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# Adoptive Expectations Are Impregnable

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## Abstract

Blind and von Mandach (2020) replicate the event study portion of our study, Mehrotra, Morck, Shim and Wiwattanakantang (2013) on a smaller sample. They assert that our findings depend critically on a dummy for predecessor talent. However, our findings are robust to dropping this dummy. Their alternative explanation of our findings, non-blood heirs selecting into inheriting superiorly performing firms, is tested and rejected. Succession by adopted sons or sons-in-law is associated with improved performance, consistent with non-blood heirs infusing talent into business families.

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This paper is a response to Blind, Georg D. and Stefania Lottanti von Mandach. 2020. Not a Coincidence: Sons-in-Law as Successors in Successful Japanese Family Firms. *Critical Review of Finance*.

We thank Blind and von Mandach (2020) for their interest in our research and thoughtful criticisms and the editor for letting us address the criticisms they raise.

We thank Blind and von Mandach (2020) for their interest in our study (Mehrotra et al. 2013) and their series of criticisms of it. We consider each of their criticisms in turn and explain why each lacks traction. We conclude that the findings in Mehrotra et al. (2013) are highly robust and not vulnerable to any of these criticisms.

This exercise usefully reaffirms our prior findings (Mehrotra et al. 2013) that Japanese family firms run by blood heirs to perform well, and that those run by non-blood heirs perform still better. In contrast, heir-controlled firms underperform in Canada (Morck, Stangeland and Yeung 2000; Smith and Amoaku-Ado 1999), Denmark (Bennedsen et al. 2007), Sweden (Cronqvist and Nillsen 2003), the United States (Pérez-González 2006; Villalonga and Amit 2006) and elsewhere.

This exercise affirms that the most plausible explanation for this instance of Japanese exceptionalism is that Japan's practice of the adult adoption and arranged marriages to daughters of business families attracts and incentivizes talented adoptees/sons-in-law, displaces untalented or uninterested biological heirs, and incentivizes talented and interested biological heirs to avoid displacement.

Their criticisms are:

### **1. Our findings do not depend on the predecessor CEO's elite education dummy variable**

Blind and von Mandach (2020) contend that Mehrotra et al.'s (2013) Table 6 regression results disappear if the proxy for the predecessor CEO's elite education (Old Man's IQ dummy) is not included as a control variable. Table 1 reproduces the original table for comparison with a revised table presenting the same results, but without the Old Man's IQ dummy.

The two panels present identical patterns of signs and significance levels, and near identical point estimates. We conclude that this criticism lacks traction and that our results are robust to omitting the Old Man's IQ proxy.

Blind and von Mandach may fail to replicate our findings because of several reasons:

a. Their successions sample is only half the size of ours, 141 successions versus 284 in our sample.

A smaller sample can obscure statistical significance.

b. Blind and von Mandach (p. 3) identify and classify successions using a

*“computer-linguistic methods on DBJ ownership data, and cross-validate succession timing via the digital version of Toyo Keizai's Shikiho.”*

They give no further information about their computer-linguistic method, nor about how these data help identify successions and classify them as adopted sons, blood sons, or sons-in-law. These databases provide ownership stakes, which need not change on successions. Mehrotra et al. (2013, p. 845) describes in detail how we identified and classified successions unambiguously using the documented family trees of business families, which record marriages and formal adoptions:

*“Tokiwa (1977) for family trees of 1,002 business leaders; books Zaikai (1979, 1981, 1982, 1983, 1985) for family members on boards; and Nihon (2004) volumes for biographies of business leaders. Additional information on family relationships is from Who’s Who analogs by Jinjikoshinjo, the Nikkei Telecom 21 (corporate news from Nihon Keizai Shimbun, Nikkei Business Daily, Nikkei Financial Daily, and Nikkei Marketing Journal), company archives, Koyano (2007), and websites. “*

Noisier successions identification and classification would attenuate significance.

- c. Blind and von Mandach use simulated proxies for the predecessor CEOs’ ages and elite educations, described as follows:

*“To simulate the elite dummy, we use the ratio of 19.4% elite education noted in Shim (2009: 27) and the two-fold likelihood of non-blood heirs to have graduated from such institutions given in MMSW (2013: 852), and attribute these to the cases with the lowest performance improvements in terms of ROA. We further approximate the “old age” predecessor dummy by marking cases where a departing CEO stays on as Chair after appointing a successor CEO.”*

They provide no further details. Our tests use actual data on predecessor CEOs’ ages and *almae matres*.

## **2. Our paper is not overwhelmingly about arranged marriages**

Blind and von Mandach criticize our findings on the grounds that Japanese adopted sons are often also married to a blood daughter, and that about half of the non-blood heirs in our sample are sons-in-law who are not legally adopted. They contend that our study is really therefore about sons-in-law rather than adopted sons. These criticisms lack traction because

- a. We explicitly acknowledge this throughout the paper. The introductory quote is “You can’t choose your sons, but you can choose your sons in law – Japanese adage celebrating the birth of a girl.” Throughout the paper, we refer to “non-blood heirs” versus blood heirs specifically to avoid conflating adopted sons and sons-in-law. We discuss at length possible differences in the incentives that might be associated with non-blood successors being formally adopted or not. As the paper states, the Japanese data show no significant difference between legally adopted sons, most of whom are indeed married to the patriarch’s daughter, and sons-in-law.

Blind and von Mandach make much of whether adopted sons are adopted first or married to a daughter first. We doubt that this distinction is useful econometrically. Both events are apt to be planned well in advance, and the same broker might manage both transactions.<sup>1</sup> Our primary points are that the successors are not blood sons, that they take charge of the family firm when the aging patriarch steps aside, and that firms perform quite well under them.

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<sup>1</sup> For further details, see e.g. Harding, Robin. 2020. How Japan’s family businesses use sons-in-law to bring in new blood, *Financial Times*, Feb. 24 2020,

The status of an unadopted son-in-law in Japan is not far below that of an adopted son. We (p. 843) quote Hamabata (1991) describing an unadopted son-in-law

*“chosen as the successor to the household head and the next president” of the family business thus: “In every other respect, however, the marriage resembled that of a muko-yôshi [adopted son]: the josei (daughter’s husband) moved into the position of successor in his wife’s house-hold; she, not he, would be expected to assume responsibility for Muramoto household properties, including the largest block of common stock; her children would not be considered sotomago (outside grandchildren), but grandchildren of the Muramoto ie who would be expected to assume the Muramoto name and be considered for succession in the next generation”*

We therefore believe it reasonable to explore the hypothesis that Japanese adult adoptions and arranged marriages as potentially important to the governance of family firms. Elsewhere, in Mehrotra et al. (2011), which Bind and von Mandach cite without explanation, we had considered in detail how sons-in-law could likewise inject talent into business families. Additional research on what impact these successions might have on firm performance in different institutional settings would be of interest. However, this issue is not a meaningful criticism of our subsequent study, the subject of this exchange.

### **3. Japan is Not as Different from Other Countries as Some Contend**

We agree that Japan is likely less different from other countries than it is sometimes made to seem. We acknowledged this in the first sentence of the section describing adult adoption (Section 2):

*“Differences between Japan and other countries are easily exaggerated. However, arranged marriage has persisted more tenaciously in Japan (see, among other, Hamabata, 1991) than in most other high-income countries; and Japan unquestionably has a unique concept of adoption.”*

Although Japan’s practice of adult adoption is demonstrably unique, we acknowledge that Japan’s exceptionalism is often less extreme than might appear at first glance. We stress this point in the final sentences of our Conclusions section:

*“While Japan is much less unique than often portrayed (Beason and Patterson 2006), adult adoptions seem genuinely exceptional; and might de facto professionalize Japanese family firms. However, arranged marriages and son-in-law successors, not uniquely Japanese institutions, may work equally well, and might enhance family firm governance elsewhere (Mehrotra et al. 2011), perhaps generalizing the Japanese case and, partially at least, explaining the tenacity and dominance of family firms in many economies (La Porta et al. 1999; Khanna and Palepu 2000; Khanna and Rifkin 2001; Morck, Wolfenzon and Yeung 2005; Khanna and Yafeh 2007; and others).”*

Blind and von Mandach begin by asserting that our findings merit re-examination because Japan is different from other countries:

*“Our paper reexamines the question whether non-blood heirs cause superior firm performance. This is because the CEO effect (the proportion of variance in performance that is attributable to CEOs) is smaller in Japan than in the U.S. (Crossland and Hambrick 2007; 2011).”*

Crossland and Hambrick (2007, 2011) do report weaker CEO effects in Japan, but fit this into the cross-country pattern they uncover: the strength of CEO effects depends on ownership structure. Crossland and Hambrick (2011, p. 802) summarize this:

*“Where ownership is concentrated, CEOs’ latitudes of action (and their latitudes of objectives (Shen and Cho, 2005)) are far more likely to be constrained (Jensen and Meckling, 1976). If a CEO pursues a course of action at odds with the expectations of major owners, the executive is much more likely to experience resistance than if there were no such major owners. In contrast, when ownership is diffuse, shareholder influence over the running of a firm is more muted. When there are no controlling owners, executives will have a greater opportunity to pursue their desired strategic actions.”*

This is entirely reasonable: a *sarariman* (“salary man” or professional) CEO of a diffusely owned non-family firm wields more power than a *sarariman* CEO who works at the pleasure of a controlling family. However, we treat *sarariman* CEOs as a separate category. Our focus is family firms whose CEO is part of the family, for which Crossland and Hambrick find large CEO effects, mooting Blind and von Mandach’s assertion. CEO effects in our Japanese data thus accord with those in similar firms elsewhere.

#### **4. We explicitly investigate arranged marriages in an earlier study**

Blind and von Mandach cite, but neither explain nor really acknowledge, our earlier paper (Mehrotra, Morck, Shim and Wiwattanakantang 2011), which explores arranged marriages in detail. This links sociological variables, shown elsewhere to correlate to the prevalence of arranged marriage, to the importance of family firms in country-level regressions, concludes that arranged marriages may provide new talent in family businesses, and explicitly recognizes that the Japanese practice of adopting “better sons” as heirs may merely be a somewhat extreme version of a practice followed by family firms elsewhere.

Our earlier paper notes the decline in arranged marriage in many of these countries, and suggests that its replacement by “marriage for love” may undermine the family business model. We are well aware of Blind and von Mandach’s Figure 1, which is identical to a graph in a PowerPoint slide in our presentations of Mehrotra et al. (2013) and Mehrotra et al. (2011). The correct cite for the data used to construct this graph is: *Fourteenth Japanese National Fertility Survey in 2010: Marriage Process and Fertility of Japanese Married Couples*. Tokyo: National Institute of Population and Social Security Research, October 2011. Changing social norms elevating marriage for love over arranged marriage and eroding the use of the latter by family firms is the central theme of our earlier study, which is entitled “Must love kill the family firm?”

Blind and von Mandach refer to Dazai, Saito, Shishido and Yanagawa (2015) as showing our result diminishing and disappearing in recent years. We anticipate the publication of Dazai et al. and readily accept that our findings might be qualified in this way. If they are, this in no way undermines the validity of our findings for the time period we study. Indeed, Dazai et al. (p. 1) explain that they successfully replicate our findings

*“Our data show some of the same results reached by MMSW, but some different results as well. It is true that family firms (excluding founder firms) outperform non-family firms in ROA for the same period (1962-2000) and for the same samples (all listed companies) as MMSW’s data.”*

Dazai et al (2015) go on to divide the postwar period into three windows: 1962-1985, 1986-1992, and 1993-2000. They replicate our findings well in the first window of 23 years, but report that they lose statistical significance in the second and third windows of six and seven years, respectively. This could reflect either shorter time windows or genuine changes in how family firm successions affect firm performance. Regardless, Dazai et al. (2015) usefully highlight that our finding, like any that depend on specific institutions, might change with changing institutions.

Blind and von Mandach’s supplementary argument involving the decline in arranged marriages, increased CEO tenure and our basic results is inconsistent with the literature they cite. They posit

*“a pronounced decline in arranged marriages, which has led to a relatively stronger increase in average tenure of incumbent non-blood versus blood patriarchs [compromises our findings because] As CEO performance reportedly decreases with tenure (Hambrick and Fukutomi 1991; Miller 1991; Miller and Shamsie 2001; Henderson, Miller and Hambrick 2006; Wulf, Roleder, Stubner and Miksche 2011), this differential development can explain the erosion of the non-blood heir premium.”*

Blind and von Mandach misapprehend the literature. Henderson, Miller and Hambrick (2006) find that firm performance falls with CEO tenure in new dynamic high technology industries, but rises with tenure in old stable industries. Blind and von Mandach cite Wulf et al. (2011), which reports performance having an “inverted curvilinear” relationship with CEO tenure in German data – that is, rising with tenure and falling with tenure squared. We are unaware of recent work contradicting these studies.

## **5. We employ accepted econometric techniques in considering reverse causality**

Establishing causality from the panel data is intrinsically difficult. Our paper’s *Causality* section (4.2) notes that “... Aging dons might pass healthy firms to beloved sons, who might more earnestly covet control of healthier firms (Bennedsen et al., 2007).” In response to the causality question, we begin by noting that “The grooming of a successor likely begins years before the actual succession event, presumably at adoption if there is a formal adoption, and succession probabilities presumably resolve over time. This leaves equity value changes at successions biased towards zero.” We concede

that our Table 6 regressions “... employ a less precise event study methodology than Smith and Amoako-Adu (2005) or Perez-Gonzalez (2006)”.<sup>2</sup>

Blind and von Mandach fail to acknowledge that our paper (end of section 4.4) explicitly contends with this concern as follows

“Bennedsen et al. (2007) find family successions more likely if Danish business families anticipate improving firm performance, and argue that this can induce a positive bias in observed performance changes around family successions. We therefore employ a two-stage estimation akin to theirs: The first stage is a multinomial logit predicting succession type with three instruments: indicator variables for the existence of a male blood heir, a blood relative on the board at the firm’s IPO, and the family’s leadership by a non-blood heir at any prior time. The first stage also includes year and industry fixed effects, a dummy for the old don being over age 65, the normal retirement age in Japan, and dummies for the current patriarch and biological son, if any, having graduated from an elite merit-based admissions university (our proxy for talent). The instruments and controls are not plausibly under the departing don’s control as the succession approaches, and the instruments plausibly affect the change in firm performance around successions only by affecting the successions. The instruments’ joint 1st stage significance far surpasses standard weak instruments thresholds. The 2nd stage is identical to [10], but with predicted succession probabilities from the 1st stage substituted for succession type dummies. This robustness check yields qualitatively similar results with only a few exceptions. This exercise, like Table 6, yields mixed significance across performance metrics, but the overall pattern still leaves non-blood heirs boosting performance more than blood heirs, who nonetheless best professional CEOs by some metrics.”

Instrumental variables are never entirely satisfactory, but we think this exercise is as effective as in other accepted research. These results were tabulated in the working paper version, but dropped on the recommendation of the editor as a way of shortening the paper.

## **6. More successful firms do not obviously have more non-blood heirs**

Blind and von Mandach (p. 11) argue that firms with non-blood heirs perform well because well performing family firms attract non-blood heirs and present a threefold argument as to why. All three parts of their argument are refuted.

They assert that

- a. Prospective non-blood heirs “will find joining a healthy business a more attractive opportunity”.

This is not obviously true. The adopted son or son-in-law assumes leadership of the extended family (*ie*) and command of its fortune. Presumably, command of a larger fortune, perhaps due to a

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<sup>2</sup> See section 4.2 in Mehrotra et al. (2013).

larger equity stake in the family firm or to other investments, might be more attractive than command of a smaller stake in a better performing firm.”

- b. They assert that *“if the family business is healthy and performing well... [a daughter’s] likelihood of finding a candidate [for adoption / arranged marriage] whose attractiveness matches or exceeds the attractiveness expected from a love marriage increases.”*

This logic fails for two reasons. First, because the pool of candidates likely depends more on the size of the fortune on offer than on the family firm’s current earnings, and second, because a blood daughter more worried that her family firm might flounder obviously has a more powerful incentive to help bring outside talent in to restore the firm that upholds her social and economic status.

- c. They assert that the trade-off confronting blood sons is the attractiveness of *“earning a decent share of profits (likely several million US\$ in healthy businesses and enjoying a quiet life, versus working hard in a possibly unattractive job just to earn an additional \$300,000 at best [their estimate of typical CEO pay in Japan].”*

This logic fails because the displaced blood son loses leadership of the dynasty and control of the family fortune for a lower-level position, and commensurately appropriate salary, or be effectively pensioned off. A blood son delegating management to a professional manager might preserve inheritance on the patriarch’s exit, but this also appears to impair firm performance. We conclude that there is no compelling reason for more successful family firms to disproportionately attract non-blood heir successors, and there are plausible reasons for less successful family firms to offer stronger inducements to attract needed talent.<sup>3</sup>

## **7. Blind and von Mandach’s proposed reverse causality scenario is rejected**

Blind and von Mandach extend this argument to contend that greater firm performance increases around non-blood heir successions than around blood heir successions in the above tables do not reflect non-blood successors boosting firms’ prospects and earnings, but are instead an artifact of the following chain of causality

- i. Firms run by predecessor CEOs who opt for non-blood heirs exhibit superior performance
- ii. These predecessor CEOs delay passing control to non-blood heirs, to whom they feel less connected.
- iii. Their prolonged control compromises firm performance in the three years immediately prior to actual successions.
- iv. Non-blood successors taking charge then merely oversee the firm’s performance reverting to the superior levels of ten to four years earlier.

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<sup>3</sup> A more compelling reason to expect better performing family firms to have non-blood successions is that they might be better performing because of a tradition of non-blood successions. IF this is the case, such a pattern would affirm our interpretation of our findings and further weigh against Blind and von Mandach’s alternative causality scenario.



In support of this chain of causality, their Table 4 presents evidence that firms in which control ultimately passes to a non-blood heir exhibit superior performance in the intervals from ten to eight and seven to four years prior to successions.

This alternative causality scenario is rejected for the following reasons:

- a. As the previous section shows, their logical premises are unsupported
- b. We are unable to reproduce Blind and von Mandach's finding of a performance premium in years minus ten to minus eight and in years minus six to minus four in firms subsequently transferred to non-blood heirs. Using our larger sample of successions, Table 2 rejects a performance decline in such firms in those years. Three or four (ten percent) of the 32 coefficients in the table can be expected to be spuriously significant at 10%; four are significant.

We conclude that Blind and von Mandach's reported dip in otherwise superior performance in the three years prior to non-blood heir successions may well be spurious because the effect is absent in our much larger sample and because their posited difference in predecessor ages is also absent in the data.

- c. We also find evidence directly contradicting one of the moving parts in their proposed chain of causality. Their proposed chain of causality has outgoing CEOs contemplating the succession of a non-blood heir staying on longer than do outgoing CEOs contemplating the succession of a blood heir. This is not observed.

We conclude that Blind and von Mandach's contention that predecessor CEOs contemplating the succession of a non-blood heir stay on longer is contradicted by the data. The mean age at departure of the former is 70.2 and the mean age of the latter is 73.3 years. That is, outgoing CEOs contemplating the succession of a non-blood heir exit when they are 3.1 years younger than do outgoing CEOs contemplating the succession of a blood heir. This difference is marginally significant ( $p = 0.06$ ).

Blind and von Mandach's use of windows stretching back ten years raises some issues. If one succession occurs 13 years before another, year plus three for the former is year minus ten for the latter. We drop all such overlapping event windows from the data to construct the tables above.

## **8. The constraints Blind and Mandach posit in their Figure 2 are implausible**

Blind and Mandach number the incentive effects we posited as Mechanisms 1, 2 and 3, with

- Mechanism 1 = non-blood heirs displace less talented blood sons in CEO positions
- Mechanism 2 = a possibility of becoming a non-blood heir elicits effort in professional managers
- Mechanism 3 = the possibility of being replaced by a non-blood heir elicits effort in blood sons

and assert (p. 7) that “In the MMSW sample, Mech. 1 and 3 are not effective” because of a set of what they term “constraints”. These constraints, along with our explanation of why each is implausible, are

*Constraint 1: Some patriarchs may not have had daughters.* Blind and von Mandach contend that one fourth of Japanese business families cannot pass succession to a son-in-law because the Japanese fertility rates fell from 2 to 1.5 or less during our sample period, leaving one in four families with sons only. This argument fails because the population-level fertility rate is not a constraint at the family-level. A family can generate additional children until a daughter emerges. Fertility rates are endogenous at the family-level.

*Constraint 2: Some daughters and professional managers may not be willing to accept arranged marriages.* Section 2 above recognizes this point. Based on the above-mentioned graph showing the secular decline of arranged marriages, Blind and von Mandach contend that this constrains two thirds of business families. The graph portrays population means, not arranged marriages in elite business families, which might persist far longer because of the large monetary incentives Mehrotra et al. (2013) describe.

*Constraint 3: Some patriarchs may not have had sons.* As in their constraint 1, Blind and von Mandach contend that one fourth of Japanese business families cannot pass succession to a blood son (assuming one in four business families with only daughters). This argument fails on the same grounds: A family can generate additional children until a son emerges because fertility rates are endogenous at the family-level. Fertility rates for business families are not constrained by population means.

*Constraint 4: Becoming an in-law is an option only available to unmarried professional managers.* Blind and von Mandach argue that this removes 50% of star managers from consideration for adoption and/or arranged marriage. This fails on two grounds. First, a star manager aiming for admission to a family business can delay marriage. Population-level marriage rates do not constrain individuals. Second, as we note (p. 843), Japanese adoption law permits the adoption of a nonconsanguineal married couple as a set.

*Constraint 5: Conclusion of a marriage may change effectiveness of mechanisms.* Blind and von Mandach contend that, once an adult adoptee or new son-in-law is brought into the family business, the incentive to perform falls away. This is implausible because the non-blood heir assumes stewardship of the family wealth, which includes the family’s equity stake in the family business. The ownership of a large equity block is widely recognized as an effective incentive to sustain high firm performance (Morck et al. 1988).

In their Figure 2, Blind and von Mandach multiply the probabilities they associate with the absence of these constraints  $(1 - 1/4) \times (1 - 2/3) \times (1 - 1/4) \times (1 - 1/2) \times (1 - ?) \approx 4\%$  to 10% to conclude that our analysis can only apply to four to ten percent of family firms.<sup>4</sup> Aside from the obvious problem that their contentions are not independent (if their contention 1 applies, their contention 3

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<sup>4</sup> Bind and von Mandach concede (p. 3) “we find that all three of them may only be effective in less than 10% of family firms.” However, their Figure 3 appears to presume all five holding.

has a better than random chance of not applying), their reasoning is factually invalid. We conclude that Blind and von Mandach's asserted constraints are implausible as constraints, their probability assumptions are inapplicable to business families, and their multiplication of probability assumptions has no relevance to the validity or invalidity of our findings.

## **9. Inheritance tax avoidance is unlikely to be the primary motive for adult adoptions**

Blind and von Mandach argue that adult adoptions are primarily used to avoid Inheritance taxes. As evidence, they selectively reference Bryant (1990) without detailed explanation. Bryant actually explicitly attributes adult adoption to both taxes and family business continuity (p. 308).

*“An advantage to the parents-in-law of formally adopting their son-in-law has been the inheritance tax advantages associated with an increased number of heirs, a subject to be discussed in more detail later. Another advantage, continuity of a family business, remains important despite the availability of other legal devices to secure continuity of the family name associated with the business. Not only does son-in-law adoption allow the retiring owner to phase out of the business gradually while retaining some continuing rights to income, but it also provides some assurance of the new owner's loyalty to the family and to the family's business practices. Finally, adoption enables the owner to displace a son who is ill-suited or unable to manage the business. In 24% of son-in-law adoptions reported to Paulson, there was at least one son already in the family.”*

The argument that adult adoptions can be used as an inheritance tax avoidance mechanism works as follows: The inheritance tax is progressive, so dividing an inheritance among more heirs reduces the overall tax by reducing the amount subject to the top marginal rate. Bequests above ¥300M (US\$2.4M) are subject to the top marginal rate of 50%. The combined value of the lower marginal tax rates is ¥47M (US\$381,000) per heir.

This may well be an issue for middle-income Japanese with modest estates. However, the amounts at stake are unlikely to be paramount in the family businesses' adoptions we examine because:

- a. Obtaining this tax advantage does not require appointing the adopted son as CEO.
- b. The corporations we study are large, and the mean value of the family control block is US\$87M. For family business dynasties, the US\$381,000 tax saved by having an additional son is a trivial fraction of the total, and is unlikely to be a driving force in aging patriarchs' decisions adopting successor CEOs as sons.
- c. In roughly half of the non-blood heir successions we study, the successor is a son-in-law, but is not adopted. Adopting the son-in-law would allow both the daughter and son to take advantage of the US\$381,000 tax savings; yet the family does not avail itself of this opportunity. Any unique tax advantage associated with adoption ought not to apply to these cases, yet they are statistically indistinguishable from successions in which the son-in-law-successor-CEO is adopted.

We conclude that inheritance tax avoidance is unlikely to drive our findings.

## **10. Industry-adjusted performance**

All our panel and event study regressions include industry and year fixed effects, and so include these adjustments. Blind and von Mandach express interest in firm performance minus industry performance. Table 3 re-estimates Mehrotra et al.'s Table 6 with firm performance minus industry mean performance that year as the explained variable.

The results are nearly identical to those in the original table, reproduced in Panel A in Table 1 above. Non-blood heirs again significantly outperform *sarariman* successions in increased shareholder valuations, and also out-perform cash-out successions in labor force growth acceleration.

The two approaches are econometrically equivalent, except that the control variables are not expressed relative to industry means and significance levels can be overstated because degrees of freedom lost in estimating industry means each year are ignored. We thank Blind and von Mandach for suggesting this exercise. We conclude that our results are robust to this alternative approach to industry adjustments.

## **11. The tighter family grip argument is rejected**

Blind and von Mandach express concern about a time-trend in the extent of family ownership, which they refer to as the “tighter grip” explanation, and argue (page 11) that

*“For the four categories of firms run by founders, blood heirs, non-blood heirs and salarimen, ROA, and family ownership show a correlation of 89%.”*

No such correlation is evident in our data, nor described in our paper. If they have such a result, we encourage them to publish it as a free-standing paper, rather than as part of a critique of our study.

## **12. Our findings are entirely consistent with Saito (2008)**

Blind and von Mandach helpfully direct our attention to Saito (2008), which reports that Japanese firms run by heirs underperform Japanese firms run by their founders. This result also arises in our data, and elsewhere (e.g. Morck, Shleifer and Vishny 1988; Villalonga and Amit 2006). Saito's findings are not inconsistent with ours for two reasons:

- a. Saito regresses Q on collections of dummies and variables associated with founder and family share ownership and participation in top management and finds that dummies indicating sons-in-law as owners or owners and top managers attract negative coefficients. In these regressions, the omitted categories appear to be “Founder (0)” firms (founders are leading

shareholders, but are not in top management positions) and “Family (M)” firms (a family member is a top manager, but the family is not the leading shareholder) and “Family (M&O)” firms (a family member is a top manager and the family is the leading shareholder). Contrasts with omitted category are not a useful benchmark in our context.

- b. Saito does not appear to distinguish blood sons from legally adopted sons. Both appear to be classified as sons.

We regret not citing Saito (2008), and will do so in future work in this area.

### **13. Reforms to the Civil Code in 1947 leave adoption-marriage unaffected**

Blind and von Mandach argue that

*“Whereas MMSW argue in favor of a persisting relevance of the concept in post-war society, we do not share their view. Significantly, in 1947, revisions to the civil code abolished a number of its core functions, notably the pre-war civil code procedure of a package adoption-marriage (muko yoshi).”*

We were concerned we missed something, so we revisited our sources and checked with a leading Japanese economic historian who specializes in this area.<sup>5</sup> We believe that the authors are mistaken in their reading of the 1947 revisions to the Civil Code. The 1947 revision did not disallow the custom of adopting a son-in-law, referred to as *muko yoshi*. Rather, the post-war Civil Code of 1948 ended the legal role of the *ie* system, and the family head’s absolute legal authority over all other family members. This eliminated the eldest son’s status as legal successor and replaced his control over all of the family’s wealth with an equal inheritance rule. The adoption of sons-in-law (*muko yoshi*) for preserving the *ie* and family line, a practice necessitated the pre-war Civil Code (Article 860 and 970 of the Meiji Civil Code of 1898) became legally unnecessary.

Nonetheless, the traditional practice continued. The 1948 Civil Code continues to allow adult adoption to provide descendants for childless families or for business purposes. This can include adoptions of a son-in-law, or even of a man-and-wife couple. The legal forms that must be signed changed, but the actual practice did not. The sole binding constraint is the prohibition of adopting someone older, even by one day (Civil Code, Articles 792, 793). The genuinely novella parts of the 1947 revisions pertained to child adoptions, mandating court approval for child adoptions unless the child is lineally descended from either the adopter or the adopter’s spouse.

As we noted in our paper, Suzuki Osamu, patriarch of Suzuki Motors from 1977, was born into the Matsuda family, married the granddaughter of Suzuki’s founder, adopted the Suzuki name, and joined the firm in 1958. All this happened under the 1948 civil code. The literature is consistent with the practice of adult adoption continuing. For example, O’Halloran (2015, p. 637) reports that

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<sup>5</sup> We thank Professor Chiaki Moriguchi at the Institute for Economic Research at Hitotsubashi University for help with this issue. All errors are, of course, our responsibility.

*“Although its population is twice that of the U.K., the proportion of children adopted [in Japan] is far lower and its continuing tradition of providing for the adoption of adults, is without any comparable precedent among developed nations.”*

The adoption of sons-in-law for family business successions continues to generate revenue (rival agencies compete for the business of recruiting prospective adopted-sons/sons-in-law for business families) and attention (a 2012 BBC News program “Adult adoptions: Keeping Japan's family firms alive” covered this topic). Most recently, a February 26<sup>th</sup> 2020 *Financial Times* article reports on the continued importance of *muko-yôshi* for business families, and describes a prominent broker. We conclude that the literature affirms adult adoptions in Japan to remain a unique and potentially important institution.

#### **14. Data availability**

Blind and von Mandach assert that we did not share our data. This is true, but with qualifications. Under Japanese law, we are not legally free to share our full dataset. Blind and von Mandach ‘s initial request for our data in 2015 described plans to “run additional tests”, not to replicate our results. Researchers wishing unrestricted access to financial, accounting, and other data should approach the commercial vendors (Development Bank of Japan, Toyo-Keizai, and Nikkei). Lists of major shareholders are freely available from Hitotsubashi University for 1950 through 1982 and from the Development Bank of Japan from 1981 on. Board composition and top executives data are freely available from Hitotsubashi University for 1962 through 1989 and from Toyo-Keizai from 1990 on. Hitotsubashi University’s data have been on its website for several years.<sup>6</sup>

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<sup>6</sup> See [http://cei.ier.hit-u.ac.jp/English/publication/large\\_shareholderboard\\_members.html](http://cei.ier.hit-u.ac.jp/English/publication/large_shareholderboard_members.html)

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**Table 1. Performance changes around succession events with and without predecessor elite education control variable.**

This table reproduces and then re-estimates Table 6 of Mehrotra et al. (2013). Changes in ROA, sales growth, and employment growth are all in percentage points. Successions are to blood heirs, non-blood heirs (adopted sons and/or sons-in-law), sarariman (professional CEOs running the family firm, or cash outs, in which the family sells out and leaves the scene. Numbers are performance premiums for each group relative to the benchmark group. Numbers in parentheses are probability levels. Panel A presents our original results. Panel B presents the same tests dropping the control variable for the outgoing patriarch's having had an elite education.

**Panel A. Including the control variable for outgoing patriarch having attended an elite university, as in Mehrotra et al. (2013)**

Benchmark	Premium for	$\Delta$ ROA	$\Delta$ Q	$\Delta$ Sales growth	$\Delta$ Labor growth
	Blood heir	<b>-2.23</b> <b>(0.00)</b>	0.01 (0.82)	<b>-5.25</b> <b>(0.03)</b>	-0.36 (0.78)
Non-blood heir	<i>Sarariman</i>	<b>-3.01</b> <b>(0.00)</b>	-0.06 (0.18)	-2.52 (0.37)	-0.33 (0.84)
	Cash out	<b>-1.80</b> <b>(0.00)</b>	0.02 (0.67)	-3.89 (0.14)	0.29 (0.85)
	<i>Sarariman</i>	<b>-0.78</b> <b>(0.05)</b>	<b>-0.07</b> <b>(0.05)</b>	2.73 (0.14)	0.04 (0.97)
Blood heir	Cash out	0.43 (0.34)	0.01 (0.75)	1.36 (0.42)	0.66 (0.52)
<i>Sarariman</i>	Cash out	<b>1.20</b> <b>(0.02)</b>	<b>0.09</b> <b>(0.08)</b>	-1.36 (0.54)	0.62 (0.62)

**Panel B. Dropping the control variable for outgoing patriarch having attended an elite university.**

Benchmark	Premium for	$\Delta$ ROA	$\Delta$ Q	$\Delta$ Sales growth	$\Delta$ Labor growth
	Blood heir	<b>-2.25</b> <b>(0.00)</b>	0.01 (0.87)	<b>-5.36</b> <b>(0.02)</b>	-0.25 (0.84)
Non-blood heir	<i>Sarariman</i>	<b>-3.01</b> <b>(0.00)</b>	-0.07 (0.16)	-2.58 (0.36)	-0.29 (0.86)
	Cash out	<b>-1.80</b> <b>(0.00)</b>	0.03 (0.65)	-3.86 (0.14)	0.26 (0.86)
	<i>Sarariman</i>	<b>-0.77</b> <b>(0.05)</b>	<b>-0.07</b> <b>(0.05)</b>	2.78 (0.13)	-0.03 (0.98)
Blood heir	Cash out	0.45 (0.30)	0.02 (0.70)	1.50 (0.36)	0.51 (0.62)
<i>Sarariman</i>	Cash out	<b>1.22</b> <b>(0.02)</b>	<b>0.09</b> <b>(0.07)</b>	-1.28 (0.56)	0.55 (0.67)

**Table 2: Performance in family firms approaching in-law CEO succession**

This table presents attempts to replicates Blind and von Mandach’s Table 4, whose structure is as in Table 4 of Mehrotra et al. (2013). These regressions include firm and year fixed effects and cluster by firm. Point estimates significant at 10% or better are in bold, probability levels are in brackets. Panel A presents performance prior to in-law successions benchmarked against other listed firms and fails to reproduce Blind and von Mandach’s Table 4 as described in its Description “Average performance premium of businesses approaching succession to in-laws relative to all listed businesses.” Panel B fails to reproduce Blind and von Mandach’s Table 5, presenting performance prior to in-law successions benchmarked against performance prior to blood heir successions. Numbers in parenthesis are probability levels.

**Panel A. Firm performance prior to in-law CEO successions relative to that of all other non-event window listed firms in the same year and same 2-digit industry (Replication attempt of Blind and von Mandach’s Table 4)**

Performance measure	ROA	Q	Sales growth	Labor growth
10 to 7 years before succession	-0.0008 (0.97)	0.4065 (0.32)	<b>0.1165</b> <b>(0.05)</b>	-0.0165 (0.71)
6 to 4 years before succession	0.0272 (0.13)	0.3611 (0.15)	0.0342 (0.49)	-0.0234 (0.42)
2 and 3 years before succession	0.0067 (0.60)	0.1751 (0.25)	-0.0097 (0.80)	-0.0009 (0.97)
1 year before succession	-0.0091 (0.17)	0.0160 (0.80)	-0.0271 (0.26)	-0.0162 (0.21)

**Panel B. Firm performance prior to in-law CEO successions relative to blood heir successions (Replication attempt of Blind and von Mandach’s Table 5)**

Performance measure	ROA	Q	Sales growth	Labor growth
10 to 7 years before succession	0.0363 (0.22)	0.0249 (0.95)	<b>0.1581</b> <b>(0.01)</b>	0.0225 (0.60)
6 to 4 years before succession	<b>0.0425</b> <b>(0.04)</b>	0.0755 (0.75)	<b>0.1249</b> <b>(0.01)</b>	0.0170 (0.63)
2 and 3 years before succession	0.0170 (0.22)	0.0551 (0.73)	0.0246 (0.51)	0.0118 (0.66)
1 year before succession	-0.0054 (0.46)	-0.0280 (0.70)	-0.0134 (0.59)	-0.0144 (0.24)

**Table 3. Alternative Approach to Industry-Adjustments**

This table re-estimates Table 6 in Mehrotra et al. (2013), but using firm performance minus industry mean performance each year, rather than firm performance with industry and year fixed effects. Numbers in parentheses are probability levels. Variables are as in Table 1 above.

<b>Benchmark</b>	<b>Premium for</b>	<b><math>\Delta</math>ROA</b>	<b><math>\Delta</math>Q</b>	<b><math>\Delta</math>Sales growth</b>	<b><math>\Delta</math>Labor growth</b>
Non-blood heir	Blood heir	<b>-1.80</b> <b>(0.00)</b>	0.01 (0.88)	<b>-4.32</b> <b>(0.04)</b>	-0.23 (0.86)
	<i>Sarariman</i>	<b>-2.54</b> <b>(0.00)</b>	<b>-0.08</b> <b>(0.07)</b>	-1.78 (0.49)	-0.31 (0.85)
	Cash out	<b>-1.62</b> <b>(0.01)</b>	0.00 (0.97)	<b>-4.02</b> <b>(0.07)</b>	0.16 (0.91)
Blood heir	<i>Sarariman</i>	<b>-0.74</b> <b>(0.06)</b>	<b>-0.08</b> <b>(0.02)</b>	2.54 (0.14)	-0.08 (0.94)
	Cash out	0.18 (0.67)	-0.00 (0.95)	0.31 (0.82)	0.39 (0.66)
<i>Sarariman</i>	Cash out	<b>0.92</b> <b>(0.05)</b>	0.08 (0.16)	-2.23 (0.23)	0.47 (0.67)