Underperformance in Family Successions: The Role of Outside Work Experience

Irena Kustec, Charlotte Ostergaard, and Amir Sasson*

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Abstract

The underperformance of family CEO successors relative to professional CEOs has been repeatedly documented. We show that this underperformance is entirely driven by family successors who are recruited from within the firm and find that two-thirds of such successors do not have outside work experience. Family successors with outside work experience, however, perform on par with professional CEOs. Variation in the extent of successors' outside work experience explains a substantial part of the performance gap. A similar performance gap exist between unrelated CEOs that are recruited internally and unrelated CEOs recruited from outside.

Keywords: Family firms, family succession, CEO succession

PRELIMINARY AND INCOMPLETE
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CEO successors in family-controlled companies are often drawn from within the family. Several studies, however, document that the selection of family successors is financially detrimental for the average firm, as family successors subsequently tend to underperform relative to unrelated successors, cf. Bart, Gulbrandsen, and Schøne (2005), Pérez-González (2006), Villalonga and Amit (2006), Bennedsen, Nielsen, Perez-Gonzalez, and Wolfenzon (2007), Bloom and Van Reenen (2007), and Amit and Villalonga (2013).

This finding is often believed to reflect a "small pool-effect." A preference for a family successor increases the chance that the successor's inherent talent is inferior to what can be hired in the market for professional CEOs, see e.g. Burkart, Panunzi, and Shleifer (2003) and Pérez-González (2006).

In this paper we explore a different explanation for the relative underperformance of family successors—the importance of having work experience outside the family firm. We document that family successors tend to have remarkably little outside work experience when they take over as CEOs. Using administrative data, we study 2,500 CEO successions from the population of (mostly private) family-controlled Norwegian firms over a 15 year period. We find that in nearly half of the cases, the incoming CEO belongs to the controlling family and are recruited from inside the firm. This tendency is most pronounced for successors that are children of the outgoing CEO, who constitute 70% of such *inside* family successors. On average, children assume the CEO-position at the age of 38 and have worked in the firm for up to 10 years prior to taking over. For about two-thirds of them we do not observe any outside work experience in the data at all. Thus, the classic image of a family firm where generations work together seems to still be fitting for the majority of family-controlled firms today.

Why are so many family successors positioned in the firm well in advance of taking over? One answer is that to preserve control of the business, the family fosters identity and loyalty by involving members early in management. If younger generations settle in different cities and pursue different careers, they risk becoming too removed and

eventually lost for the family business. Another answer is that the transfer of firm-specific assets and skills takes considerable time. Such assets are often intangible and may involve the maintenance of stakeholder relationships relying on trust, reputation and networks.[1] Indeed, it is often proposed that intangible assets and skills are more easily transferred in family firms, see e.g. Bennedsen, Fan, Jian, and Yeh (2015) and Habborshon and Williams (1999).

Extensive exposure to the family business, therefore, can be beneficial as it can aid the transfer of firm-specific assets to future generations, but it may also entail costs. Younger generations that grow up observing how the family runs the firm, and work under the supervision of their parents, may develop set perceptions of the best way of doing things, internalizing parents' beliefs and business norms. A lack of cognitive diversity may prevent thinking "outside the box" and prevent restructuring of corporate strategy when required.[2]

We compare the change in corporate performance generated by inside family successors with that of *outside* family successors and professional CEO successors. Formally, we define inside family successors as related successors who are in place in the firm as an employee or as a board member at least 3 years prior to the year of succession. Outside family successors are related to the outgoing CEO but are observed to work outside the family firm 3 years prior to the year of succession. They comprise 20 percent of all CEO successions in family firms. The typical outside family successor is a child of the outgoing CEO (60% of outside family successors), approximately one third of whom have worked in the family firm previously. On average, children leave the firm at age 26 and return at age 36, having worked for more than two external employers in the meanwhile. Professional CEOs are successors that are unrelated to the outgoing CEO. They comprise around 30 percent of all CEO successions in family firms.

[1] Wernerfelt (1984) and Barney (1991) argue that firms' competitive advantages arise form bundles of specialized assets and skills residing inside the organization.

[2] Van den Steen (2010) models homogenous corporate cultures as comprised of individuals with shared beliefs and values and shows that they are more efficient at doing what they already do, but engage in less experimentation and collection of information.

We estimate the change in corporate performance following CEO transition as the change in the firm-specific average value (fixed effect) of the performance variable in a generalized difference-in-difference model.[3] Initial regressions establish that family successors overall underperform professional CEO successors in line with the existing literature. However, when the regression allows inside and outside family successors' performance to differ, the underperformance of family successors turns out to be entirely driven by inside successors. Outside family successors, notably, perform on par with professional CEOs. The difference in the coefficient estimates of inside and outside family successors is of the same magnitude as that between family and unrelated successors in the restricted regression and thus accounts for the entire gap. Our estimates show that the post-succession performance of inside successors deteriorates in absolute terms. They are poorer at generating revenue, they have lower asset turnover, and employment grows more slowly.

What is the mechanism for this result? A small-pool effect could be at play, because inside family successions contain a higher proportion of sons, and sons are a subset of the family. This can be examined by comparing the performance of inside sons to outside sons, as both are drawn from the same limited pool. We find that also inside sons underperform outside sons. The pattern of insiders' underperformance persists even when we only compare sons who are also firstborns.

We consider two alternative explanations for insiders' underperformance. First, insiders may develop inferior management skills because they tend to occupy a junior position in the firm until they take over. Second, they may be more constrained ex post by the outgoing CEO because the two already have a history of working together. Interference by the outgoing CEO is difficult to observe, but the scope would seem to be the largest in cases where he goes on to assume a seat on the board. We continue to estimate the difference between son-successors and add controls for prior CEO experience and outgoing CEO board positions to the regressions, but insiders'

[3]Fixed effects models have been used to study persistence in corporate policies also by Bertrand and Schoar (2003) and Cronqvist, Low, and Nilsson (2009).

underperformance remains intact.

We then explore the effect of having work experience outside the family firm. Successors with experience from a variety of business cultures may draw on a broader set of competencies compared to successors with a monocultural work background. We count the number of firms in which successors have been employed, which varies for both inside and outside sons. Added to the regression, the variable lowers estimated marginal effects of both insider and outsider son performances to the extent that the difference becomes insignificant at conventional levels, although the underlying pattern remains.

The importance of work experience can be addressed from a different angle by considering the professional CEO successors of which half are recruited internally. Arguably, inside unrelated successors have a relatively higher degree of congruence with the family owners that select them. Estimating the difference between inside and outside professional CEOs, we again find that inside successors underperform, although the pattern is less pronounced compared to the family successions.

The above results do not rule out that the relationship between outside work experience and post-succession performance is caused by selection on successors' inherent talent. It is possible that talented children get attractive outside offers, which, in turn, leads to them getting experience outside the family firm. In this case, selection into outside family successions would be correlated with (positive) future performance. To the extent that this is actually the case, our results have the revelatory implication that family owners should let their children be exposed to outside offers and even have the existence of such offers guide the decision of succession.

In two-state-least-squares instrumental variable estimation similar to that of Bennedsen et al. (2007), the underperformance of family inside successors is robust. We instrument selection into outside work experience with variables that capture the inherent asset-specificity of a firm's industry following Parrino (1997) and Cremers and Grinstein (2014). Dependence on intangible assets makes within-firm training more valuable but limits the pool from which successor candidates can be drawn, giving

rise to a positive correlation between inside CEO status and industry heterogeneity (Parrino (1997)). Given that a firm's industry-association is largely pre-determined, this measure is likely to be uncorrelated with the personal talent of family successors.

Our analysis speaks to the fundamental question of whether the family has some inherent advantage as a structure for the organization of production. The uniqueness of the family business is the integration of production with "preexisting and ongoing significant personal relationships" (Pollak (1985)). We highlight the widespread practice to place successors in the firm they eventually take over, well ahead of the time of succession. Conceivably, this preference is rooted in the family's desire to develop successors who are simultaneously informed about its business and emotionally loyal to its mission. Our results suggest that this choice comes with a financial cost. It is however possible that families consciously trade off family loyalty over performance.

The paper proceeds as follows: The next section, Section 2, describes our data sources and how we construct the sample of CEO transitions. Section 3 explains our empirical model, and Section 4 discusses the results. Section 5 concludes.

2 Data and sample construction

We construct a data set of family firms that undergo a CEO transition from administrative data on the population of Norwegian corporations and their owners over the period 2005-2015 obtained from the Norwegian Tax Authority. Wealth is taxed in Norway, so corporate owners and their direct stakes are observable and this is a unique characteristics of our data. We compute indirect (ultimate) ownership stakes by iterating over owners in cases where firms are owned by other firms, accounting for cross-ownership, until we are able to identify an individual as the ultimate owner.

Firm-owner pairs can then be matched to public registry data of firm and owner-specific variables and information about kinship between individuals available from Statistics Norway. We employ registry data on a range of social and economic information, including employment, family relations, gender, and age. Firm-level accounting

data is obtained from the Brønnøysund firm registry. Ownership data are available from 2005, accounting and employment data from 2000. All variables are described in the data appendix.

The sample is then constructed through the following steps. First, some basic cleaning is performed on the population of corporations. We want to retain only firms that are active and above a minimum threshold size. Firms with average sales below 0,25 million NOK and average total assets below 1 million NOK are eliminated, as measured by 2015-prices (approximately 31,000 and 124,000 USD, respectively). This is desirable as, prior to 2006, Norwegian taxation of dividends provided incentives to incorporate very small personal firms with little activity. Further, we eliminate financial and real estate firms, firms in the agricultural sector (which is subsidised), and public services.

Next step identifies family firms that undergo a CEO transition. We match domestic owners with information about their formal roles in corporations, including CEO positions, and determines the set of CEO transitions, the outgoing and the incoming CEOs.[4] We then find the family members of the outgoing CEO and their combined ownership in the firm. Family is defined on blood or marriage up to the second degree of kinship, except we do not include siblings-in-law. That is, it includes the outgoing CEO's grandparents, parents, partners, children, grandchildren, children-in-law, siblings, nephews and nieces, aunts, uncles, and cousins.

To be meaningfully characterized as a family firm, a family must wield substantial control. We define substantial control as instances where the outgoing CEO's family indirectly own at least 33.4% of equity. The 33.4% threshold stake gives the family a negative majority according to Norwegian corporate law. It enables the family to block important decisions pursuant to the future control of the firm.[5] To keep the analysis tractable, we omit firms that undergo more than one CEO transition. We also omit firms with multiple CEOs—in such firms, a CEO transition would not

[4]Foreign owners are omitted because they cannot be matched with other data.

[5]Owners with stakes at or above 33.4% can block changes in the articles of association, prevent mergers, demergers, and distributions via write-downs of equity.

necessarily imply a shift in management control. We also exclude CEOs that are CEOs in more than one firm to avoid double-counting incoming-outgoing CEO pairs in case transitions occur in multiple firms simultaneously.

For the empirical analysis, we require that firms must be founded no later than 2005 and that least four years of accounting observations before and after CEO transition for the purpose of estimating average levels of firm performance variables on either side of transition with a reasonable level of accuracy. This limits the CEO transitions we can consider to the period 2005-2011, resulting in a sample of 4,473 family-controlled firms that undergo a CEO transitions.

Because ownership is observable in our sample, we are able to define the treatment and control group quite precisely. To evaluate the effect of choosing successors from within the family, one should compare successions where the family preserves managerial control *in addition to* ownership control to successions where the family preserves ownership control but managerial control passes to someone from outside the family.

The 4,473 transitions thus fall into four categories: In the largest subset, 1,780 cases comprising 39.8 percent, the controlling family remains in control after transition and the incoming CEO belongs to the family of the outgoing CEO, where family is defined as above. This is what we typically understand as a family succession. In these cases the controlling family owns over 90% of the equity both before and after successions on average.

In an almost equally sized subset of successions the CEO transition is accompanied by a loss of family control. In 1,741 cases, or 38.9 percent, the family's equity stake drops below the 33.4% threshold ex post and the new CEO is unrelated. In almost 60 percent of these cases, the family's ex post stake falls to zero, i.e. the firms have been sold. In a small number of cases, 153, or 3.4 percent, the successor comes from the family but the family's stake falls below the threshold. Transitions involving a loss of family ownership control are not an appropriate benchmark for evaluating family succession, even if the firms continue to be controlled a family, because the identify

of the family has changed, and these 1,894 observations are dropped. In the last category, 799 cases, or 17.9 percent, the family retains its controlling stake and the successor is unrelated. On average in these cases, the controlling family owns around 70 percent of the firm's equity prior to successions and the incoming CEO receives an ownership stake of around 20 percent. Overall, we are left with a sample comprised of 2,579 family-controlled firms that undergo a managerial succession during the period 2005-2011.

We define inside family successors as successors that are observed to be either employed or have a board seat in the family firm three years prior to the year of succession. Because we observe CEO successions at the end of a year, this definition implies that inside successors have worked for 3-4 years prior to the time of succession (three years if succession occurs in the beginning of the succession year, four years is it occurs at the end of the succession year). Or put differently, inside successors arrived in the family firm at least three years ago.

We apply a three-year threshold to ensure that inside successor's relation with the firm is of a meaningful duration. About 10 percent of inside successors have a seat on the board but are not simultaneously employed. Outside family successors are simply defined as those family successors that are not insider successors.

3 Empirical model

We specify a general difference-in-difference model with multiple time periods at the firm level:

$$Y_{it} = \beta_{0i} + \beta_1 \text{INSIDE}_{it} + \beta_2 \text{OUTSIDE}_{it} + \beta_3 \text{PROF}_{it} + \beta_x \text{X}_{\text{it}} + \text{u}_{\text{it}}. \qquad (1)$$

In (1), Y_{it} is a generic corporate outcome variable (measuring performance) and the indicator variables INSIDE_{it}, OUTSIDE_{it}, and PROF_{it} take the values of one in (treated) years $t \geq 0$ and zero in (control) years $t < 0$ for firms that undergo an

inside family CEO succession, an outside family CEO succession, or a professional CEO succession, respectively, at time $t = 0$. β_{0i} is a firm fixed effect which allows for treatment assignment to depend on the level of Y. The coefficients of interest, β_1, β_2, and β_3, capture shifts in the average level of Y around the time of CEO transition for each type of succession We examine whether inside family successions differ from outside family successions by testing whether $\beta_1 = \beta_2$ and whether outside family successions differ from professional CEO successions by testing whether $\beta_2 = \beta_3$.

Apart from the fact that we focus on comparing inside to outside family successions rather than family to professional CEO successions, the above specification resembles that of Bennedsen et al. (2007) and Pérez-González (2006). We employ a fixed-effect model whereas they compare three-year differences, allowing our specification to use all available years of observations before and after CEO transition to estimate the change in the average levels. In addition, we prefer to estimate the absolute changes in Y to observe the direction of change for each type of transition, whereas they estimate the relative change in Y.

The model includes control variables, X_{it}, for firm size (total assets), cash ratio, and operating revenue. In regressions where Y itself is operating revenue, we leave out operating revenue from the set of control variables. We also include a set of dummy variables for firm age, grouping age by deciles from 10 and below to 50 and above. Operating revenue proxies for investment opportunities, cash ratio proxies for external financing need, and firm age dummies proxy for life-cycle effects. For each year, we adjust Y_{it} for the average industry level defined according to the 2-digit NACE industry code (equivalent to including year-industry fixed effects). The estimated values of β_1—β_3 therefore reflect changes in performance relative to the average of other sample firms that belong to the industry.

Some measures of Y are logged and in those cases the coefficient estimates of β_1—β_3 reflect percentage changes. A coefficient estimate of, say, 5.50 implies that after CEO succession, the average of Y increases by 5.5 percent relative to its average pre-CEO succession level. When a variable is measured in percent, such as OROA,

or we scale it by total assets (lagged), we do not log it and the coefficients reflect the change in percentage points. Prior to logging we truncate variables by 5% in each tail in order to eliminate excess kurtosis in the distribution of the variable.

In the instrumental variables part of the analysis, we need at least three instruments for INSIDE_{it}, OUTSIDE_{it}, and PROF_{it}. We employ two sets of instruments. The first set is correlated with the propensity of selecting a family successor over a professional CEO successor. Bennedsen et al. (2007) and Tsoutsoura (2015) show that the gender of the outgoing CEO's first born child is associated with a higher frequency of family successions (a lower frequency of professional CEO successions). The instruments is as good as randomly assigned, and therefore uncorrelated with the inherent talent of successors and independent of future expected firm performance. As shown below, we are able to replicate the IVE results of Bennedsen et al. (2007) with our regressions specification when we collapse inside and outside family successions into one group, FAM_{it}.[6]

The second set is correlated with the propensity of selecting an inside family successor over an outside family successor. When a firm's competitive advantage relies on intangible assets or skills, inside successors are more likely to have acquired such skills than outside successors and the pool of strong outside candidates is therefore smaller. Production technology is an important determinant of asset specificity. We use measures of industry homogeneity suggested by Parrino (1997) and Cremers and Grinstein (2014) as a proxies for the availability of outside candidates. The Parrino measure is the partial correlation of firm-level OROA with average-industry OROA during the years prior to a firm's succession. The Cremers-Grinstein measure is the percent of CEO turnovers in a firm's industry that is filled by outside CEOs computed over the years prior to a firm's succession year. For both of these measures we use 5-digit NACE industry codes which is the highest granularity available. In addition,

[6]In this case we instrument two covariates ,FAM_{it} and PROF_{it}, and thus require a second instrument. We construct a measure of the number of males among the first-born children of those of the outgoing CEO's siblings that are owners in the firm. The intuition is that, besides being random, the more male first-born among the CEO's closest family, the larger is the pool from which the next generation CEO can be drawn.

we compute the average level of education attained by CEOs in the firm's industry as a proxy for the specificity of firm technology.[7] We allow for a nonlinear effect of education by including both average education and average education squared as instruments. While a firm's placement in an industry is not randomly assigned but is a choice of its owners, is it a past choice which is unlikely to have been based on observations of potential successors' talent. Thus, it is unlikely that our instruments for asset specificity are correlated with the inherent talent of the family successors or have an independent effect on the future performance of the individual firm.

4 Empirical analysis

4.1 Careers of inside and outside family successors

Table 1 shows the distribution of the 2,579 CEO successions onto inside and outside family successions as well as professional successions in addition to average firm size and age. The table shows a clear prevalence of inside family successions. Family successions constitute 69.0 percent of sample successions and inside successions make up 70.5 percent of family successions (1,255 firms) compared with 29.5 percent outside family successions (525 firms). Unrelated (professional CEO) successions are split evenly into inside and outside successions with 405 and 394 firms respectively. Firms are somewhat older than unrelated successions (17.3 versus 14.5 years), but smaller in size (size is measured two years prior to CEO transition). Average size shows that the Norwegian population is made up of many small firms, on average family succession firms have a balance sheet of 1.18 million USD compared with 1.59 million USD for firms with unrelated successors. There is no difference between the size of inside and outside family succession firms, but firms tend to be a bit older in the case of inside successions (19.0 years compared with 13.1 years).

Table 2 shows the personal relationships between incoming and outgoing CEOs

[7] An education index assigns the value of "1" for secondary school or below; "2" for high school; "3" for a bachelor's degree; "4" for a master's degree; and "5" for a PhD degree.

in family successions. Children, partners, and siblings of the outgoing CEO are the most frequent successors, in that order. Sons are by far the most common successors and make up 59 and 47 percent of inside and outside family successors, respectively. Eldest sons are three times more frequent than younger sons, comprising 44.3 and 33.5 percent of inside and outside successors, respectively. It is noticeable that there are more sons in the group of inside successors, but this fact is not driven by primogeniture, because the prevalence of firstborn sons in the two groups is the same (as shown in Table 4). Interesting, the lower frequency of outside sons is not matched by a correspondingly higher prevalence of outside daughters. Instead, outside partners more common in outside successions.

We then examine the employment histories of inside and outside family successors. Since the largest group of successors are children of the outgoing CEO, our discussion will focus on sons and daughters and will only mention other groups for particular observations. The first row in Table 3 Panel A shows that inside children have worked 6.6 years in the family firm prior to the year of succession, on average. Only around 20 percent of insider children are observed to have work experience outside the family firm. By definition, all outside successors have such outside experience. On average, outside successor children have worked for more than two different outside employers, whereas inside children have worked for less than a half outside employer. Less than 20 percent of outside children are recorded with past employment in the family firm. The engagement occurred around six years prior to succession on average, and for more than half of the outside successors, this engagement was part time (for daughters, a full 83 percent worked only part-time).

Considering the positions successors are recruited from, a considerably higher fraction of outside sons have CEO or management level experience. 6.12 and 16.3 percent of inside sons have CEO or management level experience, respectively, compared with 13.9 and 23.7 percent of outside sons. Perhaps surprisingly, the pattern is the opposite for daughters. One may wonder whether outside successors are truly outsiders. By construction the family firm is that which experiences a CEO tran-

sitions, but many businesses comprise multiple separately incorporated firms. Is it possible that outsiders are hired from firms that are part of a wider business group? Our ownership data allows us to identify whether two firms have the same owners. We therefore check whether the firm from which outside successors are recruited are owned by the family of the departing CEO. We denote such firms "related firms." As can be seen, around 11-22 percent of successors come from related firms, highest for sons. This, hence, does not seem to be a large concern, and may partly reflect that we have omitted individuals that are CEO in multiple firms. This ensures that even if a successor has worked in a related firm, he will have worked under a CEO different from his father (or other family member). It therefore less likely that the related firm is just an extension of the firm the successor eventually takes over.

The averages above are potentially sensitive to truncation because we can only trace employment history back to 2005. One may get a longer time series by considering past employment of CEO successors in transitions that occur after 2011 which we are omitting from the regressions because they violate our requirement that four years of accounting data be available post transition. These 2012-2014 transitions give us the longest possible time series backwards in time and are shown in Panel B of Table 3.

When we are able to go back further in time, the average amount of time insiders have spent in the family firm increases to almost 10 years for sons and 9 years for daughters, but we also observe that an increased number of insiders have outside work experience (33.8 percent of sons and 45.9 percent of daughters). Outside children with work experience in the family firm also increases to 37.5 percent for sons and 29.4 percent for daughters, and the timing of the engagement increases to 7.85 years for sons and 8.40 years for daughter. Estimates of fractions of outside successors in this longer sample must be interpreted with caution though, because the number of observations for outsiders is low, only 72 individuals, hence is it sensitive to the denominator. Our best estimate of the fraction of outside successors that has previous work experience in the family firm, therefore, lies between the 20 percent of the 2005-

2011 sample and the 40 percent of the 2012-2014 sample: approximately one third. The longer sample contains 299 observations for inside successors, thus we feel more comfortable with the estimates for this group.

Overall, we conclude that around two thirds of inside (son) successors have no work experience outside the family firm and that on average, inside children have worked for almost 10 years in the family firm prior to succession. In contrast, only around one third of outside successors have previously worked in the family firm. The tendency for early recruitment of future generations is therefore quite pervasive.

In Table 4 we display the age characteristics of outgoing and incoming CEOs. Departing CEOs are, on average, around 65 years of age when an inside child takes over, a few years younger when outside children take over. Successor-children are around 38 years old in the inside succession cases and outside successors are a few years younger, around 35 years. The average age of the departing CEOs oldest child falls considerably in other-successions, implying that the in many cases the child is too young to assume management responsibility. Thus, partners, which is the main compoenent of the "other" category may be an intermediary between the outgoing CEO and his children, the latter being too young to take over management. While having a male firstborn is associated with a higher prevalence of son successors, is it not associated with any statistically significant difference between inside and outside successors. The table also shows that there is a higher prevalence of divorced CEOs in the outside successor group.

4.2 Performance of inside and outside family successors

Table 5 reports summary statistics for firm pre- and post-performance measures that are used in the regressions. The table compares the averages for inside and outside family successions as well as for unrelated (professional CEO) successions. Inside succession-firm are larger in terms of total assets and number of employees, although only the difference in employment is statistically significant. This is consistent with

their higher age (Table 1. Inside succession-firms outperform outside succession firms in terms of industry-adjusted OROA and ROA prior to succession whereas the difference in performance becomes insignificant post-succession. We absorb this level effect with the firm fixed effects in the regressions.

Table 6 displays our main result. Panel A compares the performance change around succession of family successors to that of unrelated successors for various measures of performance.[8] We estimate model (1) by collapsing inside and outside family successions into one group. Panel A is akin to the regressions in Bennedsen et al. (2007) and we essentially find the same results. Family successors underperform professional CEOs. We estimate the absolute change in the level of performance for each group and while the relative difference is statistically significant, the estimated changes in levels are not individually significant.

In Panel B we allow for different effects of inside and outside family successions. Underperformance is now concentrated on inside successors whose performance deteriorates in absolute terms whereas the performance for outside and unrelated successors is either unchanged or improved. Notably, inside family successors significantly underperform their outside counterparts whereas outside successors perform no differently from unrelated successors. Inside family successors are poorer at generating revenue, efficiency (as measured by asset turnover) falls, as does the number of employees. OROA falls by 0.84 percentage points and operating income growth falls by 8.44 percent after succession, on average.

Gauging the size of these effects, we consider, for example, OROA: the difference between family and unrelated successors in Panel A amounts to 1.19 (0.82 - (-0.37)) percentage points and the difference between inside and outside family successors in Panel B amounts of 1.84 percentage points while the estimated coefficient for unrelated successors is virtually unchanged. Thus, the underperformance of inside family

[8]We considered range performance and policy variables but report only those that display a pattern of significant differences. For example, estimated differences in leverage and cash ratios were not significant. Generally we found that operating revenue is the variable that reacts strongest to succession.

successors explains the entire difference between family and unrelated successors.

Figure 1 plots average corporate performance before and after CEO transition for the group of inside and outside family successors. The four measures are all industry adjusted annually. The difference in the ex post slope of inside and outside successors is evident—inside successors tend downwards, outside successors tend upwards. The ex ante trends of inside and outside successors do not appear to differ substantially. That the performance of outside successors in some cases pick up a year prior to the formal installment of the incoming CEO is likely reflective of the fact that our employment data records position at the end of a year.

4.2.1 Comparing inside and outside successor sons

We now investigate the mechanism behind the underperformance of inside successors. The composition of inside and outside successors is not quite similar because there are more sons among the former. If there is a preference for sons, and perhaps even eldest sons, the pool of successors becomes very small indeed. Sons are still the predominant group among outside successors, so it appears that the preference for sons is strong in both types of successions.

The importance of the small pool-effect can be assessed by comparing the performance of inside sons to outside sons, as sons are drawn from the same limited pool. Table 7 panel A shows the results of this estimation. The difference in performance of inside and outside sons is intact and statistically significant at the five percent level of for several of the variables. For OROA, the difference is now significant only at the 11.6 percent whereas the significance of investment is now close to 5 percent. The standard errors of the coefficient estimates have increased relative to Panel B of Table 6 due to the lower number of observations. In panel B we shrink the pool even further and compare the performance of eldest sons—the pattern is clearly still that insider underperforms although the difference is significant at the five percent level only for revenue growth and asset turnover. The small pool-effect, therefore, does not appear to be driving insiders' underperformance.

Another noticeable difference between inside and outside family successors uncovered in Table 3 is that outsiders return to the family firm with more CEO experience. Inside successors may have accumulated less skills exactly because they have been in a junior position. Presumably, those insiders who were in a CEO position before being recruited back to the family firm, have the best prerequisites for succeeding when taking over at transition. We add a control for (inside and outside) successors that were recruited to the family firm from a CEO position and continue to compare son-successors to account for the small pool-effect. That barely affects the results, as shown in Table 8 panel A.[9]

In panel B, we examine the potential for interference by the outgoing CEO and control for his continued presence on the board. The latter's presence may constrain especially inside sons when father and sons have a history of working together and father-son personal relations may complicate successions. Although senior's formal presence is associated with higher growth in sales and employment, the effect works on both inside and outside sons and the underperformance of inside sons remains intact.

We then explore the role of outside experience further. From Table 3 we know that 20.9 percent of inside sons in the regression sample have work experience from a different firm. Thus, we have variation in the magnitude of outside work experience in both groups. Adding the number of past outside employers to the regressions, in Table 9 panel A, we find that this variable is positively associated with growth in operating revenue and employment, and with asset turnover. Thus, a multiple employer background appears to improve the performance of the incoming CEO. Furthermore, the difference between inside and outside sons is now only significant at the 5 percent level for asset turnover, and completely insignificant for OROA, investment and employment growth. For ROA and operating revenue, the difference is significant only at the 13 percent level.[10] In the appendix, Table A2 we add all

[9]We obtain similar results when we use a dummy for management-level experience.

[10]The correlation of the number of past outside employers with outside son successors is 0.51 and -0.09 with inside son successors.

three control variables simultaneously and the results are very close to those in Table 9 panel A.

In panel B we control for the length of time a successor has worked outside the family firm, and we see a similar pattern. Thus, accounting for the extent of outside experience seems to be able to account for a substantial part of insiders' underperformance. We interpret this as indication that experience of a variety of business cultures adds to successors' management competencies.[11]

We want to explore further the notion that the benefit of outside work experiences is the exposure to different business cultures and norms. It turns out that half of the professional CEOs in the sample are also recruited from inside the firm. Because the family continues to exert control also in the unrelated successions, it is likely that the inside successor is selected exactly because he shares beliefs and values with the outgoing CEO and his family. In Table 10 we rearrange the regression and split unrelated successors into inside and outside successors. There are close to 400 firms in each group, which is 125 firms less than the group of outside family successors, but we still observe a pattern very similar to that of family successors. The differences in asset turnover, operating revenue and employment growth are highly significant at the 1 percent level. ROA is significantly different at the 10 percent level.

4.3 Instrumental variables regressions

Finally, we address the issue of self-selection into outside-status. As discussed above, it is possible that outside successors are the most talented of the outgoing CEOs children. Because they are more likely to have attractive outside offers, they choose to work outside the family firm. In that case, outside work experience in itself add no value, but is a reflection of inherent talent.

In the appendix we show that we can replicate the results of Bennedsen et al. (2007) using instruments based on the gender of the outgoing CEO's firstborn child,

[11]The correlation of the years of outside employers with outside son successors is 0.44 and -0.07 with inside son successors.

as discussed in Section 3, see Table A3. In Table 11 we use these instruments together with the three measures of the asset-specificity of the family firm in a two-stage-least-squared regression.

In the first stage regressions (not reported), we find that the instruments have the expected signs. The effect of male firstborn children is positively associated with family successions and the effect is three times as large on inside family successors as outside family successors. The effect is negative for unrelated successors. Industry homogeneity is negatively associated with insider family successors and unrelated successors, and positively with outside family successors. Average education of industry CEOs is positively associated with inside family successors and insignificant for outside successors. The Sanderson-Windmeijer multivariate F test of excluded instruments for the first stage regressions are all highly significant.

The second stage regressions shown in Table 11 replicate the patterns of the OLS regressions although with less precision as reflected in the larger coefficients and standard errors. Thus, we do not place emphasis on the size of the coefficient estimates but on the qualitative results. Similar to the OLS results, the IVE results also show that the performance of inside family successors' deteriorate in absolute terms and that they underperform outside family successors who in turn perform similarly to unrelated successors.

5 Conclusion

In this paper we document that not only do family-owned companies tend to select CEO successors from within the family, they also tend to select successors that have worked in the family firm for a considerable time prior to taking over. We find that only a third of internally-recruited family successors have work experience from outside firms and have spent 10 years working in the family firms, on average.

We further estimate that the underperformance of family successors relative to professional CEOs that have been documented in the literature, is entirely driven by

such inside family successors. After CEO transition, their performance deteriorates in absolute terms and they underperform family successors that are recruited from outside the family firm. The latter, notably, perform on par with professional CEOs. A substantial part of the difference can be accounted for by measures of the extent of outside work experience.

We propose that monocultural business background in the family firm is behind this result. Successors skill set may suffer from a lack of cognitive diversity or successors internalize particular family business norms which are prioritized over financial profit.

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Figure 1: Corporate performance of inside and outside family successors

All variables are industry-adjusted according to two-digit NACE codes annually and are defined in Appendix Table A1. Sample: 2001-2015. CEO successions: 2005-2011.

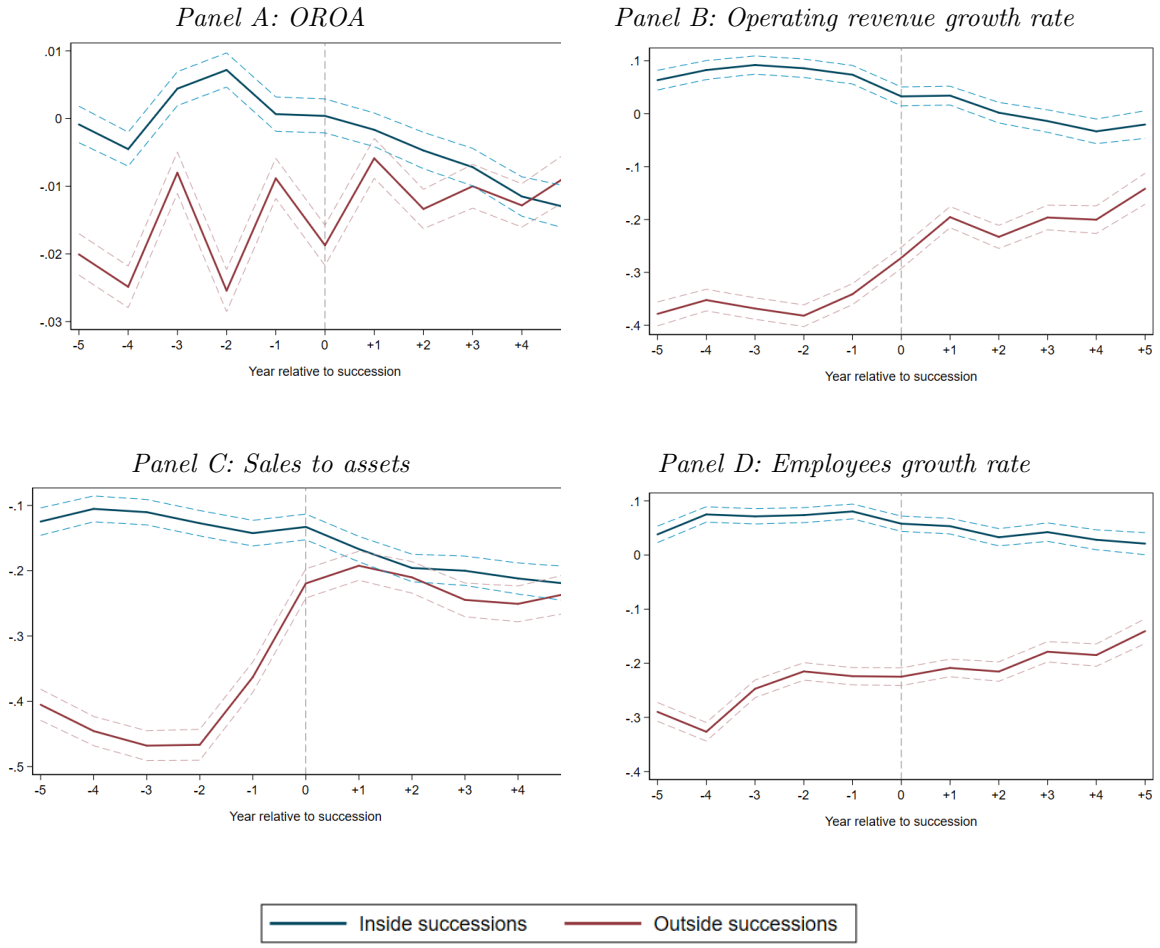

Table 1: Firm successions in the sample

The table shows the number of family-owned firms in the sample according to succession type, as well as average age and size in the year of succession. Family-owned firms are defined as firms that experience a CEO transition and where the family of the outgoing CEO owns on average at least 33.4% in 2 years before and 2 years after succession. Inside family successors are defined as family successors that are employed or have a board seat in the family firm three years prior to the year of succession. Outside family successors are defined as the remaining family successors. Unrelated successors are successors that do not belong to the family of the outgoing CEO. *Firm age* is the number of years since the firm's incorporation. *Firm size* is the book value of total assets, winsorized at the 5 and 95 percent level. p-values are reported for a two-sided t-test for the difference in means with unequal variances. CEO successions: 2005-2011.

	Number of firms	Share of firms (percent)	Share of firms (percent)	Number of firm-year observations	Firm age at succession (years)	Firm size at succession (million NOK)
Family successions	1,780	69.0	100.0	24,286	17.3	9.49
Inside successions	1,255	–	70.5	17,585	19.0	9.49
Outside successions	525	–	29.5	6,701	13.1	9.49
Unrelated successions	799	31.0	–	10,327	14.5	12.8
Total	2,579	100.0	–	34,613	–	–

Table 2: Relationship between outgoing and incoming CEOs in family successions

The table shows the family relationship between the outgoing CEO and his successor in family successions. Inside family successors are defined as family successors that are employed or have a board seat in the family firm three years prior to the year of succession. Outside family successors are defined as the remaining family successors. CEO successions: 2005-2011.

	Number of successions			Percent of successions		Percent of succession type	
	Total	Inside	Outside	Inside	Outside	Inside	Outside
Parent-son	984	737	247	58.7	47.1	74.9	25.1
Parent-eldest son	*732*	*556*	*176*	*44.3*	*33.5*	*76.0*	*24.0*
Parent-daughter	222	156	66	12.4	12.6	70.3	29.7
Partners	266	155	111	12.4	21.1	58.3	41.7
Siblings	197	145	52	11.6	9.90	73.6	26.4
Other	111	62	49	4.94	9.33	55.9	44.5
Total	1,780	1,255	525	100.0	100.0	–	–

Table 3: Past work experiences of family successors

The table reports the mean values of various aspects of the past work experiences of family successor CEOs by successor-type. Inside family successors are defined as family successors that are employed or have a board seat in the family firm three years prior to the year of succession. Outside family successors are defined as the remaining family successors. Definitions of variables are available in Appendix Table A1. p-values are reported for a two-sided t-test for the difference in means with unequal variances. *** (**) indicates that the difference between insiders and outsiders is significant at the 1% (5%) level. CEO successions: 2005-2011.

	Inside successors			Outside successors		
	Sons	Daughters	Others	Sons	Daughters	Others
Panel A: CEO successions 2005-2011						
Time in family firm before succession (years)	6.69	6.61	5.27	–	–	–
	(0.09)	(0.21)	(0.18)	–	–	–
Has worked outside the family firm (Y/N, percent)	20.9***	21.2***	34.6***	100	100	100
	(1.65)	(3.78)	(2.80)	(0.00)	(0.00)	(0.00)
Number of past outside employers	0.42***	0.35***	0.63***	2.27	2.18	2.31
	(0.03)	(0.05)	(0.04)	(0.05)	(0.11)	(0.05)
Has past employment in the family firm (Y/N, percent)	–	–	–	18.0	16.7	6.64
				(2.46)	(4.62)	(1.72)
Years since last family firm employment	–	–	–	6.25	5.73	6.21
				(0.23)	(0.33)	(0.38)
Last family firm employment was part-time (Y/N, percent)	6.78***	19.0*	14.7*	55.9	83.3	66.7
	(0.98)	(3.35)	(2.17)	(8.64)	(16.7)	(16.7)
Recruited from position as CEO (Y/N, percent)	6.12**	4.49	11.4	13.9	4.55	12.7
	(0.88)	(1.66)	(1.68)	(2.22)	(2.85)	(2.30)
Recruited from position at manager-level (Y/N, percent)	16.3	23.3	22.6	23.7	12.5	29.5
	(1.65)	(4.48)	(2.79)	(4.91)	(8.54)	(5.89)
Recruited from related firm (Y/N, percent)	–	–	–	22.4	16.7	12.3
				(2.67)	(4.62)	(2.27)
Panel B: CEO successions 2012-2014						
Time in family firm before succession (years)	9.91	9.18	8.07	–	–	–
	(0.22)	(0.54)	(0.39)	–	–	–
Has worked outside the family firm (Y/N, percent)	33.8***	45.9***	44.1***	100	100	100
	(2.75)	(6.43)	(4.04)	(0.00)	(0.00)	(0.00)
Number of past outside employers	0.84***	0.89***	1.09***	3.22	4.41	3.14
	(0.07)	(0.12)	(0.10)	(0.16)	(0.40)	(0.20)
Has past employment in the family firm (Y/N, percent)	–	–	–	37.5	29.4	23.8
				(5.75)	(11.4)	(6.65)
Years since last family firm employment	–	–	–	7.85	8.40	7.30
				(0.46)	(0.93)	(0.42)

Table 4: Personal characteristics of outgoing and succeeding family CEOs

The table reports mean values of various personal characteristics of outgoing and succeeding family CEO successors by successor-type. Inside family successors are defined as family successors that are employed or have a board seat in the family firm three years prior to the year of succession. Outside family successors are defined as the remaining family successors. Definitions of variables are available in Appendix Table A1. p-values are reported for a two-sided t-test for the difference in means with unequal variances. *** (**) indicates that the difference between insiders and outsiders is significant at the 1% (5%) level. CEO successions: 2005-2011.

	Inside successors			Outside successors		
	Sons	Daughters	Others	Sons	Daughters	Others
Age of outgoing CEO at succession (years)	64.8***	66.6**	49.8***	62.7	63.4	46.1
	(0.25)	(0.58)	(0.58)	(0.46)	(1.09)	(0.84)
Age of succeeding CEO at succession (years)	37.6***	38.7*	48.9***	34.9	36.0	44.1
	(0.23)	(0.52)	(0.52)	(0.44)	(0.92)	(0.70)
Age at last employment in the family firm	–	–	–	26.4	27.0	46.1
				(0.97)	(3.04)	(1.85)
Age of outgoing CEO's firstborn at succession	40.1***	41.1*	23.9***	37.7	38.3	20.0
	(0.24)	(0.52)	(0.68)	(0.44)	(0.93)	(0.96)
Outgoing CEO's firstborn is male (Y/N, percent)	69.2	26.9	46.2*	67.2	22.7	54.9
	(1.70)	(3.56)	(2.71)	(2.99)	(5.20)	(3.49)
Outgoing CEO is divorced (Y/N, percent)	3.80*	3.21	12.2	8.50	6.06	15.1
	(0.70)	(1.41)	(1.72)	(1.78)	(2.96)	(2.46)

Table 5: Firm summary statistics prior to succession

The table compares average values of firm-level financial statistics before and after CEO succession by successor-type in Panels A and B, respectively. Inside family successors are defined as family successors that are employed or have a board seat in the family firm three years prior to the year of succession. Outside family successors are defined as the remaining family successors. Unrelated successors are successors that do not belong to the family of the outgoing CEO. All values, unless indicated otherwise, are reported in percent, and winsorized at the 5 and 95 percent level. Definitions of variables are available in Appendix Table A1. p-values are reported for a two-sided t-test for the difference in means with unequal variances. ***, **, and * indicate that the difference between insiders and outsiders is significant at the 1%, 5%, and 10% level, respectively. Sample: 2001-2015. CEO successions: 2005-2011.

	Family succession				Unrelated succession
	All firms	Inside successors	Outside successors	Difference in means	All firms
Panel A: Averages before succession					
Total assets (million NOK)	8.06	8.34	7.39	0.95	10.5
	(0.30)	(0.35)	(0.56)		(0.57)
Number of employees	8.62	9.20	6.95	2.25***	10.6
	(0.21)	(0.24)	(0.40)		(0.40)
OROA, industry-adjusted	-0.46	-0.01	-1.64	1.63*	-0.76
	(0.26)	(0.27)	(0.62)		(0.45)
ROA, industry-adjusted	-0.24	0.07	-1.04	1.11*	-0.38
	(0.21)	(0.22)	(0.51)		(0.36)
Sales to assets (pct.)	2.14	2.26	1.84	0.41***	2.35
	(0.03)	(0.03)	(0.06)		(0.05)
Firm-year observations	11,133	8,498	2,635		4,811
Panel B: Averages after succession					
Total assets (million NOK)	10.4	10.1	11.0	-0.89	14.3
	(0.36)	(0.41)	(0.71)		(0.66)
Number of employees	9.34	9.74	8.30	1.45*	12.3
	(0.23)	(0.27)	(0.45)		(0.42)
OROA, industry-adjusted	-1.57	-1.32	-2.19	0.87	-0.83
	(0.27)	(0.31)	(0.52)		(0.46)
ROA, industry-adjusted	-1.07	-0.88	-1.52	0.65	-0.74
	(0.22)	(0.26)	(0.44)		(0.38)
Sales to assets (pct.)	1.92	1.98	1.79	0.19**	2.23
	(0.03)	(0.03)	(0.06)		(0.04)
Firm-year observations	11,371	7,833	3,538		4,711

Table 6: Change in firm performance for inside and outside family successors

Panel A compares the change in performance around succession of family successors to that of unrelated successors. Panel B compares the change in performance of inside and outside family successors as well as unrelated successors. Inside family successors are defined as family successors that are employed or have a board seat in the family firm three years prior to the year of succession. Outside family successors are defined as the remaining family successors. Unrelated successors are successors that do not belong to the family of the outgoing CEO. The coefficient estimates are from a panel OLS regression of the variable indicated in the column heading on a set of control variables, firm fixed effects, and industry-year fixed effects. Firm control variables include firm age, and lagged total assets, cash ration, and OROA (except in column 1). All variables are annual and winsorized at the 5th and 95th percentiles. Variable definitions are provided in Appendix Table A1. Reported p-values are from a Wald test of a null of no difference between the estimated coefficients. Firm clustered standard errors are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively. Sample: 2001-2015. CEO successions: 2005-2011.

	OROA	ROA	ln(Op. revenue)	Sales/ assets	ln(Em-ployees)
Panel A: Family vs. unrelated successions					
Family successions	-0.37	-0.22	-6.11***	1.83	-2.17*
	(0.30)	(0.22)	(1.27)	(2.02)	(1.03)
Unrelated successions	0.82	0.20	4.84*	16.7***	4.99**
	(0.43)	(0.32)	(1.88)	(2.99)	(1.70)
Difference (p-value)	0.018	0.246	0.000	0.000	0.000
Controls and fixed effects	yes	yes	yes	yes	yes
Adjusted R-squared	0.31	0.31	0.86	0.71	0.85
Observations	31,923	31,216	30,554	31,216	26,405
Panel B: Inside vs. outside family successions					
Family successions					
Inside successors	-0.84**	-0.52*	-8.44***	-4.21*	-3.46**
	(0.32)	(0.23)	(1.34)	(2.10)	(1.13)
Outside successors	1.00	0.74	2.19	21.7***	3.61
	(0.66)	(0.51)	(3.35)	(5.09)	(2.67)
Difference (p-value)	0.010	0.020	0.004	0.000	0.016
Unrelated successions	0.81	0.19	4.82*	16.6***	4.98**
	(0.43)	(0.32)	(1.88)	(2.99)	(1.70)
Outside family = unrelated successor (p-value)	0.801	0.354	0.497	0.393	0.667
Controls and fixed effects	yes	yes	yes	yes	yes
Adjusted R-squared	0.31	0.31	0.86	0.71	0.85
Observations	31,923	31,216	30,554	31,216	26,405

Table 7: Change in firm performance for inside and outside family successor sons

Panel A compares the change in performance around succession of inside sons of the outgoing CEO to that of outside sons of the outgoing CEO. Panel B compares the change in performance around succession of inside eldest sons of the outgoing CEO to that of outside eldest sons of the outgoing CEO. Inside family successors are defined as family successors that are employed or have a board seat in the family firm three years prior to the year of succession. Outside family successors are defined as the remaining family successors. Unrelated successors are successors that do not belong to the family of the outgoing CEO. The coefficient estimates are from a panel OLS regression of the variable indicated in the column heading on a set of control variables, firm fixed effects, and industry-year fixed effects. Firm control variables include firm age, and lagged total assets, cash ration, and OROA (except in column 1). All variables are annual and winsorized at the 5th and 95th percentiles. Variable definitions are provided in Appendix Table A1. Reported p-values are from a Wald test of a null of no difference between the estimated coefficients. Firm clustered standard errors are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively. Sample: 2001-2015. CEO successions: 2005-2011.

	OROA	ROA	ln(Op. revenue)	Sales/ assets	ln(Em-ployees)
Panel A					
Parent-son successions					
Inside successors	-0.75	-0.70*	-4.69**	-0.36	-0.61
	(0.39)	(0.28)	(1.48)	(2.43)	(1.33)
Outside successors	0.67	0.61	7.94*	25.1***	6.11
	(0.83)	(0.61)	(3.98)	(6.37)	(3.38)
Difference (p-value)	0.116	0.047	0.003	0.000	0.065
Other family successions	-0.29	0.05	-11.6***	-2.53	-6.15***
	(0.46)	(0.34)	(2.32)	(3.47)	(1.83)
Unrelated successions	0.81	0.19	4.91**	16.7***	5.03**
	(0.43)	(0.32)	(1.88)	(2.99)	(1.70)
Controls and fixed effects	yes	yes	yes	yes	yes
Adjusted R-squared	0.31	0.31	0.86	0.71	0.85
Observations	31,923	31,216	30,554	31,216	26,405
Panel B					
Parent-eldest son successions					
Inside successors	-0.89*	-0.80*	-4.31**	0.04	-0.11
	(0.44)	(0.30)	(1.61)	(2.84)	(1.52)
Outside successors	0.44	0.56	6.07	19.6**	5.60
	(0.98)	(0.72)	(4.57)	(7.22)	(4.07)
Difference (p-value)	0.213	0.075	0.033	0.012	0.190
Other family successions	-0.20	0.00	-9.04***	0.19	-4.60**
	(0.40)	(0.30)	(1.91)	(2.87)	(1.48)
Unrelated successions	0.81	0.19	4.89**	16.7***	5.03**
	(0.43)	(0.32)	(1.88)	(2.99)	(1.70)
Controls and fixed effects	yes	yes	yes	yes	yes
Adjusted R-squared	0.31	0.31	0.86	0.71	0.85
Observations	31,923	31,216	30,554	31,216	26,405

Table 8: Change in firm performance controlling for successors' CEO experience and outgoing CEO's board presence

The table compares the change in performance around succession of inside family successors to that of outside family successors adding various controls relative to Table 7. Panel A controls for whether the successor had the position of CEO three years prior to the year of succession. Panel B controls for whether the outgoing CEO sits on the board four years after the succession. Inside family successors are defined as family successors that are employed or have a board seat in the family firm three years prior to the year of succession. Outside family successors are defined as the remaining family successors. Unrelated successors are successors that do not belong to the family of the outgoing CEO. The coefficient estimates are from a panel OLS regression of the variable indicated in the column heading on a set of control variables, firm fixed effects, and industry-year fixed effects. Firm control variables include firm age, and lagged total assets, cash ration, and OROA (except in column 1). All variables are annual and winsorized at the 5th and 95th percentiles. Variable definitions are provided in Appendix Table A1. Reported p-values are from a Wald test of a null of no difference between the estimated coefficients. Firm clustered standard errors are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively. Sample: 2001-2015. CEO successions: 2005-2011.

	OROA	ROA	ln(Op. revenue)	Sales/ assets	ln(Em-ployees)
Panel A					
Parent-son successions					
Inside successors	-0.71	-0.69*	-4.75**	-0.86	-0.73
	(0.39)	(0.28)	(1.48)	(2.44)	(1.33)
Outside successors	0.80	0.65	7.88	23.9***	5.84
	(0.85)	(0.62)	(4.02)	(6.47)	(3.45)
Difference (p-value)	0.101	0.045	0.003	0.000	0.074
Past CEO position	-0.70	-0.17	0.89	7.32	1.88
	(0.80)	(0.59)	(4.00)	(5.73)	(3.64)
Other family successions	yes	yes	yes	yes	yes
Unrelated successions	yes	yes	yes	yes	yes
Controls and fixed effects	yes	yes	yes	yes	yes
Adjusted R-squared	0.31	0.31	0.86	0.71	0.85
Observations	31,910	31,203	30,541	31,203	26,400
Panel B					
Parent-son successions					
Inside successors	-0.87	-0.80*	-9.01***	-2.47	-5.04**
	(0.52)	(0.37)	(2.09)	(3.27)	(1.77)
Outside successors	0.57	0.52	4.02	23.2***	1.76
	(0.88)	(0.65)	(4.22)	(6.79)	(3.59)
Difference (p-value)	0.114	0.045	0.002	0.000	0.062
Senior sits on the board ex post	0.18	0.16	7.07**	3.46	7.13***
	(0.50)	(0.36)	(2.32)	(3.55)	(1.93)
Other family successions	yes	yes	yes	yes	yes
Unrelated successions	yes	yes	yes	yes	yes
Controls and fixed effects	yes	yes	yes	yes	yes
Adjusted R-squared	0.31	0.31	0.86	0.71	0.85
Observations	31,923	31,216	30,554	31,216	26,405

Table 9: Change in firm performance controlling for successors' outside work experience

The table compares the change in performance around succession of inside family successors to that of outside family successors adding various controls relative to Table 7. Panel A controls for the number of employers the successor have had up to three years prior to the year of succession. Panel B controls for the number of years the successor has spent outside the family firm prior to succession. Inside family successors are defined as family successors that are employed or have a board seat in the family firm three years prior to the year of succession. Outside family successors are defined as the remaining family successors. Unrelated successors are successors that do not belong to the family of the outgoing CEO. The coefficient estimates are from a panel OLS regression of the variable indicated in the column heading on a set of control variables, firm fixed effects, and industry-year fixed effects. Firm control variables include firm age, and lagged total assets, cash ration, and OROA (except in column 1). All variables are annual and winsorized at the 5th and 95th percentiles. Variable definitions are provided in Appendix Table A1. Reported p-values are from a Wald test of a null of no difference between the estimated coefficients. Firm clustered standard errors are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively. Sample: 2001-2015. CEO successions: 2005-2011.

	OROA	ROA	ln(Op. revenue)	Sales/ assets	ln(Em-ployees)
Panel A					
Parent-son successions					
Inside successors	-0.81*	-0.75**	-6.01***	-3.13	-2.37
	(0.40)	(0.28)	(1.52)	(2.49)	(1.36)
Outside successors	0.43	0.36	1.60	12.3	-3.70
	(1.01)	(0.73)	(5.07)	(7.51)	(4.01)
Difference (p-value)	0.230	0.137	0.133	0.043	0.745
No. of past outside employers	0.11	0.10	2.87*	5.86***	4.07***
	(0.25)	(0.18)	(1.24)	(1.58)	(0.85)
Other family successions	yes	yes	yes	yes	yes
Unrelated successions	yes	yes	yes	yes	yes
Controls and fixed effects	yes	yes	yes	yes	yes
Adjusted R-squared	0.31	0.31	0.86	0.71	0.85
Observations	31,881	31,179	30,517	31,179	26,372
Panel B					
Parent-son successions					
Inside successors	-0.71	-0.62*	-6.94***	-4.30	-3.06*
	(0.40)	(0.28)	(1.52)	(2.50)	(1.35)
Outside successors	0.87	0.93	-1.08	9.98	-4.93
	(0.97)	(0.71)	(4.65)	(7.26)	(3.83)
Difference (p-value)	0.113	0.033	0.213	0.053	0.634
No. of years outside the family firm	-0.03	-0.05	1.45***	2.44***	1.76***
	(0.08)	(0.06)	(0.38)	(0.53)	(0.30)
Other family successions	yes	yes	yes	yes	yes
Unrelated successions	yes	yes	yes	yes	yes
Controls and fixed effects	yes	yes	yes	yes	yes
Adjusted R-squared	0.31	0.31	0.86	0.71	0.85
Observations	31,881	31,179	30,517	31,179	26,372

Table 10: Change in firm policies around succession for inside and outside professional CEO successors

The table compares the change in performance around succession of unrelated inside CEO successors to that of unrelated outside CEO successors. Unrelated successors are successors that do not belong to the family of the outgoing CEO. Inside successors are defined as successors that are employed or have a board seat in the family firm three years prior to the year of succession. Outside successors are defined as the remaining unrelated successors. The coefficient estimates are from a panel OLS regression of the variable indicated in the column heading on a set of control variables, firm fixed effects, and industry-year fixed effects. Firm control variables include firm age, and lagged total assets, cash ration, and OROA (except in column 1). All variables are annual and winsorized at the 5th and 95th percentiles. Variable definitions are provided in Appendix Table A1. Reported p-values are from a Wald test of a null of no difference between the estimated coefficients. Firm clustered standard errors are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively. Sample: 2001-2015. CEO successions: 2005-2011.

	OROA	ROA	ln(Op. revenue)	Sales/ assets	ln(Em-ployees)
Family successions					
Inside successors	-0.83**	-0.51*	-8.51***	-4.33*	-3.57**
	(0.32)	(0.23)	(1.34)	(2.10)	(1.13)
Outside successors	1.01	0.74	2.16	21.7***	3.55
	(0.66)	(0.51)	(3.35)	(5.10)	(2.67)
Difference (p-value)	0.010	0.021	0.003	0.000	0.015
Unrelated successions					
Inside successors	1.11	0.63	0.08	9.36**	-0.58
	(0.56)	(0.41)	(2.01)	(3.51)	(1.99)
Outside successors	0.41	-0.44	12.2***	27.2***	14.2***
	(0.66)	(0.49)	(3.67)	(5.30)	(3.00)
Difference (p-value)	0.412	0.086	0.004	0.005	0.000
Controls and fixed effects	yes	yes	yes	yes	yes
Adjusted R-squared	0.31	0.31	0.86	0.71	0.85
Observations	31,923	31,216	30,554	31,216	26,405

Table 11: Change in firm performance for inside and outside family successors: Instrumental variable regression

The table re-estimates the regression in Table 6 (Panel B) with instrumental variables. Panel A restates the results of OLS regressions from Table 6. Panel B reports results from the IV regression. Instrumental variables are a dummy variable that equals one if the outgoing CEO's firstborn is male, an index that counts the number of firstborn males among the siblings of the outgoing CEO that are also owners of the family firm, a measure of the industry homogeneity of the family firm following Parrino (1987), the fraction of CEO successors in the family firm's industry that are hired from outside the firm, and an index of the average level of education of CEOs in the family firm's industry. Firm control variables include firm age, and lagged total assets, cash ration, and OROA (except in column 1). All variables are annual and winsorized at the 5th and 95th percentiles. Variable definitions are provided in Appendix Table A1. Reported p-values are from a Wald test of a null of no difference between the estimated coefficients. Firm clustered standard errors are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively. Sample: 2001-2015. CEO successions: 2005-2011.

	OROA	ROA	ln(Op. revenue)	Sales/ assets	ln(Em-ployees)
Family successions					
Inside successors	-0.84**	-0.52*	-8.44***	-4.21*	-3.46**
	(0.32)	(0.23)	(1.34)	(2.10)	(1.13)
Outside successors	1.00	0.74	2.19	21.7***	3.61
	(0.66)	(0.51)	(3.35)	(5.09)	(2.67)
Difference (p-value)	0.010	0.020	0.004	0.000	0.016
Unrelated successions	0.81	0.19	4.82*	16.6***	4.98**
	(0.43)	(0.32)	(1.88)	(2.99)	(1.70)
Outside family = unrelated successor (p-value)	0.801	0.354	0.497	0.393	0.667
Controls and fixed effects	yes	yes	yes	yes	yes
Adjusted R-squared	0.31	0.31	0.86	0.71	0.85
Observations	31,923	31,216	30,554	31,216	26,405
Panel B: IV regression					
Family successions					
Inside successors	-2.55**	-8.63	-15.9***	-23.2***	-14.4**
	(1.26)	(8.11)	(5.00)	(7.63)	(6.45)
Outside successors	6.27	2.55	29.5	83.1***	41.9
	(3.77)	(2.65)	(21.0)	(26.3)	(32.3)
Difference (p-value)	0.064	0.738	0.069	0.008	0.139
Unrelated successions	1.08	1.47	4.65*	16.3	9.44
	(1.61)	(1.08)	(6.76)	(10.5)	(6.16)
Outside family = unrelated successor (p-value)	0.258	0.700	0.315	0.032	0.355
Controls and fixed effects	yes	yes	yes	yes	yes
Centered R-squared	0.001	0.042	0.227	0.033	0.099
Observations	30,450	29,793	29,162	29,793	25,224

6 Appendix Tables

Appendix Table A1: Definition of variables

This table documents the definitions of the variables used in the empirical analysis.

Variable	Definition
Firm accounting variables	
Employees growth rate	See Ln(Employees).
Firm age	The number of years since the firm's incorporation.
Firm size	The book value of firm's assets in millions of Norwegian Kroner (NOK).
Ln(Employees)	The natural logarithm of total number of employees.
Ln(Operating revenue)	The natural logarithm of firm's total operating revenue in millions of Norwegian Kroner (NOK).
Number of employees	Total number of employees.
Operating revenue growth rate	See Ln(Operating revenue).
OROA	The operating income to 2-year average book value of assets. OROA is reported in percent.
ROA	Net income to 2-year average book value of assets. ROA is reported in percent.
Sales to assets	Sales to 2-year average book value of assets. Sales to assets are reported in percent.
Total Assets	Book value of assets in millions of Norwegian Kroner (NOK).

Industry-adjusted variables are calculated as a difference between the value of the variable and the average of its two-digit industry benchmark in the observation year.

Industry classification is based on two-digit NACE (European industry classification system) codes.

All accounting variables are winsorized at the 5 and 95 percent level.

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Other firm variables

Family firm	A dummy variable that equals 1 if the controlling family holds the ultimate stake of 33.4% or more in 2 years before and 2 years after succession, and 0 otherwise. Family is a group of owners who are related by blood or marriage up to the second degree of kinship, except we do not include siblings-in-law.
Family succession	A dummy variable that equals 1 if the successor is a member of the firm's controlling family, and 0 otherwise.
Inside succession	A dummy variable that equals 1 if the successor had a formal role as an employee or a board member four years prior to taking over as CEO, and 0 otherwise.
Number of family owners	Number of firm's owners that are members of the controlling family.
Number of owners	Number of firm's owners.
Outside succession	A dummy variable that equals 1 if the successor did not have a formal role as an employee or a board member four years prior to taking over as CEO, and 0 otherwise.
Ownership stake	The ultimate equity stake held by the individual measured in percentages.
Unrelated succession	A dummy variable that equals 1 if the successor is not a member of the firm's controlling family, and 0 otherwise.

Outgoing CEO's characteristics

Age of the oldest child	Age of the outgoing CEO's oldest child at succession.
Divorced senior	A dummy variable that equals 1 if the outgoing CEO has children with more than 1 partner, and 0 otherwise.
Male firstborn	A dummy variable that equals 1 if the outgoing CEO's firstborn child is male, and 0 otherwise.
Senior's age	The age of outgoing CEO at succession.
Senior sits on the board ex post	A dummy variable that equals 1 if the outgoing CEO sits on the board four years after the succession, and 0 otherwise.

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Successor's characteristics	
Eldest son	A dummy variable that equals 1 if the successor is the outgoing CEO's eldest son, and 0 otherwise.
No. of past outside employers	Number of employers the successor had up to four years prior to succession (family firm not included).
No. of years outside the family firm	Number of years the successor spend working outside the family firm prior to succession.
No. of years in the family firm before succession	Number of years the successor worked in the family firm prior to succession.
No. of years since last family firm employment	Number of years since outside successor's last family firm employment.
Other family employees	A dummy variable that equals 1 if there were other family members (in addition to the senior and the successor) working in the family firm four years prior to succession, and 0 otherwise.
Part-time last family firm employment	A dummy variable that equals 1 if the outside successor worked part-time at the last family firm employment, and 0 otherwise.
Past CEO position	A dummy variable that equals 1 if the successor was CEO of an AS/ASA firm four years prior to succession, and 0 otherwise.
Past employment in the family firm	A dummy variable that equals 1 if the successor worked in the family firm four years prior to succession or before that, and 0 otherwise.
Past manager-level position	A dummy variable that equals 1 if the successor had a management position four years prior to succession, and 0 otherwise.
Recruited from related firm	A dummy variable that equals 1 if the successor worked in the firm owned by the same family as the succession firm four years prior to succession, and 0 otherwise.
Successor's age	Successor's age at succession.
Successor's age at the last family firm employment	Outside successor's age at the last family firm employment.
Worked outside the family firm	A dummy variable that equals 1 if the successor worked outside the family firm four years prior to succession or before that, and 0 otherwise.

Appendix Table A2: Change in firm performance around succession for inside and outside sons, other family and unrelated successors controlling for successor's past experiences

The table re-estimates the regression reported in Table 9 with additional controls for whether the successor had a CEO position three years prior to he year of success and whether the outgoing CEO sits on the board four years after the succession. The coefficient estimates are from a panel OLS regression of the variable indicated in the column heading on a set of control variables, firm fixed effects, and industry-year fixed effects. Firm control variables include firm age, and lagged total assets, cash ration, and OROA (except in column 1). All variables are annual and winsorized at the 5th and 95th percentiles. Variable definitions are provided in Appendix Table A1. Reported p-values are from a Wald test of a null of no difference between the estimated coefficients. Firm clustered standard errors are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively. Sample: 2001-2015. CEO successions: 2005-2011.

	OROA	ROA	ln(Op. revenue)	Sales/ assets	ln(Em-ployees)
Parent-son successions					
Inside successors	-0.86	-0.83*	-10.2***	-5.51	-6.65***
	(0.52)	(0.37)	(2.11)	(3.27)	(1.79)
Outside successors	0.43	0.31	-1.99	9.97	-7.71
	(1.06)	(0.76)	(5.24)	(7.82)	(4.22)
Difference (p-value)	0.213	0.130	0.103	0.043	0.796
Past CEO position	-0.74	-0.20	0.25	5.49	0.93
	(0.80)	(0.59)	(4.04)	(5.81)	(3.64)
Senior sits on the board ex post	0.15	0.15	6.92**	3.41	6.86***
	(0.50)	(0.36)	(2.32)	(3.54)	(1.92)
No. of past outside employers	0.14	0.11	2.78*	5.68***	3.94***
	(0.25)	(0.18)	(1.25)	(1.60)	(0.85)
Other family successors	yes	yes	yes	yes	yes
Unrelated successors	yes	yes	yes	yes	yes
Controls and fixed effects	yes	yes	yes	yes	yes
Adjusted R-squared	0.31	0.31	0.86	0.71	0.85
Observations	31,868	31,166	30,504	31,166	26,367

Appendix Table A3: Change in firm performance around succession for family and unrelated successors: Instrumental variables regression

The table re-estimates the regression in Table 6 (Panel A) with instrumental variables. Panel A restates the results of OLS regressions from Table 6. Panel B reports results from the IV regression. Instrumental variables are a dummy variable that equals one if the outgoing CEO's firstborn is male, and an index that counts the number of firstborn males among the siblings of the outgoing CEO that are also owners of the family firm. Firm control variables include firm age, and lagged total assets, cash ration, and OROA (except in column 1). All variables are annual and winsorized at the 5th and 95th percentiles. Variable definitions are provided in Appendix Table A1. Reported p-values are from a Wald test of a null of no difference between the estimated coefficients. Firm clustered standard errors are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively. Sample: 2001-2015. CEO successions: 2005-2011.

	OROA	ROA	ln(Op. revenue)	Sales/ assets	ln(Em-ployees)
Panel A: OLS regression					
Family successions	-0.37	-0.22	-6.11***	1.83	-2.17*
	(0.30)	(0.22)	(1.27)	(2.02)	(1.03)
Unrelated successions	0.82	0.20	4.84*	16.7***	4.99**
	(0.43)	(0.32)	(1.88)	(2.99)	(1.70)
Difference (p-value)	0.018	0.246	0.000	0.000	0.000
Controls and fixed effects	yes	yes	yes	yes	yes
Adjusted R-squared	0.31	0.31	0.86	0.71	0.85
Observations	31,923	31,216	30,554	31,216	26,405
Panel B: IV regression					
Family successions	-2.43*	-1.83*	-13.1**	-14.1*	-5.89
	(0.94)	(0.73)	(4.51)	(6.67)	(3.64)
Unrelated successions	9.62**	7.65**	47.0**	81.9**	26.5*
	(3.43)	(2.68)	(16.0)	(25.1)	(13.3)
Difference (p-value)	0.005	0.004	0.003	0.002	0.050
Controls and fixed effects	yes	yes	yes	yes	yes
Observations	30,824	30,148	29,494	30,148	25,494