu 1998).

are children, Japanese adoptees are overwhelmingly adults. Based on the 2003 U.S. Census Bureau, 2.5% of all U.S. children in 2000 were adopted, possibly the highest rate in the world. In 2000 alone, over 127,000 adoptions or 31.4 adoptions per 1000 births were recorded in the U.S. (Bernal et al. 2007; U.S. Census Bureau 2003). Excluding step-parent adoptions, Moriguchi (2010) estimates that in 2000 there were 20.4 child adoptions per 1000 births in the U.S., compared to only 1.6 child adoptions per 1000 births in Japan in the same year. Of the 80,790 adoptions reported in Japan in 2000, only 1,356 were of children; and of these 362 were by grandparents or step-parents. The other 79,434 adoptions, 98% of the total, were of adults by adults.

Since 1988, the law permits two forms of adoption (*yôshi*).⁸ One form, *special adoption (tokubetsu yôshi)*, resembles Western practices, and permanently transfers a child younger than six (eight in certain foster care cases) to adoptive parents. This new, imported, and rarely used procedure severs all legal links between the child and its biological parents, and is designed to advance the welfare of a needy child (Hayes and Habu 2006). Japanese courts approve only a few hundred each year: 521, 362, and 350 in 1995, 2000, and 2002, respectively.⁹

The traditional form, now called *ordinary adoption (yôshi engumi or fûtsu yôshi)*, remains far more common. The adoptee is usually an adult male who, in return for an inheritance, agrees to carry forward the adopting family's name. Both parties to the adoption transaction must be over fifteen, the age of consent, or court approval is required – except for adoptions of one's grandchildren or step-children (Civil Code §798). The adopted heir must also be at least a day younger than the adoptive parent. Adoptees' average age at adoption is over twenty, and the vast majority of adoptions registered in Japan each year are between consenting adults (Bryant 1990, p. 300). Elsewhere, adult adoption is vanishingly rare (Kitsuse 1964).¹⁰ O'Halloran (2009) notes that Japan's "... continuing tradition of providing for the adoption of adults, is without any comparable precedent among developed nations."

[Table 1 about here]

Table 1 summarizes these patterns in adoptions through the postwar period. More recent statistics show rising predominance of adult adoption than earlier in the postwar period, averaging 97 to 98% since 1990. Thus, of the 83,505 adoptions registered by Koseki offices in 2004, only 1,330 (1.6%) were of children.¹¹ The higher rates of child adoption in the years immediately following the war are perhaps due to war orphans.

Ordinary adoption sanctifies the voluntary severing of most, but not all, ties to one's birth parents and their replacement with fealty to new parents. The adoptee may remain in contact with his birth parents, and may even inherit from them. If the adoptive relationship is disrupted, the adopted child may return to his biological parents.

Calling ordinary adoption a *transaction* is appropriate, for Hayes and Habu (2006, pp. 2-3)

⁸ This discussion follows Hayes and Habu (2006, ch. 1).

⁹ Hayes and Habu (2006, Table 2, p 137).

¹⁰ The Common Law, from which most English speaking countries derive their legal systems, initially did not sanction adoption. Although the practice occurred informally, adoptees could not inherit unless named as heirs in a legal will. The U.S. legalized adoption in the mid-19th century, and the UK followed in 1926 (Bryant, 1990, n. 6) Adult adoption, though legal in 47 U.S. states and the District of Columbia, remains rare and controversial for subverting gay marriage restrictions. Thus Wadlington (1966, p. 409) thunders that "our present system of adoption is designed to create through artificial means something resembling as closely as possible a normal parent-child relationship and not a freak or totally new form of relation."

¹¹ Koseki Offices, located in municipal offices, register all births, marriages, adoptions, address changes, and deaths.

explain that “in Japanese society there continues to be a vein of unsentimental pragmatism towards adoption arrangements. There is a fairly widespread view that it is ethically acceptable for parents to become adopters for worldly objectives, even if they do not intend from the outset, to love the child as their own.” Lebra (1989, p. 203) clarifies that “nurturance and intimacy were secondary or irrelevant to the mandate of professional succession, and often were completely absent from the adoptive relationship – even where the adoptee was destined to become the new head of the household.”¹²

Most ordinary adoptees are adult sons (Paulson 1984, p. 165, 289) because the practice is designed to rescue biologically ill-fated families, not to provide for a needy child.¹³ Hayes and Habu (2006, p. 1) elaborate: “Adoptions can be used to reconstruct patriarchal families. Families with superfluous sons would pair them off in a combined marriage and adoption to families with daughters.” Since the incest law only proscribes sex between biological siblings, a daughter and adopted son may marry. That a term, *muko yōshi*, exists to describe a husband-who-is-also-an-adopted-brother indicates this to be an accepted and relatively commonplace form of adoption; and Paulson (1984) reports 55% of adoptions in 1981 to be of sons-in-law. Of course, if a desirable potential son is already married, an adult married couple can also be adopted in a single transaction.

Parents who adopt adult sons either lack biological sons or desire better quality sons than nature provided. Nakane (1967) argues that families seldom disinherit a biological son in favor of an adopted son, but ethnographic work convincingly refutes this. Beardsley et al. (1959) report at least one instance of adopted sons superseding biological sons in the histories of 25% to 33% of rural families; Pelzel (1970) estimates its frequency at 25%, and Bachnik (1983) puts its incidence at 34%. Pre-modern records indicate even higher frequencies (Bachnik 1983, p. 163).

The patriarch of a family business can thus adopt a new son, say a star employee, should his biological sons prove uninterested or incapable of honoring the family name. This occurs with some regularity (Paulson 1984, 165-75; Kurosu 1998; Hayes and Habu 2006, p. 2). In this context, translating *yōshi* as *adoption* might be confusing. Terms like *protégé* or *successor* might seem at least as appropriate as *adopted son*. Similar relationships, but between family business patriarchs and favored junior associates who become “like sons”, may well occur less visibly in other countries. However, the Japanese adult adoptee does take his new family’s name and ancestors, and enjoys inheritance status equal to that of biological offspring,¹⁴ so the common translation of *yōshi* as *adoption* seems the most defensible.

This echoes a linguistic ambiguity as to what constitutes a *family* versus a *firm*. A Japanese family business is referred to as a *house* (*ie* or 家), as in the *House of Mitsui*; but *ie* also means *family* or *household*.¹⁵ This conflation also occurs in West, as with the *House of Windsor* and J.P. Morgan’s 19th century bank, the *House of Morgan*. Repackaging a business as a family is readily dismissible as “an ideological obfuscation created by those at the top of the economic hierarchy” (Hayes and Habu 2006, p. 12). But something more is clearly going on where an adopted top manager subsequently becomes the head of both the adopting family and its business. Inheritance tax law pertaining to succession in *ie* may have also played a role in fostering the adoption tradition in Japan. Edo period law (pre-war) mandated that only the master of the *ie* could inherit the *ie*, who in turn must be a

¹² Quoted in Hayes and Habu (2006, p. 11).

¹³ The remainder include minors as well as adults of both genders, but the vast majority are presumably males. A stigma attaches to adopting females because of past abuses.

¹⁴ See Rohl (2005) for a description of the development of civil law in Japan from 1868 to post-war.

¹⁵ The *ie* lost its legal status after World War II (Oppler, 1976, pp. 116-120); but Bachnik (1983) outlines its continued informal usage and the difficulties this causes translators.

male with the same family name (see, among others, Rohl, 2005). Consequently, if the head of the household passed away, the family had to find a new male head, lest the *ie* slip into the hands of the state or next of kin. Adult adoptions provided a solution to this crisis.

It is tempting to see adoption as a liberal adaptation allowing “competent individuals to surmount rigid social barriers” in Japan’s hierarchical society (Burke 1962, pp. 108-9). Haynes and Habu (2006, p. 12) more warily suggest that “the overlap between family and business concerns, potentially at least, forms an integrated social ethos in which the aspirations of a powerless child can find a place.” Although, they caution against pressing this too far, noting that many ordinary adoptions are within extended families, Macfarlane (2002) notes that “those who were adopted were not necessarily or even primarily blood relatives” and cites several studies that support the view that “adoption became a mechanism for social mobility” in pre-modern Japan. In our sample, adopted successors at Kajima Construction, Suzuki Motors, Taisho Pharmaceutical, and were entirely biologically unrelated to the controlling family. Our data thus appear consistent with Macfarlane’s assertion; however, a complete investigation of remote biological ties is too time-consuming to be practicable, and thus lies beyond the scope of this study.

The Japanese government restricts adult adoption for fiscal reasons. The 1988 revision to the tax law prevents testators from evading inheritance taxes via multiple adoptions. Thenceforth, an adopter with one or more biological children may bequeath to one adoptee only, and an adopter lacking any biological children may bequeath to two adoptees (Nakagawa 1991, 89). A parent might still adopt many sons in order to have a broader choice of successors, but since only one may inherit, the supply of eager second, third, and fourth adoptees may be meager.

Foreigners periodically sought to change Japanese adoption practices, which seemed immoral to Chinese and Western sensibilities alike. Chinese legal imports, beginning with the Taiho Code of 702 A.D., sought to impose Confucian morals restricting adoptions to blood relatives (Mass 1989, 9-11, 25, 72). In seeming deference to European sensibilities, Japan’s imported Civil Code (§792-3) mandates that the adopted child be at least a day younger than the adopting parent (Takenoshita 1997, p. 9).¹⁶ Both imports sought to fit Japanese pegs into foreign holes. The Taiho Code was soon “improved”, and modern registries sometimes let a younger parent adopt an older child “by mistake” (Nishioka 1991, pp. 232-4).

Foreign criticisms of Japanese adult adoption practices are not entirely groundless. Before the Great War, families adopted children as *de facto* slaves, sold by their biological parents; and brothel owners adopted their prostitutes.¹⁷ Draft dodgers became “only sons” of childless families, to escape conscription (Paulson 1984, 278-9). Adult adoptions are also used to hide affairs or to circumvent money lending laws (Bryant 1990).

But Japan’s adult adoptions perhaps evoke condemnation because they challenge the conventions of other cultures. Elsewhere in East Asia, adoptions are a duty of blood relatives. In contrast, “the more rigid forms of Confucianism have not constrained non-relative adoption in Japan to nearly the same degree as elsewhere” (Kaji 1999; see also Bryant 1990, n. 32).¹⁸ This shocked and appalled Confucian traditionalists, like Dazai Shundai (1680-1747), who deplores Japan’s “lawlessness”, singling out its “barbarous” and “promiscuous” adoptions as “a major example of chaos” (Lebra 1989, p. 185; quoting Kirby 1908). In the same vein, the 19th century

¹⁶ Japan’s adopted Civil Code is frequently described as imposing primogeniture and other Western inheritance concepts, and Western advisors at the time apparently genuinely believed this (see e.g. Morris, 1894). However, Bachnik (1983, esp. pp. 168-9) explains at length how the Japanese wording of the Meiji Civil Code clearly permits the continuation of traditional adoption practices. See Wadlington (1966) on the importance of age differences in U.S. adoption law.

¹⁷ Oppler (1976, 113 n 3; Paulson (1984, p. 271 & 275).

¹⁸ Quoted in Hayes and Habu (2006, p. 11).

historian Shigeno Aneki (1887) compares the “evils” of adoption to those of imperial abdication (Lebra 1989, p. 186).

2.3 A Japanese Solution to the Pitfalls of Dynastic Governance

The above is a vast oversimplification, but conveys the gist of adoption practices as they affect Japanese family businesses. We distill three potential economic implications, which our empirical analysis subsequently explores.

First, a business family, confronted with an heir who is incapable or ill-disposed to take over, can readily adopt a more able son. Adoption lets family firms expand their successor searches beyond biological sons, and even beyond blood kin and current in-laws, to include virtually the same applicant pool a widely held professionally managed firm might tap. This broader talent pool could let Japanese family firms boost their odds of succession to a highly talented heir.

Second, professional managers working for a Japanese family firm are not automatically excluded from the top job of heir. Japanese family firms could thus, in theory at least, induce the tournament competition that professionally-run firms use to elicit effort from rising executives and put the most able manager in charge.

Third, the threat of adoption could induce a greater work ethic in biological children, for “the eldest son too was sometimes forced out into the world, if a more competent younger or adopted son was appointed to succeed to the family property or rights” (Burke 1962, p. 109). Adult adoptions might thus counter the famous Carnegie Conjecture that inherited fortunes so deaden initiative and distort perspective as to virtually guarantee failure in running a great business.

2.4 An Example of the Succession Process

Suzuki Motor Corporation relies extensively on adoptees for the top job, which is currently held by Osamu Suzuki. Born Osamu Matsuda, he graduated from Chuo University in 1953, and worked at a bank until 1958 when, at age 28, he was adopted by the Suzuki patriarch, Shunzou Suzuki, married a Suzuki daughter (Shoko), and took the Suzuki family name – all simultaneously. Osamu joined Suzuki’s board in 1963, became President in 1978, and Chair in 2000. Figure 1 plots the career and family ties of Mr. Osamu Suzuki as a function of his age, and exemplifies the successions we study.

This succession continues a long Suzuki tradition of handing power down to adopted sons *qua* sons-in-law. Osamu Suzuki is the fourth in a succession of adopted heirs to serve as CEO of Suzuki Motors. Osamu, in turn, designated his son-in-law, Hirotaka Ono, as his heir, passing by his biological son, then with General Motors who nonetheless eventually joined Suzuki’s board. Explaining his choice, the elder Osamu opined: “*In terms of age and experience, Ono is more capable compared to (my) son.*” In essence, skill and capability trumped blood ties for the top job. Mr. Ono’s unfortunate premature death forced Osamu to return as Chair and CEO in 2007, a post he has retained since.

This case illustrates a typical Japanese family business adoptee. A university graduate in his mid-to-late twenties, the adoptee is very likely to marry a daughter of the current patriarch. He joins the family firm, and is promoted through the ranks and usually reaches the top job by age fifty. This long tenure in the family firm provides sufficient time for the ruling patriarch to observe, assess, and groom the adopted heir apparent.

The sequence of events can vary somewhat. For example, the patriarch might choose a capable current employee to marry his daughter first, and then formally adopt him later. For example, Yasuda Zenjirō, patriarch of the prewar Yasuda financial group (*zaibatsu*) passed over his three biological sons to groom his son-in-law, a 27-year-old employee and Tokyo University graduate, as his heir. The new son not only changed his family name from Iomi to Yasuda, but also changed his given name from Teichi to Zenjiro to affirm his status as heir apparent. The Yasuda were not unique; recruiting heirs from among top managers was not unusual among pre-war

zaibatsu business families (Kerbo and McKinstry, 1995).

The adoptee can, like a biological son, be disinherited if he does not meet expectations, though this is extremely rare. The patriarch can designate a second adoptee his heir, or pass over his adoptee and designate a biological son. For example, in 1920, 13 years after the adoption, the Yasuda patriarch disinherited his adopted heir, who was then vice president. Legal dissolution of an adult adoption is possible if the adoptee disappears, deserts his new family, or returns to his old family. Dynastic families typically have a *family council*, at which the heads of different branches of the family resolve issues that arise between them; and in prewar times, family councils (rarely) successfully dissolved an adoption amid an unfolding succession (Rohl, 2005). Our postwar population contains no instances of such dissolutions.

[Figure 1 about here]

3. Data Description

We begin with the population of all 1,433 non-financial firms that listed in all Japanese stock exchanges (the Tokyo, Nagoya, Fukuoka and Osaka stock exchanges) from 1949 (when markets reopened after the war to new listings, as well as previously listed prewar firms) through 1970. We follow these firms from 1962, when standardized financial disclosure begins, until 2000 or a delisting, whichever comes first.¹⁹ Our need for complete data on each firm's ownership structure, board, and financial variables during that period cuts the sample to 1,367 firms. Our sample thus includes 95% of the population of listed firms during this window.

3.1 Data sources

Our ownership data are from the *Development Bank of Japan* database for 1981 through 2000, as are our accounting data from 1962 through 2000. The *Toyo Keizai* database provides information on stock prices and boards from 1989 through 2000. For prior years and years with missing data, we hand-collect ownership, board, and financial data from hardcopy annual reports available at the Institute of Innovation Research of Hitotsubashi University.

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

We identify each firm's founder by consulting the following sources: (1) commemorative volumes (*shashi*) celebrating firms' anniversaries, (2) *Toyokeizai Shimposha* (1995), (3) *Nihon Keizai Shimbun* (2004), and (4) company websites. To identify relationships within the founding family, we use various Japanese language sources: (1) Tokiwa Shoin (1977) provides the family trees of 1002 business leaders, (2) a series of books published by *Zaikai Kenkyusho* (1979, 1981, 1982, 1983, 1985) provides the names of family members of the boards of listed firms, and (3) a set of thirty-eight *Nihon Keizai Shimbun* (2004) volumes provides the biographies of 243 prominent postwar business leaders. Additional information on family relationships is obtained from the following sources: Japanese equivalents of *Who's Who* published by *Jinjikoshinjo*, the *Nikkei Telecom 21* database of corporate news items published from 1975 on in the *Nikkei* newspapers (*Nihon Keizai Shimbun*, the *Nikkei Business Daily*, the *Nikkei Financial Daily* and the *Nikkei Marketing Journal*), company archives, Koyano (2007), and website searches.

Using all this information, we annotate family trees with the names and business roles of

¹⁹ From 1970 to 1990, only 31 firms in our sample delist. A further 95 delist from 1991 through 2000. The remarkable longevity of Japanese firms prior to the 1990s corroborates Fogel *et al.* (2008) on this point.

all biological and adopted 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.

3.2 Defining and classifying family firms

Previous family firm studies have been criticized for overly broad definitions of *family firms* (Bertrand and Schoar 2006) that also include firms run by their founders. We therefore use an alternative term, the Japanese word *don* (ドシ, lit. *boss*), and designate firms run by their founder or their founders’ heirs, biological or adopted, as *don firms*.²⁰

We consider the individual who establishes a business as its *founder*. For example, a business established in the Edo period, restructured into a partnership during the early Meiji era, incorporated in the early 20th century, taken public in the 1920s, and relisted in 1949, is *founded by* the person who first established it in the Edo period.

By “run” we mean that the founder or founding family retains either a substantial equity stake or a substantial role in management. We thus define a *don firm* as one with a member of its founding family (or family’s foundation) listed among its top ten shareholders or serving in a *leadership position*: either as CEO (*shacho*) or chairman (*daihyo torishimariyaku kaicho*). If only one founding family member fulfills these requirements, we call that person the firm’s *don*. If more than one founding family member appears in these roles, we define *don* as the one serving as CEO or chairman. If both positions are occupied by members of the founding family, we take the *don* as the older. Thus, if a founder is a top ten shareholder, but does not serve as CEO or chairman, *and* an heir serves in a leadership position, the heir is classified as *don*. This is clearly a judgment call, but we presume that, in these firms, the heir is the actual decision-maker.

We designate firms lacking *dons* as *non-don firms*. We thus employ the following indicator functions $\delta_{j,t}(k)$ in our analyses:

$$[1] \quad \delta_{j,t}(don) \equiv \begin{cases} 1 & \text{if firm } j \text{ has a } don \text{ in year } t \\ 0 & \text{otherwise} \end{cases}$$

$$[2] \quad \delta_{j,t}(non-don) \equiv \begin{cases} 0 & \text{if firm } j \text{ has a } don \text{ in year } t \\ 1 & \text{otherwise} \end{cases}$$

We also partition *non-don firms* into those that had a *don* at one time during our sample period, denoted *former-don firms*; and firms that had a *don* at no time during our sample period, denoted *never-don firms*.

Villalonga and Amit (2006) argue that earlier U.S. family business studies misclassify firms like Microsoft and Berkshire Hathaway, whose founders (Bill Gates and Warren Buffett) explicitly bequeath their fortunes to charities, not their children. They therefore recommend a tighter definition of family firms as those in which control *has actually passed* to the founder’s heirs. Our *don firms* roughly correspond to the broader category they criticize, and likely also includes many businesses that ought not to be considered family firms.

We therefore denote true *family firms* as those whose current *don* is the previous *don*’s heir. This narrower definition understates the incidence of family firms, for it excludes firms run by founders who plan to pass control to their heirs. However, it has the virtue of including only firms unambiguously identifiable as family firms. Other *don firms* – those still run by their founders – we call *founder-run firms*. We formalize this with the indicator variables

²⁰ For lack of a better term, we use this archaic title for a high-status male, now seldom found except in formal business letters. The title derives from the Latin *dominus*, meaning lord, *via* the Portuguese *dom*.

$$[3] \quad \delta_{j,t}(\text{founder}) \equiv \begin{cases} 1 & \text{if firm } j \text{'s } don \text{ in year } t \text{ is its founder} \\ 0 & \text{otherwise} \end{cases}$$

$$[4] \quad \delta_{j,t}(\text{family}) \equiv \begin{cases} 1 & \text{if firm } j \text{'s } don \text{ in year } t \text{ is an heir} \\ 0 & \text{otherwise} \end{cases}$$

Finally, we partition true *family firms* into subcategories according to the position of the current *don* and his relationship to the previous one. A firm whose current *don* serves as CEO or chairman and is the previous *don*'s biological son we call a *blood heir firm*. A firm whose current *don* serves as CEO or chairman and is the previous *don*'s adopted son, adopted son-in-law, or son-in-law we call a *non-blood heir firm*. Our data include no instances of daughters taking over. A third category of *true family firm* arises where a biological heir ranks among the top ten shareholders, but delegates both the CEO and Chairman positions to professional managers. These we denote *sarariman firms*.²¹

Our data contain no non-blood heirs adopted as children, consistent with the rarity of this practice. All but two of the legally adopted heirs in our sample also marry a daughter of the founding family.

We designate all firms whose current *dons* are their previous *dons*' adopted sons or sons-in-law as a second category: *non-blood heir firms*. This is justifiable if the *dons* impose arranged marriages on their daughters, but may be problematic if daughters chose their own mates. The former assumption is reasonable because arranged marriages (*omiai*), in which *dons* select husbands for their daughters on the basis of business advantage, persist in Japanese business families (Hamabata, 1991; Kerbo and McKinstry, 1995). Nevertheless, we recognize that adopted and un-adopted sons-in-law may be either selected differently by the founder, or may be subject to different incentives since it is only the former who enjoy full inheritance rights under the post-war legal code in Japan. We return to this issue in the robustness section, where we compare performance under adopted and un-adopted sons-in-law and find no material difference between the two, buttressing our contention that both sets of sons-in-law can be treated as one category.

$$[5] \quad \delta_{j,t}(\text{blood heir}) \equiv \begin{cases} 1 & \text{if firm } j \text{'s } don \text{ in year } t \text{ is a blood heir} \\ 0 & \text{otherwise} \end{cases}$$

$$[6] \quad \delta_{j,t}(\text{non-blood heir}) \equiv \begin{cases} 1 & \text{if firm } j \text{'s } don \text{ in year } t \text{ is a adopted son or son-in-law} \\ 0 & \text{otherwise} \end{cases}$$

$$[7] \quad \delta_{j,t}(\text{sarariman}) \equiv \begin{cases} 1 & \text{if firm } j \text{ is a } don \text{ firm in year } t, \text{ but run by a professional CEO} \\ 0 & \text{otherwise} \end{cases}$$

We have 62 cases of families succeeded by *sarariman* CEOs (founder to *sarariman*: 24 cases, family to *sarariman*: 38 cases), who soon thereafter step aside for a family heir. News reports clarify the temporary status of these interim CEOs: they are minding the firm while the designated heir prepares to take charge. Thus Canon made Ryuzaburo Kaku, a professional manager, its CEO in 1977 amid declarations that the controlling family's, fuzio Mitarai, aged 42, would soon take charge. Takeda Pharmaceutical likewise appointed company manager Yoshimasa Umemoto (unrelated to the family) CEO while the family's designated heir, Kunio Takeda, aged 46, readied himself. Both heirs ascended to their CEO job shortly after turning 50. Similarly brief interludes of professional

²¹ The Japanese term for a professional manager is *sarariman*, from the English "salary man". The term connotes an executive who works long hours, but does not control his destiny.

management also occurred at Pioneer, Toyota, and other family firms.²²

These are all clearly family firms, where interim CEOs serve as temporary place-holders, not as masters. Their controlling families are clearly not permanently handing over power to professionals. We therefore define *sarariman* firms as those whose controlling families delegate management to a chain of *sarariman* CEOs. We exclude successions to *sarariman* who are, in turn, replaced by family, blood or non-blood heirs. This is because our sample contains successions where the old patriarch steps aside before the heir apparent is ready to take charge. In such cases, a *sarariman* takes over as interim CEO amid a general understanding that the heir will soon take charge. We revisit this issue in the robustness check section below to check if our results are different when we include some or all such place-holders in the *sarariman* category.

The partitioning of family firms in [5], [6], and [7] raises the issue of whether non-blood heirs – adopted sons or sons-in-law – should be identified as an alternative to heirs or to *sarariman* CEOs. In particular, the *sarariman* tradition is widely accepted in Western industrial democracies, particularly the U.S. and the U.K. where CEOs as a rule tend to be unrelated to dominant shareholders, and it is natural to ask the question whether sufficiently high powered compensation packages may render a *sarariman* materially identical to an adopted son CEO. At issue is whether *sarariman* and adopted sons are treated the same, or whether adopted sons are treated more like blood sons, and *sarariman* more like the hired agents that they are.

We explore this by comparing the tenures of the three categories of successor. Founders unsurprisingly remain at the helm longest: serving for a mean of 30.23 years and a median of 30 years. *Sarariman* CEOs in family firms have the shortest tenures: averaging only 6.31 years with half gone after 5 years. However, blood and non-blood heirs' tenures are essentially identical: blood heirs average 18.74 years and non-blood heirs average 18.4 years; half of blood heirs are gone after 16 years and half of non-blood heirs are gone after 17 years. We conclude that non-blood heirs' control positions are as secure as those of blood heirs, and that both are far more secure than the positions of *sarariman* CEOs.²³

Figure 2 shows the number of *don* firms by year. The initial 1962 cross-section of our panel contains a total of 1,060 firms; and of these, 37% are *don* firms versus 63% non-*don* firms. Of the *don* firms, 17% are founder-run and the remaining 20% are true family firms. Of the true family firms, 41 are run by non-blood heirs – comprising almost a fifth of family firms and 4% of the full sample.

By the end of our analysis period, in 2000, *don* firms are 31% of the total, down 6% from 1962. Founder-run firms decline to less than 1% of the 2000 sample (as founders retire or pass away). True family firms represent about 30% of our sample in 2000, having held roughly steady at this fraction from 1980 onwards. Non-*don* firms represent almost 69% of all firms in 2000.

The total fraction of *don* firms in Japan resembles that of family firms in U.S. Fortune 500 reported by Anderson and Reeb (2003), whose definition of family firm resembles ours for *don* firms. Thus, while neither America nor Japan is an economy of family firms, founders and heirs collectively appear more important than generally accredited in both countries.

If family firms are defined as those controlled by second or later generation heirs, only 7% of the Fortune 500 firms qualify (Villalonga and Amit 2006). This is substantially less than the 30% of our sample characterized by inherited family control. While the two samples are not directly

²² The mean age of the ultimate biological heir is 40 in these cases, consistent with *sarariman* CEOs serving as placeholders until the heir matures.

²³ Studying S&P 500 firms from 1992 through 2004, Coates and Kraakman (2007) report the mean tenure of hired CEOs to be 5.5 years and that of equity control blockholder CEOs to be 13.4 years.

comparable,²⁴ our data reveal family control in postwar Japan to be undeniably economically significant – a fact generally not acknowledged in discussions of Japanese corporate governance.

[Figure 2 about here]

3.3 Variables

A multidimensional approach to measuring firm performance is needed because Japanese law does not mandate that firms be run to maximize shareholder value, and because banks and employees interests are often posited to trump those of shareholders (Porter et al. 2000). We describe each performance measure in turn. Summary statistics are in Table 2. Robustness checks using alternative definitions of the variable are deferred to section 4.4.

[Table 2 about here]

Shareholder valuation

We gauge shareholder valuation by a firm's *Tobin's average Q ratio* (Q) - its market value divided by its replacement cost: that is, its value to all its investors divided by the cost of replacing all of its measurable assets. A higher Q means the firm's value is augmented by greater net intangible assets – presumed, partly at least, to reflect superior past and/or expected future management. Average Q ratios, measured relative to industry benchmarks to exclude factors beyond managers' control, are therefore sensible measures of the quality of corporate governance (Morck et al. 1988; Gompers et al. 2003; Bebchuk and Cohen 2005) when stock markets are passably efficient, and perhaps even amid common bubbles (Samuelson 1998; Jung and Shiller 2005).

We define *market value* as the price of the firm's stock times the number of shares outstanding plus the book value of its total liabilities. This values control blocks at public share prices, consistent with the near-zero private benefits of control Dyck and Zingales (2004) and Nenova (2003) report for Japan.

We estimate *replacement cost* as the book value of total assets plus adjustments for equity holdings and real estate. Almost ten percent of the assets of the typical firm in our sample are shares in other firms, and this fraction is much higher in many firms. These shares are carried at historical cost. We therefore multiply the book value of a firm's equity holdings in a given year by the cumulative return of the Nikkei Index from when the equity was acquired to the present. To estimate the age of equity holdings, we look at all past acquisitions and disposals of equity, and assume that the most recently acquired shares are the first to be disposed of. Real estate holdings, also carried at book, are adjusted analogously using the Japanese Real Estate Index.

Current profitability

Our second performance measure is each firm's *return on assets* (ROA), defined as operating income divided by replacement cost, as estimated above. *Operating income* is earnings before interest costs, tax, and depreciation and amortization. This figure captures a firm's current profitability, a measure of short-term financial performance.

Sales and employment growth

Japanese firms, at least for a large part of the postwar period, arguably sought non-financial goals,

²⁴ Our sample includes almost all Japanese firms that listed up to 1970, but no newer listings. Villalonga and Amit's sample of Fortune 500 contains only very large firms, whose control blocks are likely correspondingly smaller, and includes newer firms, whose founders are more likely to survive.

such as market share or employment, rather than financial objectives, such as profits or shareholder value (Aoki 1990; Porter 1990; Abegglen & Stalk 1985; Tsuru 1996; Geringer et al. 1999; Ahmadjian & Robbins 2005; Kubo 2005; and others); though others dissent (e.g. Kang and Shivdasani 1995, 1997). Regardless of the social welfare implications of such alternative objective functions, the degree to which different categories of our firms deviate from value maximization is of interest.

We therefore examine sales growth rates as one such non-financial performance measure. We define *sales growth* as the logarithm of the firm's current year sales less the logarithm of its sales one year earlier. Nominal sales are used because inflation remained low throughout the sample window. Our second non-financial performance measure is *employment growth*, defined as the logarithm of the firm's current year number of employees less the logarithm of the number of its employees one years prior.

Control variables

The statistical tests in the next section require various controls. Industry fixed effects are defined using the two-digit Development Bank of Japan industry codes. *Leverage* is long-term debt scaled by estimated replacement cost. *Capital expenditure* for year t is the change in fixed assets from year $t-1$ to year t , plus depreciation in year t . It is scaled by total sales in year t . Firm *age* is measured from the year of incorporation of the firm. Firm *size* is the logarithm of replacement cost.

4. Findings

4.1 Subsample comparisons

Our first sets of statistical tests, shown in Table 3, contrast dimensions of firm performance across differently controlled firms.²⁵ Across the board, founder-run firms are the best performers, followed by non-blood heir-run firms. Though non-*don* firms are the largest of all, non-blood heir-run firms are substantially larger than all other *don* firms. However, they are not greatly different in terms of leverage. Unsurprisingly founder-run firms are younger than all other categories, and also more narrowly held, though non-blood heir-run firms are the second most narrowly held category.

[Table 3 about here]

Our sample is very nearly equal to the full population of listed Japanese firms, so the numbers in Table 3 are essentially population means, and are thus economically meaningful even without formal statistical tests. To compare performance across these categories formally, we nonetheless perform t-tests across categories, controlling for year and industry fixed effects, clustering residuals by firm to compensate for longitudinal persistence. To do this we run regressions of the form

$$[8] \quad \pi_{j,t} = \sum_k b_k \cdot \delta_{j,t}(k) + \sum_t c_t \cdot \delta_t + \sum_i d_i \cdot \delta_i + e_{j,t}$$

where $\pi_{j,t}$ is firm j 's performance in year t (in terms of one of ROA, Q, sales growth or labor force growth); the $\delta_{j,t}(k)$ are a proper subset of indicator variables [1] through [7], with k one of founder, blood heir, non-blood heir, sarariman, or non-*don*. The δ_t are year fixed effects; the δ_i are industry

²⁵ We winsorize the data at 1% to attenuate the effect of extreme observations. Later in the robustness tests section, we repeat our main tests using un-winsorized data.

fixed effects; and the $e_{j,t}$ are residuals, clustered by firm. The t-tests are to reject the null hypothesis that a coefficient b_k is zero, and are displayed in Table 4.

In terms of profitability and shareholder valuation, founder firms statistically significantly outperform every other category of firm except non-blood heirs, whose firms perform statistically indistinguishably from founder firms. Founder firms significantly outperform non-blood heir firms only in sales and labor force growth rates. This is unsurprising, since Table 3 shows non-blood heir firms to be substantially larger (¥164B versus ¥58.2B) and older (43 versus 29 years since founded), and are thus plausibly less prone to very rapid growth.

The panel using non-*don* firms as the benchmark shows family firms (*don* firms excluding founder firm) outperforming non-*don* firms across the board. Notably, this performance premium rests primarily upon blood heir-run firms and non-blood heir run firms, not on family firms run by professional *sarariman* CEOs. The second panel, using firms run by their founders' blood descendents as the benchmark, confirms that founders outperform founders' progeny across the board; but that blood heirs outperform non-*don* firms. Non-blood heirs outperform or tie all categories save founders; in particular, non-blood heirs outpace blood heirs, *sarariman*, and non-*don* managers in profitability, and outpace *sarariman* and non-*don* managers in valuation. Finally, *sarariman* firms outperform no other category at all, and lag all other classes of *don* firms. *Sarariman*-run family firms' performance is statistically indistinguishable from that of non-*don* firms.

[Table 4 about here]

4.2 Regressions controlling for firm characteristics

Table 5 expands upon the results in Table 4 by controlling for firm characteristics: size, leverage, capital spending and age, in regressions of the form

$$[9] \quad \pi_{j,t} = \sum_n a_n \cdot x_{n,j,t} + \sum_k b_k \cdot \delta_{j,t}(k) + \sum_t c_t \cdot \delta_t + \sum_i d_i \cdot \delta_i + e_{j,t}$$

where $\pi_{j,t}$ is one of our firm performance measures, the $\delta_{j,t}(k)$ are some proper subset of the firm-control indicator variables [1] through [7], the $x_{j,t}$ are control variable, the δ_t are year fixed effects, the δ_i are industry fixed effects, and the $e_{j,t}$ are residuals, again clustered by firm.

As in Tables 3 and 4, founder-run firms and family firms both significantly outperform non-*don* firms in all dimensions. Larger firms and firms with more aggressive capital budgeting generally outperform, while more leveraged firms and older firms generally underperform.

[Tables 5 and 6 about here]

After controlling for these firm-level characteristics, in addition to industry and year fixed effects, and again clustering residuals by firm, Table 5 reconfirms the superior performance of founder and family firms across all dimensions of firm performance.

Table 6 replicates the regressions in Table 5, but using different firm categories as the benchmark for statistical comparison. Only the coefficients for the control groups ($\delta_{j,t}(k)$) are presented to facilitate inter-group comparison. The pattern of signs and significance levels in Table 6 is little different from that in Table 4.

In terms of profitability and shareholder valuation, founder firms statistically significantly outperform every other category of firm except non-blood heirs, whose firms perform statistically indistinguishably from founder firms in terms of accounting profits and shareholder valuations. As

in Table 4, founder firms significantly outperform non-blood heir firms in sales and labor force growth rates. Since firm size and age are among the control variables in Tables 5 and 6, neither of these factors can explain the high growth rates of founder firms. This suggests that the founders of firms that list during their founders' lifetimes are an unusual class of people, perhaps possessing a scarce entrepreneurial talent (Knight 1921; Hayek 1945; Schumpeter 1950). Since we do not observe founder-run firms that grow insufficiently to list within their founders' lifetimes, a self-selection problem may be present – we only observe the best founder-run firms. Comparing the other categories to founder-run firms thus tests them against a perhaps overly high hurdle.

The panel using non-*don* firms as the benchmark again shows non-founder family firms outperform non-*don* firms across the board, save that non-blood heir firms no longer outgrow non-*don* firms. The margin by which non-blood heir firms outperform non-*don* firms in terms of accounting profits and shareholder valuations now exceeds that for blood heir firms; and this difference is highly significant for accounting profits – though not for valuations. After controlling for size, age, leverage, and capital spending, non-blood heirs match or surpass blood heirs. *Sarariman*-run family firms' performance again lags that of the other two types of family firm, with performance statistically indistinguishable from that of non-*don* firms.

The tables also tentatively suggest that blood heir firms might attend more to the arguably uniquely important Japanese corporate goals of employment and sales growth, though. Non-*don* firms and *sarariman* firms, the categories for which financial performance might arguably be the least important, show no evidence of exceptional employment or sales growth performance.

4.3 Causality

The results above demonstrate a set of correlations between firm performance and control. However, causation is unresolved. Non-blood heirs might replace biological sons in the negative tail of the talent bell curve; and the threat of being replaced by a non-blood son might blunt the deadening of talent Carnegie (1899) postulates afflicting heirs to great fortunes.

But the converse is also possible. A current *don* might be more prone to pass control to a beloved son if the firm is running more smoothly; and the son might covet control of a better performing family firm more earnestly (Bennedsen et al. 2007). Smith and Amoako-Adu (2005) and Perez-Gonzalez (2006) overcome this endogeneity problem with event studies that show stock price declines upon the announcement that control is to pass to a son, rather than a professional manager, in Canadian and US family firms, respectively. Bennedsen et al. (2007) overcome the problem by noting that family succession is more likely, independently of firm performance, if the old *don*'s firstborn child is male. This lets them identify inherited corporate control as causing poor performance in Danish family firms.

The grooming of a successor likely begins years before the actual succession event, presumably at adoption where there is a formal adoption, and the succession probabilities presumably resolve over time. This precludes precisely defined abnormal stock return event studies of successions. We therefore develop a set of endogeneity tests similar in spirit to those of Bennedsen et al. (2007), utilizing information we possess about controlling families, and employ a less precise event study methodology than that of Smith and Amoako-Adu (2005) and Perez-Gonzalez (2006), which works against finding significant effects. Since information about business families' succession plans may enter the public domain slowly, and well in advance of actual successions, equity value changes upon successions are especially likely to be biased towards zero.

We define a succession event as the transfer of control from a *don* to a successor, who may be either part of the family (via blood or adoption), a *sarariman* amenable to the blockholder family, or an outsider where the founder or his heirs sell out. We identify 915 such events; but drop 18 where control shifts from a founder to a co-founder, 124 that involve either an incoming or an outgoing temporary *sarariman*, 117 where the succession event was within 7 years of a previous

succession event, and 231 for lack of complete family tree data. This leaves 425 econometrically viable succession events, listed in the first two columns of Table 7.

The most common succession event – 57% of the total – is to blood heirs, reinforcing the importance of traditional family firms in Japan. However, almost one in ten family firms opts for non-blood heirs; and almost one in five turns management over to a *sarariman* and becomes a seemingly passive blockholder. In over 85% of successions, the family thus stays on – either in direct charge or as a blockholder. The family cashes out in less than 15% of successions.

[Table 7 about here]

Inspection of the succession events reveals a few regularities. First, non-blood successions occur where the controlling family's stake is larger. The mean family control block is 13.4% in successions to blood heirs, but 18.6% in successions to non-blood heirs. The difference in medians is even starker: 8.7% for blood versus 18.4% for non-blood heirs. Both differences are highly significant ($p = 0.02$ and 0.01 for mean and median differences, respectively). Conceivably, families more closely tied to their firms dare not risk an iffy blood heir. Alternatively, families' larger blocks might anticipate superior performance under non-blood heirs.

Second, non-blood heirs' personal equity blocks average 3.6% of their firms' equity in the three years after the succession (up from 3.4% the in three years prior).²⁶ Since the heir becomes head of the family, it may be more appropriate to consider the whole of the family's stake as in his charge – averaging roughly ¥8.74 billion in 2000 constant yen (approximately US\$87 million).²⁷ That is, a star manager who becomes an adopted son and/or son-in-law wins stewardship of a fortune averaging about \$87 million, along with all the attendant power, influence, and status.²⁸ The typical Japanese CEO's compensation – measured as salary plus bonus plus stock options – is modest compared to a similarly situated US C.E.O. (Kato and Kubo 2006). However, if we include the inheritance of a family fortune as compensation, the lifetime income of Japanese CEOs becomes highly skewed. Conceivably, the chance of becoming heir to a family business might attract talent and inspire effort in Japanese family firms, effects associated with tournament competition for high paying CEO jobs in professionally managed U.S. firms (Lazear and Rosen 1981; Demsetz 1996; Frank and Cook 1996).

Our strategy is to look at performance changes around succession events, and regress these cross-sectionally on indicator variables for the different types of succession shown in Table 7. That is, we run regressions of the form

$$[10] \quad \Delta\pi_j = \sum_n a_n \cdot x_{n,j} + \sum_k b_k \cdot \delta_j(k) + \sum_t c_t \cdot \delta_{t(j)} + \sum_i d_i \cdot \delta_{i(j)} + e_j$$

where the x_j are control variable, the δ_t are succession year fixed effects, set to one if succession j occurs in year t and to zero otherwise; the δ_i are industry fixed effects; and the e_j are residuals. We now use j to index successions, rather than firms; and the $\delta_j(k)$ are now defined in [11] through [14] below. Some firms have more than one succession event, so all standard errors are computed by clustering at the firm level.

²⁶ In contrast, blood heirs stakes average 2.7% in the three years after succession, up from 2.6% in the three years before. Both are significantly below the corresponding non-blood heir means.

²⁷ All inheritance figures are converted to 2000 constant yen at the CPI.

²⁸ Mean (median) family stakes in the panel are worth approximately ¥16.3 (¥0.69) billion under non-blood heirs, and ¥7.8 (¥0.86) billion under blood heirs.

The dependent variable, $\Delta\pi_j$, is the change in one of firm j 's performance measures: *ROA*, *Q*, *sales growth*, or *labor growth*. Differences are two-years following the event year minus two-year means prior to the event year. The event year is excluded because we cannot date the succession events precisely. We use two-year performance windows because Japanese boards typically vote on renewing CEO s' contracts biannually.

The control variables, x_j , include *firm size*, *firm age*, *leverage*, and *capital expenditure*. We employ these because larger, older, less leveraged firms plausibly have more stable performance over time, and because firms with larger capital budgets allow greater scope for unqualified CEOs to cause damage.²⁹ Succession year fixed effects should remove macroeconomic factors, and industry fixed effects should remove industry related performance trends, also plausibly unrelated to the effects of succession.

We now use k to index the type of successor who replaces the departing *don*, encoded as follows:

$$[11] \quad \delta_j(\text{blood heir}) \equiv \begin{cases} 1 & \text{if firm } j \text{'s new } don \text{ is a blood heir of the old } don \\ 0 & \text{otherwise} \end{cases}$$

$$[12] \quad \delta_j(\text{non-blood heir}) \equiv \begin{cases} 1 & \text{if firm } j \text{'s new } don \text{ is the old } don \text{'s adopted son or son-in-law} \\ 0 & \text{otherwise} \end{cases}$$

$$[13] \quad \delta_j(\text{sarariman}) \equiv \begin{cases} 1 & \text{if firm } j \text{'s controlling family hires a professional CEO} \\ 0 & \text{otherwise} \end{cases}$$

$$[14] \quad \delta_j(\text{cash out}) \equiv \begin{cases} 1 & \text{if firm } j \text{'s controlling family liquidates its control block} \\ 0 & \text{otherwise} \end{cases}$$

Our regressions [10] are run on a sample of 425 successions, of which 242 are to blood heirs, 42 are to non-blood heirs, 81 leave *sarariman* CEOs running firms with family blockholders, and 60 see the family cashing out and departing completely from the scene. Table 8 summarizes the coefficients of the succession type indicator variables; those of the controls and fixed effects are suppressed for brevity. The table shows the largest relative performance increases when non-blood heirs take over, and the largest relative performance declines when the family turns the firm over to a *sarariman*, but remains a blockholder. Successions to blood heirs and cashing out are in between, and statistically indistinguishable.

As noted above, inferences from Table 8 are complicated by possible selection bias: perhaps non-blood heirs are chosen more often by firms anticipating good times; perhaps family firms hire *sarariman* CEOs when bad times lie ahead and family members dare not step in.

[Table 8 about here]

To explore these issues, we estimate two-stage least squares (2SLS) analogs to the regressions in Table 8. Our first stage uses multinomial logit to estimate probabilities for different types of succession event,³⁰

²⁹ With a mean age of 52, incoming family CEOs are younger than their non-family counterparts (mean age 61). The typical family firm is also younger: 46 years old at the succession vs. 50 for non-family firms. Blood and non-blood heirs have statistically indistinguishable mean ages at their successions; as do their firms.

³⁰ Sequential logit comparing two succession choices at a time are ill-suited for the first stage since we have no strong priors regarding which two succession types ought to be considered first. By contrast, the multinomial logit allows us to be more agnostic regarding the priority of succession types, giving the outgoing

$$[15] \quad \delta_j(k) = \sum_n \alpha_n \cdot x_{n,j} + \sum_m \beta_m z_{m,j} + \sum_t c_t \cdot \delta_{t(j)} + \sum_i d_i \cdot \delta_{i(j)} + u_j$$

and the second stage uses cross sectional OLS to estimate the exogenous effects of these succession events on firm performance, *viz.*

$$[16] \quad \Delta\pi_j = \sum_n a_n \cdot x_{n,j} + \sum_k b_k \cdot \hat{\delta}_j(k) + \sum_t c_t \cdot \delta_{t(j)} + \sum_i d_i \cdot \delta_{i(j)} + e_j$$

To operationalize the strategy in [15] and [16], we require variables, denoted $\{z_{m,j}\}$ in [15] that are plausibly exogenous for economic reasons, correlated strongly with the actual succession choices, and uncorrelated with the true residuals in [16]. Below we describe the set of three instruments used to derive predicted successor types in [15]. We note that the number of instruments equals the number of successor choices in [16], making the model just identified.

Obviously, if the departing *don* lacks male issue, the firm is less likely to pass to a blood heir. Although women in Japan are making major strides towards career equality in other spheres, female CEOs remain rare. Our first instrument is therefore an indicator variable set to one if we document the existence of a male blood heir to the current *don*, and to zero otherwise. We construct this variable by scanning through our family trees, constructed as described in section 3.1.

Even if the current *don* has a biological son, the son may not be interested in the family business. Likewise, the current *don* may not wish to found a business dynasty, and may keep his relations away from his firm. Our second instrument therefore measures the *don's* family's involvement in his firm. We gauge this with an indicator variable set to one if the *don* has any blood relations (including siblings) on the board at the time of the firm's IPO (sufficiently pre-dating the succession event), and zero otherwise.

Finally, a previous non-blood heir sets a family precedent, and may increase the odds of another. Our third instrumental variable is therefore a measure of the departing *don's* cultural amenability to adult adoption. This indicator variable is set to one if the controlling family adopted an adult son at any time in the past, including years prior to the IPO; and to zero otherwise.³¹

Latent variables are always a concern in econometric frameworks of this sort, so we must include appropriate control variables. Obviously, macroeconomic effects might both influence successions and firm performance. We therefore include succession year fixed effects in both stages. Many latent factors plausibly affect particular industries, so we include industry fixed effects in both stages. Older, highly leveraged, or larger firms may be qualitatively different from younger, less leveraged, or smaller ones, so we include logarithms of firm age and size, and book leverage, defined as in [10], in the second stage regression. We include capital expenditure to control for the effect of investment on performance changes.

It is possible that a *don* is more likely to bequeath control to a blood heir who is more able and smart. That is, a more demonstrably able biological son is presumably a stronger succession

don a full menu of successor types to pick from. That is, he can decide to pass on the firm's rein to a blood son, an adopted son, a sarariman, or to sell the firm to an outsider.

³¹ We note that to be considered valid, the instrument must affect the second stage dependent variable only through the first stage choice. For example, it is possible that greater family involvement may directly affect performance. However, it is very unlikely that family involvement prior to succession affects the *change* in performance following the succession event, the dependent variable for the 2nd stage OLS regression.

candidate, all else equal. We are able to gauge biological sons' general intelligence by their university degrees. This is because Japan has two clearly differentiated types of universities: imperial universities, to which admission depends solely on entrance examination scores; and other universities, to which admission is either less selective in general or possible by dint of special quotas for graduates of expensive university-affiliated preparatory schools. The imperial universities – Tokyo University, Kyoto University, Tohoku University, Osaka University, Kyushu University, Hokkaido University, and Nagoya University, along with Hitotsubashi University – each conduct their own rigorous entrance examinations, a process widely acknowledged to select solely on merit (Takeuchi 1997).³² Consequently, a degree from one of these reliably implies a high level of intelligence, and this presumably correlates with ability. Some other universities, notably elite private universities such as Keio and Waseda, also boast very highly qualified academic faculty. However, their alternate admissions paths – especially their university-run prep-school channels – make their degrees less reliable certifications than those of the imperial universities – especially for scions of wealthy families.³³ Biological sons who attended imperial universities are thus almost surely quite intelligent; but those who attended other universities might or might not be.

Our control variable for blood heir ability is an indicator variable set to one if the biological son to the current *don* graduated from an imperial university, and to zero otherwise. We construct this variable by scanning through our director database for sons of *dons*, consulting firm and family histories, and checking the Japanese equivalent of *Who's Who* and other data sources described in section 3.1 – these data precede the succession event. If the old *don* had more than one biological son, we set the dummy variable to one if any of his sons attended an imperial university.

The distribution of imperial university graduates across blood and non-blood heirs is shown in the rightmost two columns of Table 7. Of the 242 biological sons who assume control of firms in our sample, only 51, or 21%, attended an imperial university; while 17, or 41% of the 42 non-blood heirs did so. As a comparison, we note that non-blood heirs are almost twice as likely as blood heirs to be imperial university alumni (t-test $p = 0.0204$).

We also control for the outgoing *don's* talent because a highly talented *don* may value a highly talented successor more highly. We therefore construct an *imperial university education dummy* for the outgoing *don* in a manner similar to that described above. Also, as the old *don* ages, his abilities may wane and pressure to step aside may grow. The *don* cannot readily alter his biological aging process, so we also include the logarithm of his age as a control variable. *Ceteris paribus*, we expect that older *dons* are more likely to abdicate the top job.

[Table 9 about here]

Our first stage estimation reveals the three instrumental variables to be highly jointly correlated with the actual succession outcomes, and possess the predicted signs. For e.g., the sign of the first instrument variable, the presence of a blood son, is positive and significant in [15] for blood heir, sarariman and sell-out choices (non-blood heir as the default benchmark category), indicating that adopted heirs are less likely when the *don* has a blood son. Similarly, the second

³² Hitotsubashi, though not officially designated an imperial university, uses similar entrance tests, and is widely regarded as an elite top-tier university; see e.g., Kerbo and McKinstry (1995, p. 140), who count Hitotsubashi among the three most prestigious universities). We therefore include Hitotsubashi among imperial universities.

³³ For e.g., Waseda Junior–Senior High School's website (www.waseda-h.ed.jp/Overview/index_e.html) advertises that the “school is affiliated with Waseda University and about 50% of the graduates of high school are recommended to Waseda University. Others take entrance examinations and are admitted to the universities of their choice, such as the University of Tokyo, Kyoto University, Keio University, Tokyo Medical University and so on.”

instrument, the presence of family on the board of the firm, also has a positive and significant coefficient, consistent with the argument presented earlier, though it is only significant for the blood heir choice. Finally, the third instrument, the cultural leanings of the old don vis-à-vis adoptions, has a negative and significant coefficient for all three choices, again indicating that an adopted heir choice is more likely when the firm has a culture of adoptions in its history. Overall the 1st stage model has a good fit, with an R-square of 0.5176. A Hausman test (Nakamura and Nakamura 1981) rejects the instruments' joint insignificance ($\chi^2_6 = 502.3$, $p < 0.0000$) at a confidence level well below the standard threshold for weak instruments tests (Stock et al. 2002).³⁴

The second stage results are presented Table 9, and for brevity, we have presented only the coefficients on the successor types with different default benchmarks to facilitate pair-wise comparisons across successor types. For e.g., the first panel compares non-blood heirs to the other three successor types, and reiterates that non-blood heir successions induce significantly larger ROA gains than do blood heirs or *sarariman* successions. The point estimates show cashing out to be worse than a non-blood heir, but better than a blood heir or *sarariman*; however none are statistically significant. A blood heir is marginally superior to *sarariman* ($p = 0.06$) in ROA gain.

The Q ratios show no significant differences across succession types. This may reflect the more forward-looking nature of valuation-based performance estimates. Once a family succession is locked in, an efficient market should discount share prices to reflect the expected impact of the likely succession event, and this tells against the power of average Q ratios in Table 9.

Table 9 ties non-blood heir successions to both enhanced ROA and enhanced employment growth – inconsistent with adopted heir successors trading-off financial performance for growth as conflicting corporate objectives. Cash out successions, where the family exits the firm entirely, presage higher sales growth than do blood-heir successions, though employment growth is a statistical tie for the two groups. In the next section, we describe additional robustness checks to establish the significance of results discussed earlier.

4.4 Robustness checks

The results in the tables above survive a battery of robustness checks.³⁵ In describing these, we say the robustness check generates *qualitatively similar* results if the pattern of signs, significance levels, and rough coefficient magnitudes is identical to that shown in the corresponding tables.

Our original results, both panel and event tests, were based on data winsorized at 1%. We repeat both tests using un-winsorized data, and find that qualitatively similar results ensue. In particular, founders and non-blood heirs continue to out-perform blood heirs, *sarariman*, and non-*don* firms, and transitions to non-blood heirs are followed by superior performance improvements vis-à-vis other successor groups.

Our standard errors adjust for heteroscedasticity and are clustered by firm to account for the persistence of firms' data within our panel, and for more than one succession event per firm in our causality analysis. Using simple pooled OLS standard errors greatly magnifies our t-ratios, and renders virtually all coefficients in all the tables statistically significant. Not clustering by firm also magnifies t-ratios in our causality study, and some differences that are insignificant in Table 8 and Table 9 attain statistical significance. In particular, *sarariman* successions induce lower performance in terms of accounting profit than blood heirs. In fact, *sarariman* successions are associated with the lowest performance among the four types of successors.

We pool sons-in-law and adopted sons, who are also sons-in-law, together and call these

³⁴ We do not tabulate the 1st stage coefficient estimates to conserve space, but will be happy to provide these to the reader upon request. Second stage estimates are provided for the successor type in table 9 for different control groups, though other control variables are suppressed.

³⁵ The following robustness checks are not shown in tables, but are all available from the authors.

non-blood heirs. However, the two subgroups might have different performance effects. We therefore rerun all our regressions treating these as separate classes of family firms. We find formally adopted sons-in-law outperforming blood heirs in terms of accounting profit rates by 0.61% - a magnitude greater than that by which all non-blood heir firms outperform blood heir firms; but the p-level ($p = 0.11$) now falls below standard thresholds of statistical significance. Formally adopted sons' firms outperform other sons'-in-laws' firms by 0.125% in ROA, 0.038 in Qs, and 0.31% in labor force growth, and lag behind by 0.048% in sales growth; but none of these coefficients is statistically significant. Formally adopted sons-in-law and other sons-in-law have similar median tenures as CEO - 19 and 17 years, respectively. Overall, the data suggest that formally adopted sons-in-law and other sons-in-law are qualitatively similar - both to each other and compared to other successor types. This supports treating them as one group.

Our sample includes four female *dons*. Closer inspection reveals these to all be spouses of previous *dons*. In the tables, we consider these to be *dons* in their own right. However, their mean tenure is only six years, and two are explicitly minding the shop for husbands entering politics. Our female *dons* might thus be serving as placeholder CEOs. We therefore drop these four cases and rerun all our regressions. Qualitatively similar results ensue.

We exclude successions to interim sarariman CEOs who are succeeded by a blood or adopted heir. Rerunning our tests including these placeholders as bona fide *sarariman* successions yields almost identical patterns of signs and significance levels to those shown in the table. The p-level for the Q-ratio difference between blood sons and ALL sarariman deteriorates from 0.03 to 0.14, and that between non-blood heirs and sarariman deteriorates from 0.03 to 0.09. Other significance levels are not materially changed.

Repeating these tests with interim sarariman as a separate category materially alters neither the key coefficients nor their significance levels in the panel and the event study tests. In the panel tests, interim sarariman firms outperform non-don firms in Q-ratios (p -value=0.01) and Labor Growth (p -value=0.05), whereas regular sarariman firms are statistically indistinguishable from non-don firms across all performance metrics. Adopted son firms continue to outperform regular sarariman firms in ROA and Q, but are statistically indistinguishable from interim sarariman firms across all performance measures. Blood heir firms outperform regular sarariman firms in Q-ratios and labor growth, but are statistically indistinguishable from interims across all performance measures. Finally, interims outperform regular sarariman firms in Q-ratios and labor growth. These results are consistent with our thesis that interim sarariman CEOs are placeholders, and deliver performance similar to that of heirs, from whom they may well take directions. Regular sarariman firm's performance again lags that of heir firms.

Finally, we split the interim sarariman CEOs into two groups, those with job tenures longer than the median (25th percentile), and those with shorter tenures. We do this because long-serving interim sarariman may well become more similar to regular sarariman. Again, all results retain signs and significances levels, except that the p-value for the Q-ratio difference between blood sons and sarariman deteriorates from 0.02 to 0.12 (0.14).

Throughout the tables, we define ROA as operating income divided by replacement cost, the denominator from our average Q measure. If we instead define ROA as operating income over the book value of assets, qualitatively similar results ensue throughout.

We define sales growth as the logarithm of the firm's current year nominal sales less the logarithm of its sales one year earlier. Inflation was very low throughout our sample period, but we nonetheless repeat our tests using real sales, deflated using the GDP deflator, and find qualitatively similar results. We also repeat all our tests with 3 and 5-year sales growth rates, and again find qualitatively similar results. Using the logarithm of current employees less the logarithm of employees three and five years earlier to measure labor force growth likewise yields qualitatively similar results to those in the tables.

In the tables, leverage is long-term debt scaled by estimated replacement cost. As

robustness checks, we redefine leverage with total debt, rather than long term debt, in the numerator; with unadjusted book value of assets in the denominator; and with both changes. Qualitatively similar results ensue in all three cases.

We also repeat our tests using alternative definitions of family control. If we redefine family firms as only those whose founding family is the largest equity blockholder, founder and non-blood heir firms again outperform non-*don* firms in ROA and valuation, and founder and blood-heir firms again outdo non-*don* firms in sales and employee growth rates. If we redefine family firms as those whose founding family owns at least a 10% equity block, qualitatively similar results ensue.

Another possibility is that some founders may be disinclined to pass on the reins to family firms. We therefore define *Bill Gates founders* as those whose founder's relatives do not ascend to the CEO job after the founder steps down. We find no statistically significant difference between firms run by Bill Gates type founders and other founders. Both subsets of founder firms outperform firms run by blood-heirs and non-*don* firms; but neither significantly outperforms non-blood heir firms - as in the tables. Thus, founders' firms exhibit superior performance regardless of their discernable succession preferences.

We investigate whether our main panel results are driven by particular episodes in the sampling period, such as the 1980s "bubble economy" or the 1990s "lost decade". The superiority of adopted heirs, biological heirs, and founders, persists in each decade of our sampling period (that is, the 1970s, the 1980s, and the 1990s.) in both ROA and Q dimensions. However, ROA superiority under blood heirs is driven mainly by the 1980s, and is statistically insignificant in other decades.

We also perform a battery of robustness checks specifically on our causality analysis. First, Table 9 uses the old *don's* degree attainment from an imperial university as a proxy for his talent. We substitute an alternative proxy for the old *don's* talent, the average annual ROA of the firm under the *don's* watch *excluding* the five years immediately prior to the succession event, as a control. Performance thus defined is arguably sufficiently far removed from the succession event to avoid any immediate influence on the succession process, and in any case ought not to directly affect the *change* in performance following the succession event. Re-estimating the two stage procedure in Table 9 with this alternative proxy for the old *don's* talent yields results qualitatively similar to those presented in the table. Using both measures of the old *don's* talent in concert also yields qualitatively similar results.

Our instrument for the *don's* family ties is the presence of blood relations on the firm's board at the time of the IPO. While this is reasonable in light of the 25 year mean gap (median=26 years) between the IPO and the succession event, we re-estimate Table 9 dropping the 14 successions that follow the IPO by five years or less. Again, qualitatively similar results ensue.

Tables 8 and 9 measure performance gains by average performance in the two years after the succession less average performance in the two years before the succession. If we use three years averages after and before, significance levels weaken somewhat, but the patterns of coefficient magnitudes and signs remain unchanged. The ROA differences between blood heirs and non-blood heirs remain significant, as do those between non-blood heirs and *sarariman*; and the p-level for the employee growth rate difference between blood heirs and non-blood heirs rises to 0.08. Overall, differences in three-year average pre and post-succession performance measures tell very similar stories to those in the tables.

We also consider the possibility that adopted heirs gain higher performance by taking more risk. We examine this possibility by comparing the standard deviation of each of the four performance measures (ROA, Q, Sales growth and Employment growth) using the current year and the prospective four years of performance under the watch of adopted heirs with each of the other control groups. We find that - with one exception - none of the realized performance measures display a higher standard deviation under the watch of adopted heirs vis-à-vis any of the other control groups. The exception is the higher standard deviation of Q-ratios under the watch of adopted heirs relative to non-family firms as a group (p-value of difference=0.006). Indeed, other

groups actually have a higher point estimate of realized risk measures, with the difference in standard deviation of ROA and Sales Growth under sarariman vs. adopted heirs being significant (p-values=0.000 and 0.003 respectively), and the difference in the standard deviation of Sales Growth, Employment Growth and Q-ratios between Founders and Adopted Heirs being significant (p-values=0.025, 0.004, and 0.002 respectively).

We also compare the change in the variance of performance measures for adopted sons following succession events. First we measure the change in the variance of performance measures from before (based on years -5 through -1) to after (based on years +1 through +5) the succession event anointing the adopted heir as CEO. We then estimate the same change for successors from other control groups. Finally, we compare the change in the variance of performance measures for adopted-heir successors with other successors. We find that when adopted sons succeed as CEOs, the change in the variance of ROA is significantly higher than that of blood-heir successors (p-value<0.05). Variance changes following succession events for the other three performance measure - Q-ratios, sales growth, and employment growth - are not significantly different for adopted-heir successors vs. blood-heir successors. Similarly, comparing adopted-heir successors to sarariman successors, and to selling out, we do not find that performance changes display a significantly higher variance for any of the four performance measures. Overall we interpret these results as being inconsistent with the hypothesis that adopted heirs might achieve better performance by taking more risk than other sorts of CEOs do.

5. Conclusions

Inherited family firms are a more important part of the postwar Japanese economy than is generally realized. In 2000, roughly a third of our sample (firms that listed in years up to 1970) were run by their founders' heirs or had his heirs as major equity blockholders. We also find that family firms tend to stay in the family - over 85% of intergenerational transitions preserve family control.

This is puzzling, for Burkart et al. (2003) model inherited family control prevailing where private benefits of control exceed the benefits of diversification. Even if the families' private benefits of control are primarily non-pecuniary (Demsetz and Lehn 1985), block and voting premiums should reveal the value families implicitly ascribe to these benefits. Yet international comparisons using block and voting premiums to infer the sum of pecuniary and nonpecuniary private benefits of control show these to be meager in Japan (Dyck and Zingales 2004; Nenova 2003).

Without private benefits, family control should be unsustainable in a competitive economy for three fundamental reasons. First, intelligence is at most only partially and undependably inherited (Herrnstein and Murray 1994; Heckman 1995; Devlin et al. 1997), and business talent is plausibly a dimension of intelligence (Thorndike 1920; Payne 1983; Gardner 2007), perhaps complementing general intelligence (Cote and Miners 2006). Second, the Carnegie (1899) conjecture that immense inherited wealth deadens talent finds empirical support (Holtz-Eakin et al. 1993). Third, reserving the top job for family precludes open CEO tournaments, which Lazear and Rosen (1981), Demsetz (1996), Frank and Cook (1996), and others show highly effective at wringing effort from executives throughout the firm.

This threefold competitive disadvantage readily explains the subpar performance of inherited family firms in the U.S. (Morck et al. 1988; Perez-Gonzalez 2006; Villalonga and Amit 2006; Miller et al. 2007), Canada (Morck et al. 2000), Denmark (Bennedsen et al. 2007), and other countries (Bertrand and Schoar 2006); and the rapid diminution of family equity blocks observed in the United Kingdom (Franks et al. 2004).

Yet we find Japanese family firms puzzlingly competitive. They outperform professionally managed firms in both profitability and in market valuation (as measured by Tobin's Q). Most importantly, all these results exclude firms run by their founders from the family firm category. Family firms also display higher growth in sales and employees, suggesting they are not maximizing

profits at the expense of non-financial objectives, such as market share or employment, which Aoki (1990), Porter (1990), and others argue to be more important in Japan than elsewhere. However, analogous results for sales growth changes do not emerge from the succession event studies. We thus have scant evidence that non-financial objective differ in importance across firm types.

Japan thus appears to resemble developing economies, where Khanna and Rivkin (2001) report old-moneyed family firms to be stars across many performance dimensions. They link this to the importance of business families' reputations and connections in countries where corruption is prevalent and formal institutions are weak (Faccio 2006; Morck and Yeung 2003; Fogel 2007), arguing that family control confers genuine economic efficiency benefits in these environments. Yet Japan scores very low on international surveys on corruption and its institutions are strong (La Porta et al. 1997). Corruption scandals and institutional flaws appear from time to time in Japan, but not clearly more often than in the United States or United Kingdom. Moreover, professional networking is intense in Japan (Gerlach 1997), so family ties should be correspondingly devalued. Thus, although we cannot categorically rule out "connections" as underlying Japanese family firms' admirable performance, we concede that this is implausible.

We trace the relative success of family firms in Japan to a unique custom of incorporating fresh blood into the family via adult adoptions, many of which also entail an arranged marriage into the controlling family. Adopting highly qualified adults to head family businesses has the triple effect of displacing untalented blood heirs, eliciting effort from professional managers who might be "promoted" to adopted son, and eliciting effort from blood heirs who live under an ever present threat of being replaced by a "better" adopted son. Consistent with this logic, we find a broad body of evidence showing family firms run by adopted heirs outperforming family firms run by blood heirs, and further showing adopted and blood heir managed firms both outperforming both family firms run by professional *sarariman* CEOs and non-family firms.

As in other corporate governance settings, such as hostile takeovers, the threat matters more than the caning. During the height of the US hostile takeover wave in the 1980s, only one in ten takeovers was manifestly hostile, with the target board advising shareholders not to tender (Morck, Shleifer and Vishny 1988a). Yet the threat of a hostile takeover was thought to elicit economically significant greater effort from CEOs across the board (Shleifer and Vishny 1997). Only one in ten successions in our sample are to non-blood heirs. Perhaps, as in Voltaire's (1759) *Candide*, where "it is good, from time to time, to kill an admiral, to encourage the others," a low probability threat can be effective if the penalty is sufficiently large.³⁶

Our findings suggest that the unexpectedly high incidence and prosperity of old-moneyed family firms in Japan need not disturb the generality of a key premise of the business history literature: that professionalization raises firm efficiency (Landes 1949; Chandler 1977). While Japan is much less unique than often portrayed (Beason and Patterson 2006), the practice of adult adoptions into business families seems genuinely exceptional. This practice, and the incentives it creates for both professional managers and potential heirs, plausibly renders Japanese family firms more professionally managed than their peers elsewhere, in that star professionals occupy the top job, and thus perhaps also arguably render them not genuine family firms. Even without adult adoptions, carefully selected sons-in-law might have similar effects. This suggests that family firms might better prosper where arranged marriages are more socially acceptable, consistent with evidence presented by Mehrotra et al. (2009).

Finally, superior performance in firms run by non-blood heirs, likely selected for talent, argues that "CEOs matter" (Bertrand & Schoar 2003); Bennedsen et al. 2010); that successful CEOs possess valuable talent – e.g. creativity (Schumpeter 1911), rationality (Knight 1921, c. 9), or foresight (Hayek (1941, 334); and the general existence of "leader effects" (Jones and Olken 2005).

³⁶ "il est bon de tuer de temps en temps un amiral pour encourager les autres", Voltaire (1759)

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Table 1: Adoption Statistics

Special adoptions, explicitly modelled on the foreign practice of finding homes for orphans and mistreated or unwanted children, are a recent innovation. *Ordinary adoptions*, in contrast, are a deeply rooted Japanese tradition, in which parents needing an heir adopt a child or adult.

	All Adoptions	Special adoptions	Ordinary adoptions of minors	Total adoptions of minors	Total adoptions of adults
	<i>yōshi engumi</i>	<i>tokubetsu yōshi</i>	<i>miseinen yōshi</i>		
1955	101,963	0	26,983	26,983	74,980
1965	82,176	0	15,018	15,018	67,158
1975	86,844	0	6,771	6,771	80,073
1985	91,186	0	2,804	2,804	88,382
1990	82,007	738	1,502	2,240	79,767
1995	79,381	521	1,111	1,632	77,749
2000	80,790	362	994	1,356	79,434
2002	85,674	350	960	1,310	84,364
2004	83,505	332	998	1,330	82,175

Sources: Tokubetsu yōshi and Child Adoptions Approved by the Court: Supreme Court of Japan. shihôtōkeinenpō Kajihen are from issues of the *Annual Report of Judicial Statistics* (Table 3 of Volume 3, Family Cases). Adoptions registered by Koseki offices are from issues of the Ministry of Justice Annual report (Hōmu nenkan).

Table 2: Summary Statistics for Main Variables

ROA is the ratio of operating income to adjusted total assets. Q-ratios is market value over replacement cost, with market value defined as replacement cost *less* book value of equity *plus* market value of equity; and replacement cost defined as assets adjusted by marking real estate and equity cross holdings to market. Sales and employee growth statistics are based on year to year percentage growth. Industry-adjustment is based on subtracting the median value for the matching two-digit Japanese exchange industry code firms, excluding the sample firm. Total assets are in billions of yen; leverage is long-term debt over replacement cost; capital expenditure is year-on-year change in fixed assets plus depreciation over lagged sales; and firm age is years since founding. Total sample size is 49,638 firm-year observations, containing firms listed on Japanese stock exchanges between 1949 and 1970. The data cover fiscal years spanning 1962 through 2000.

	Mean	Median	Maximum	Minimum	Standard deviation
Performance					
ROA	4.60%	3.92%	30.36%	-18.97%	4.50%
Industry-adjusted ROA	-0.65%	-0.94%	25.99%	-22.83%	3.89%
Q	1.40	1.28	5.79	0.29	0.42
Industry-adjusted Q	-6.13%	-10.31%	381.28%	-197.74%	36.81%
Sales growth	8.02%	6.15%	114.77%	-70.28%	16.02%
Industry-adjusted sales growth	-0.73%	-1.26%	116.82%	-87.61%	13.10%
Employee growth	-0.34%	-0.48%	58.98%	-65.44%	8.12%
Industry-adjusted employee growth	-0.61%	-0.49%	111.17%	-90.16%	9.03%
Other Firm Characteristics					
Total assets (billion ¥)	189.00	32.40	16100.00	0.17	668.00
Leverage	11.86%	9.54%	67.02%	0.00%	10.60%
Capital expenditure	3.41%	1.60%	124.15%	-116.91%	9.51%
Firm age	44.9	44.0	110.0	4.0	18.3

Table 3: Firm performance and characteristics

Don firms' founders' families are either a top 10 equity blockholder, or serve as President or Chairman. *Founder firms* are *don firms* by dint of their founders' equity block or top management position. Heir-managed firms are family firms by dint of the equity block or management position of a member of their founding family other than the founder. In blood heir firms, this is a biological descendent of the founder; in non-blood heir firms, this is an adopted son or son-in-law. Other variables are as defined in Table 2.

	<i>Don firms</i>					
	Founder firms	Family firms				Non- <i>don firms</i>
		All	Blood heirs	Non-blood heirs	Sarariman	
Performance						
ROA	7.12%	4.64%	4.57%	5.79%	3.75%	4.24%
Industry-adjusted ROA	0.69%	-0.46%	-0.49%	0.19%	-1.03%	-0.91%
Q	1.46	1.43	1.43	1.46	1.40	1.37
Industry-adjusted Q	4.35%	-3.25%	-2.79%	1.24%	-10.29%	-8.93%
Sales growth	14.72%	7.62%	7.61%	9.63%	5.55%	7.28%
Industry-adjusted sales growth	1.82%	-0.75%	-0.69%	-0.33%	-1.48%	-1.06%
Employee growth	2.42%	-0.23%	-0.13%	0.31%	-1.31%	-0.75%
Industry-adjusted employee growth	1.06%	-0.60%	-0.48%	-0.45%	-1.35%	-0.84%
Other Firm Characteristics						
Total assets (billion ¥)	58.2	120	114	164	106	237
Leverage	10.40%	9.47%	9.44%	9.49%	9.60%	13.11%
Firm age	29.2	45.5	46.1	43.4	45.2	46.7
Family ownership, %	16.3	12.6	13.1	15.7	7.4	0.0
Firm-year observations	4,272	13,882	9,730	2,125	2,027	31,484

Table 4: Relative performance by control classification, ANOVA results

Variables are as defined in Tables 2 and 3. T-tests adjust for industry and year fixed effects, and for firm-level clustering of residuals. Numbers in parentheses are p-levels for rejecting the null hypothesis of identical means. Boldface denotes significance at 5% or better.

Benchmark	Premium for	ROA, %	Q	Sales growth, %	Labour growth, %
Non- <i>don</i> firms	<i>Don</i> firms	0.729 (0.00)	0.077 (0.00)	0.929 (0.00)	0.656 (0.00)
Non- <i>don</i> firms	Founders	1.465 (0.00)	0.127 (0.00)	2.826 (0.00)	1.761 (0.00)
	Blood heirs	0.478 (0.00)	0.067 (0.00)	0.463 (0.01)	0.474 (0.00)
	Non-blood heirs	1.066 (0.00)	0.095 (0.00)	0.504 (0.11)	0.284 (0.27)
	<i>Sarariman</i>	0.109 (0.64)	0.004 (0.87)	-0.210 (0.54)	-0.313 (0.21)
Blood heirs	Founders	0.987 (0.00)	0.060 (0.00)	2.363 (0.00)	1.287 (0.00)
	Non-blood heirs	0.588 (0.03)	0.028 (0.38)	0.041 (0.91)	-0.190 (0.49)
	<i>Sarariman</i>	-0.369 (0.14)	-0.063 (0.02)	-0.673 (0.07)	-0.788 (0.00)
Non-blood heirs	Founders	0.398 (0.21)	0.032 (0.33)	2.322 (0.00)	1.477 (0.00)
	<i>Sarariman</i>	-0.958 (0.00)	-0.090 (0.02)	-0.715 (0.12)	-0.597 (0.09)
<i>Sarariman</i>	Founders	1.356 (0.00)	0.122 (0.00)	3.037 (0.00)	2.075 (0.00)

Table 5: Performance regressions, founder, family, and other firms

Variables are defined in Tables 2 and 3. Regressions are on firm-level panel data from 1962 through 2000. Total observations equal 47,102 for Q-regressions and 49,638 firm-years for all others.

	ROA, %	Q	Sales growth,%	Labour growth, %
Founder firms	1.130	0.108	2.422	1.441
	(0.00)	(0.00)	(0.00)	(0.00)
Family firms	0.375	0.050	0.357	0.304
	(0.00)	(0.00)	(0.02)	(0.01)
Firm size	0.120	0.005	0.325	0.258
	(0.00)	(0.24)	(0.00)	(0.00)
Leverage	-0.095	-0.009	-0.072	-0.068
	(0.00)	(0.00)	(0.00)	(0.00)
Capital expenditure	0.032	0.005	0.168	0.155
	(0.00)	(0.00)	(0.00)	(0.00)
Firm age	-0.016	-0.000	-0.036	-0.025
	(0.00)	(0.87)	(0.00)	(0.00)
Constant	7.360	1.878	5.087	1.771
	(0.00)	(0.00)	(0.00)	(0.01)
Adj. R square	0.33	0.35	0.31	0.17
Number of firm clusters	1,367	1,289	1,367	1,367
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes

Table 6: Performance and family control, regressions summary

Variables are defined in Tables 2 and 3. Regressions are on firm-level panel data from 1962 through 2000, and include the control variables listed in Table 5. Total observations equal 47,102 for Q-regressions and 49,638 firm-years for all others.

Benchmark	Premium for	ROA, %	Q	Sales growth,%	Labour growth, %
Non- <i>don</i> firms	<i>Don</i> firms	0.540 (0.00)	0.062 (0.00)	0.809 (0.00)	0.552 (0.00)
Non- <i>don</i> firms	Founders	1.133 (0.00)	0.108 (0.00)	2.420 (0.00)	1.438 (0.00)
	Blood heirs	0.329 (0.02)	0.054 (0.00)	0.446 (0.01)	0.442 (0.00)
	Non-blood heirs	0.881 (0.00)	0.078 (0.01)	0.384 (0.21)	0.157 (0.51)
	<i>Sarariman</i>	0.051 (0.83)	-0.000 (0.99)	-0.111 (0.74)	-0.224 (0.34)
Blood heirs	Founders	0.804 (0.00)	0.055 (0.00)	1.974 (0.00)	0.996 (0.00)
	Non-blood heirs	0.551 (0.03)	0.024 (0.43)	-0.062 (0.85)	-0.284 (0.27)
	<i>Sarariman</i>	-0.278 (0.25)	-0.054 (0.03)	-0.557 (0.12)	-0.665 (0.01)
Non-blood heirs	Founders	0.253 (0.41)	0.031 (0.33)	2.036 (0.00)	1.280 (0.00)
	<i>Sarariman</i>	-0.829 (0.01)	-0.078 (0.03)	-0.495 (0.25)	-0.381 (0.24)
<i>Sarariman</i>	Founders	1.082 (0.00)	0.109 (0.00)	2.531 (0.00)	1.661 (0.00)

Table 7: Succession Events

Sample is all changes in control from 1962 to 2000 in all Japanese firms initially listed between 1949 and 1970. This includes prewar firms that relisted when stock markets reopened in 1949. The imperial universities – Tokyo University, Kyoto University, and several others – and Hitotsubashi University admit solely on academic merit. Entrance to other universities is possible by attending expensive affiliated preparatory schools.

Successor type	Events	Successor sub-type	Events	Imperial
Blood heir	242	<i>blood heir is a merit university graduate</i>	51	51
		<i>blood heir is not a merit university graduate</i>	191	191
Non-blood heir	42	<i>non-blood heir is legally adopted son and son-in-law</i>	20	17
		<i>non-blood heir is son-in-law, but not legally adopted son</i>	22	25
Sarariman	81	<i>family retains top ten equity stake (sarariman-run family firm)</i>	81	
Subtotal of family firm successions			365	
Cash out	60	<i>family not listed among top ten shareholders (non-don firm)</i>		
Grand total	425		425	

Table 8: Performance changes around succession events

Variables are defined in Tables 2 and 3. Cross-section regressions are on event-level data. Events are all 425 old *don* departures from 1962 through 2000 for which control variables data are complete, and are subdivided according to whether the successor is the old *don*'s blood heir, non-blood heir, a professional manager (*sarariman*) running a firm in which the old *don*'s family remains a top ten blockholder, or a professional manager running a firm in which the family is no longer a top ten blockholder (cash out). Regressions control for *firm age*, *firm size*, *leverage*, *capital spending*, and succession year and industry fixed effects. Some firms have more than one succession event, so standard errors are clustered by firm.

Benchmark	Premium for	ΔROA	ΔQ	ΔSales growth	ΔLabor growth
Non-blood heir	Blood heir	-0.0235	0.0333	-0.0784	-0.0228
		(0.00)	(0.47)	(0.00)	(0.10)
	<i>Sarariman</i>	-0.0340	-0.0333	-0.0623	-0.0110
		(0.00)	(0.52)	(0.02)	(0.55)
	Cash out	-0.0182	0.0624	-0.0568	-0.0174
		(0.02)	(0.41)	(0.04)	(0.30)
Blood heir	<i>Sarariman</i>	-0.0105	-0.0666	0.0162	0.0118
		(0.03)	(0.10)	(0.41)	(0.39)
	Cash out	0.0053	0.0291	0.0217	0.0054
		(0.33)	(0.65)	(0.25)	(0.64)
<i>Sarariman</i>	Cash out	0.0158	0.0957	0.0055	-0.0064
		(0.01)	(0.15)	(0.82)	(0.68)

Table 9: Exogenous performance changes around succession events

Variables are defined in Tables 2 and 3. First stage regressions are multinomial logits of succession choices and are described in [15]. Second stage cross-section regressions are on event-level data and are described in [16]. Events are all 425 old *don* departures from 1962 through 2000 for which control variables data are complete, and are subdivided according to whether the successor is the old *don*'s blood heir, non-blood heir, a professional manager (*sarariman*) running a firm in which the old *don*'s family remains a top ten blockholder, or a professional manager running a firm in which the family is no longer a top ten blockholder (cash out). Second stage regressions control for *firm age*, *firm size*, *leverage*, *capital spending*, and succession year and industry fixed effects. Some firms have more than one succession event, so standard errors are clustered by firm.

Benchmark	Premium for	ΔROA	ΔQ	ΔSales growth	ΔLabor growth
Non-blood heir	Blood heir	-0.0256	-0.0779	-0.1220	-0.0546
		(0.00)	(0.29)	(0.00)	(0.03)
	<i>Sarariman</i>	-0.0434	-0.1219	-0.1417	-0.0861
		(0.00)	(0.26)	(0.01)	(0.02)
	Cash out	-0.0107	0.0087	-0.0040	-0.0297
		(0.47)	(0.95)	(0.94)	(0.37)
Blood heir	<i>Sarariman</i>	-0.0178	-0.0440	-0.0197	-0.0315
		(0.06)	(0.57)	(0.55)	(0.13)
	Cash out	0.0149	0.0867	0.1179	0.0248
		(0.19)	(0.43)	(0.00)	(0.25)
<i>Sarariman</i>	Cash out	0.0327	0.1306	0.1376	0.0564
		(0.03)	(0.36)	(0.01)	(0.07)

Figure 1

The career of Osamu Matsuda from his graduation at Chuo University in 1953 through his adoption by Suzuki patriarch, Shunzou Suzuki, and simultaneous marriage to Shunzou's eldest daughter in 1958 to his current position as CEO and Chairman of Suzuki and the patriarch of the Suzuki family.

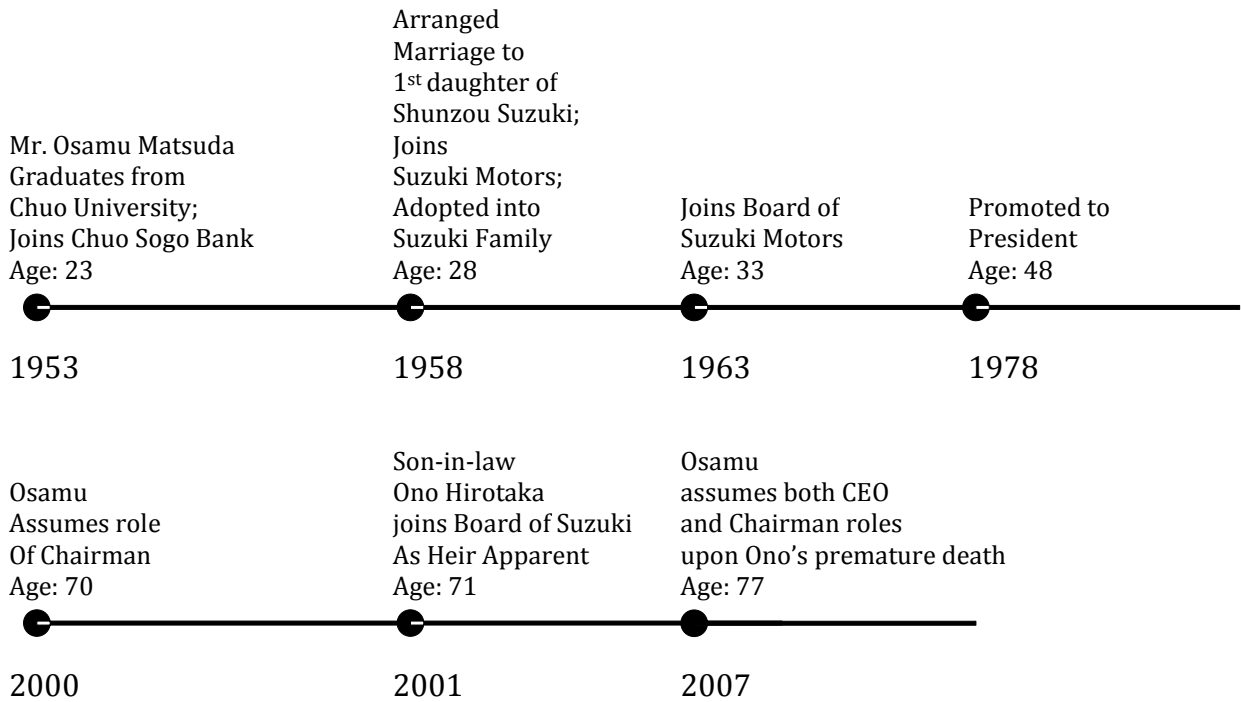


Figure 2: Prevalence of Founder and Family Controlled Firms: 1962 to 2000

The graph includes all firms trading on Japanese stock exchanges between 1949 and 1970, for which accounting and governance data are available from 1962 through 2000 (or delisting). *Family firms* count a founding family member among their top 10 shareholders, directors empowered to sign for the firm, or as CEO. All other firms are *non-don firms*. *Founder-run firms* are family firms whose founder fills one or more of these criteria. All other family firms are *heir-run*. Among these, *blood heir firms* have a biological descendent of the founder and *non-blood heir firms* an adopted son or son-in-law filling one of these roles. A *sarariman firm's* founding families remains a top 10 shareholder, but provides neither a CEO nor a signing director, instead entrusting these positions to professional managers. *Formerdon firms* are one-time family firms that became.

