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# Does inherited control hurt firm performance?

Francisco Pérez-González*

Columbia University

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## Abstract

When the CEO of a corporation retires she is typically influential in naming a successor. In family firms this influence often translates into the appointment of her offspring whose skills at running the firm may be in doubt. Such practice may be particularly questionable in the case of publicly traded corporations. This paper investigates whether these concerns are justified by looking at a sample of 162 CEO successions, where the departing CEO of a U.S. publicly traded firm was related to the founding family of the corporation. Inheriting successors —related by blood or marriage to their predecessors— are detrimental to firms' profitability: return on assets fell by 18 percent within two years of their tenure, and these effects are even larger relative to firms that picked unrelated successors. Investors seem to anticipate heir underperformance: upon the announcement of succession decisions, the stock price of firms that inherit control falls by at least 1 percent while the stock price of those that select an outside successor increases by around 2 percent, within a two-day window. Firm characteristics, industry fluctuations, firm restructuring, and time trends cannot account for firms' underperformance. Heirs' individual traits, however, seem to explain firms' outcomes. In particular, inheriting CEOs' academic record —whether or not they attended a "selective" college or university— is a strong predictor of firm's subsequent performance. Thus nepotism hurts firms' performance by limiting the scope of labor market competition.

* Columbia University, Graduate School of Business, 3022 Broadway, Room 422, New York, NY, 10027. Email: fp2010@columbia.edu. I am grateful to Dan Altman, Liran Einav, Martin Feldstein, Caroline Hoxby, Larry Katz, Nuria Mas, Alejandro Micco, Emmanuel Saez, Andrei Shleifer and Adriana Trofimoff for helpful comments and suggestions. All errors are my own.

*"From shirtsleeves to shirt sleeves in three generations."*
Anonymous American saying

When the CEO of a corporation retires, he or she is typically influential in naming a successor. In family firms, this influence often translates into the appointment of his or her offspring as successor, a decision that is likely to affect the firms' future prospects. Inherited control is particularly questionable in the case of publicly traded corporations, since the interests of the founding family and those of dispersed shareholders' are not always aligned. Yet firms such as American Greetings, Anheuser-Busch, among many others, still resolve CEO successions within the family ranks.

Family successions may be detrimental to firms' performance in several ways. First, they reduce the size and potential quality of the pool of likely successors. Professional managers represent a self-selected group of highly-driven individuals, while the heirs of the family may lack the skills and motivation to adequately manage the firm. Using Warrant Buffet's analogy, such successions may be like "choosing the 2020 Olympic team by picking the eldest sons of the gold-medal winners of the 2000 Olympics."[1] Forgoing higher quality matches is potentially costly to the firm, a cost that is likely to be shared by minority shareholders, while the benefits of control are concentrated in the founding family (Jensen-Meckling (1976)). Second, regardless of the characteristics of family successors, firms under heir-control may underperform when the family firm has a long tradition of honoring implicit contracts with related stakeholders, such as employees or local associations, which are costly to the firm but which give indirect benefits to the founding family. An unrelated CEO may find it easier to renege on these contracts, and as consequence transfer wealth to the firms' investors (Shleifer and Summers (1988)). Third, when a family heir is unrivaled in the administration of the corporation, she may use its resources to serve her own needs. This option is potentially limited

[1] New York Times February 14th, 2001.

to unrelated managers who may be monitored by the founding family and who suffer from the permanent pressure to perform from the labor markets (Fama (1980)).

Conversely, family firms may instead foster firms' performance. Family control is typically associated with larger ownership concentration, which may reduce agency costs. The insulation from labor market competition may allow risk-adverse managers to undertake profitable but high-risk projects or to facilitate managers' firm-specific investments, promoting firms' long-term performance. Also, family ties could potentially ease cooperation and the transmission of knowledge within the organization. The predictions from theory on the impact of family heirs on firm performance are thus inconclusive.

Succession decisions upon the retirement of a member of the founding family of a corporation provide an attractive test to the hypothesis that insiders influence firm' decision-making. Although it is often the case that insiders' preferences are hard to observe to an outsider, one could argue that this is not the case for CEO successions where their own children's promotion is at stake. Thus this paper starts by documenting the extent to which members of the founding family inherit the CEO position in U.S. publicly traded corporations, and then it investigates the impact of these successions on firms' performance.

Family members inherited the CEO position in 38 percent of the 162 family transitions identified in the data during the last two decades, a trend that seems to be declining over time, from around half of all family successions in the early 1980s to less than a third in the late 1990s. Family CEOs typically start their tenure at a significantly younger age than other CEOs (nine years). The case of William Wrigley, Jr., a family heir who was promoted to the CEO position of this chewing gum company in 1999 at age 35, is illustrative. Family heirs, also hold significantly larger ownership stakes than unrelated CEOs (an average of 13 percentage points).

When the performance of inheriting CEOs is examined, the empirical evidence indicates that on average, family heirs perform poorly: profitability on assets falls by 18 percent

within three years of the transition, and by 21 percent compared to the performance of unrelated CEOs. However, a direct interpretation of the differential performance of these two groups is potentially problematic since the decision to name one's successor is likely to be endogenous with firm performance. Due to the lack of an exogenous source of variation in the selection of family and unrelated CEOs, this paper tests the robustness of these results controlling for firm characteristics, CEO separation conditions, industry fluctuations and aggregate time trends, as well as, by investigating the market response to succession decisions.

Family heirs' underperformance is robust to the inclusions of these arrays of controls, and it is also reflected in alternative measures of performance. Family heirs are associated with lower market to book valuations, and lower sales growth. Inheriting CEOs' underperformance exists despite their larger ownership stakes, which in principle provide them with superior incentives to perform. An event-study upon succession announcements is consistent with the idea that investors anticipate heir underperformance. The regression analysis suggests that within a two-day window the stock price of firms that inherit control falls by 1.8 percent while the stock price of firms that select an outside successor increases by around 2.1 percent.

Why does heir underperformance arise? The evidence supports the idea that firms that choose a CEO within the family ranks forgo a higher quality match for the post. Heirs typically lack the ability/motivation to run a publicly-traded corporation. This evidence is documented in two ways. First, the paper relates firm performance to the academic background of CEO successors. While attending a "selective" college or university may be a noisy signal of an individual's ability when rich, the lack of the signal may be particularly informative about an heir's (lack of) motivation/ability.[2] The data suggests that a large share of inheriting CEOs (45 percent) do not attend a selective college, this is particularly striking since one may expect that

[2] Hereafter, a "selective" college or university is defined as those institutions that in 1980 considered applicants who ranked in the top 50 percent of their graduating class according to Barron's (1980): a total of 90 colleges.

those CEOs that *do* inherit control are likely to represent the upper tail of the ability/motivation pool within each family. The evidence, however, may not be surprising in lieu of previous empirical support to the "Carnegie Conjecture" (Holtz-Eakin, *et al* (1993)).[3] Furthermore, the academic record of an entering heir is a strong predictor of firms' performance upon entry. Those managers that fail to attend a selective college or university can explain the lion's share of heirs' underperformance.

Second, the paper compares the performance of family heirs with larger-than-average ownership stakes versus their peers with relatively lower shareholdings. The closer alignment of incentives for the former group would predict that their firms would outperform those of the latter group, which is not found in this data. There is, however, empirical support to the idea that firms under the control of unrelated managers overperform their peers when the entering CEO has a larger-than-average ownership shareholding, which is consistent with unrelated CEOs responding to incentives.

The results, in contrast, do not support the hypothesis that unrelated CEOs obtain gains by breaking implicit contracts, for example, by reducing employment or by divesting assets. They also reject the idea that the observed relative performance is the result of the differential monitoring pressures put forth by the board of directors or the controlling family. In short, the evidence suggests that inherited control prevents an efficient match of jobs and CEO candidates.

These results may help to explain the positive stock price reaction that firms experience upon the unexpected death of the founder of a corporation reported by Johnson, *et al.* (1985), and also the fact that family firms are subject to intense corporate control activity after the death of a founder, as documented by Slovin and Sushka (1993). The results are also consistent with Morck, Stangeland and Yeung (2000). Using a cross-sectional analysis, they find a negative

[3] In 1891 Andrew Carnegie wrote "The parent who leaves his son enormous wealth generalyy deadens the talents and synergies of the son, and tempts him to lead a less useful and less worthy life than he otherwise would…" (From (Holtz-Eakin, *et al* (1993)).

correlation between heir-controlled Canadian firms and financial performance relative to otherwise similar U.S. firms, yet the U.S. experience does not support their finding that heir-controlled firms reduce R&D spending. By concentrating on CEO successions and analyzing firms' performance around these transitions, this paper helps to elucidate when and how underperformance in heir-controlled firms arises.

The insights of these findings may potentially be extrapolated to other countries where family corporations and family successions are more pervasive than in the U.S. (Laporta, et al. (1999)), and where the control of resources is likely to inherited. The evidence that the share of inheriting billionaires in an economy and economic growth are negatively correlated (Morck, Stangeland and Yeung (2000)) suggests that identifying particular mechanisms through which inherited wealth affects firms' and countries' performance may prove a fruitful line of research. In particular, it may be interesting to investigate family successions in the large number of firms created after World War II, whose founders have retired or will soon step down as CEOs.

The findings may also be interpreted as consistent with previous research that has documented that one's physical characteristics and earnings are positively correlated with those of one's parents, yet they tend to regress to the average of the population (Galton (1886), Mulligan (1999)). Finally, the evidence illustrates the virtues of contested elections relative to successions where the heir gains access to the post at birth. The U.S. experience, particularly at the local levels of government, may prove to be an interesting laboratory for analysis.

The rest of the paper is organized as follows. Section I presents related literature on CEO successions in family firms. Section II describes the data and Section III the methodology. Section IV presents the main results of the paper. Finally, Section V discusses the implications of the findings and concludes.

## *I. CEO Successions in Family Firms*

The business and affairs of every corporation are managed under the supervision of the board of directors. It is the board's responsibility that these activities be carried out in the best interests of the shareholders. To pursue these objectives, a salient instrument in hands of the directors is their ability to appoint (dismiss) managers.[4] When a manager is the sole owner of a corporation, the bulk of the costs and benefits associated with a CEO succession are likely to be internalized. However, when ownership and control are separated, and the objectives of the actual decision makers in a corporation differ from those of the outside shareholders, rationality may induce insiders to elect a successor who ex-ante represents an inferior match to the interest of non-controlling shareholders (Jensen and Meckling (1976)). In this regard, family-controlled firms that are publicly traded are particularly interesting because the family may have sufficient control rights to select their preferred candidate, and because a likely successor to the CEO position is, typically, the offspring of the departing CEO.

Promoting one's offspring to the top management position may be equivalent to expropriating minority investors due to the lower quality of the CEO match, the continuation of existing arrangements that resulted from the founder's preferences, and to the family heir potential use the firms' assets to pursue her own interests. The cost of the mismatch between jobs and succeeding CEOs is determined by the ability of the heirs relative to that of professional CEOs.

If managerial ability were perfectly inherited, other things equal, the associated costs of the mismatch incurred when naming one's offspring would tend to be lower than if, for example, ability tended to regress to the average of the population, or as Galton (1886) called it,

[4] For CEO successions and turnover in general, see Weisbach (1988), Morck, Shleifer and Vishny (1989), and Parrino (1996). For a survey on executive compensation, see Murphy (1999).

"regress to mediocrity". The empirical support for this conjecture from other settings (Mulligan (1999)) suggests that these costs are potentially large.

The differential performance of related and unrelated CEOs could also be explained by their differential power in the organization. Thus, when insiders are unrivaled in the administration of the firm, they could use the firms' assets to pursue their own interests. The adventures of Occidental Petroleum's Armand Hammer to fund a museum for his own art collection, and the irritation of the firms' shareholders, illustrate the point.[5] The ability of unrelated CEOs to pursue their own interests may be limited by the disciplinary forces of monitoring by directors, labor market competition (Fama (1970)), and the risk of a corporate control contest (Jensen and Ruback (1983)).

Alternatively, inherited control could be beneficial by reducing agency costs relative to naming a CEO with low or no ownership stakes. Jensen and Meckling (1976) show that manager' incentives to maximize firm value increase as they hold a larger share of the outstanding stock in the corporation. Alternatively, family heirs may enhance performance since such managers would be more likely to invest in long-term projects. Professional managers may be reluctant to invest in high-risk profitable projects when their job is at risk. They also are potentially less likely to invest in firm-specific projects that may affect their job market mobility. Family transitions could also enhance cooperation and the transmission of knowledge within the organization. Thus the predictions from theory are far from conclusive.

Experience suggests that contested elections rarely yield family successors. Even in U.S. presidential elections –which could be argued to be far from competitive— only two of the 43 U.S. presidents were sons of a former president (John Quincy Adams and George W. Bush).[6] Never has the U.S. had a president who immediately succeeded a family member. Moreover,

[5] *Wall Street Journal*, April 4th, 1990.
[6] Three others were related by blood to a predecessor (Benjamin Harrison, Zachary Taylor and Franklin D. Roosevelt).

family successions are unheard off when the manager of a corporation does not belong to the founding or "controlling" group of the corporation. Yet, the fact is that a significant share of publicly traded firms around the world has a family structure (Laporta *et al.* (1999), and family successions are not uncommon even in the US, as the evidence from this paper illustrates.

The empirical consequences of firms' inherited successions are thus far unstudied. However, Morck, Stangeland and Yeung (2000) use cross-sectional analysis to document that there is negative correlation between heir-controlled Canadian firms and financial performance and R&D spending, relative to otherwise similar U.S. firms, which suggests that inheriting successions may hurt firms' performance. Johnson *et al*. (1985) document a stock price increase upon the sudden death of a firm founder, which may reflect present or expected underperformance. In related work, Zingales (1995) also finds that the voting premium increases upon the death of the founder of the corporation, and Slovin and Sushka (1993) show that firms are subject to intense corporate control activity upon the death of inside blockholders.

The consequences of family successions may have consequences beyond the corporate room. The performance of an economy ultimately relies on the adequate use of its assets by those who control them. If firms' assets (there is an obvious parallel to public offices) stay in the hands of underperforming managers for long periods of time, economic growth may be affected (Morck, Stangeland and Yeung (2000)).[7] This is particularly problematic when capital markets are not competitive: families in control may have the incentives and sometimes the political power to oppose financial development (Rajan and Zingales (2001)).

[7] Morck, Stangeland and Yeung (2000) find evidence consistent with this view: there is a negative correlation between the share of inheriting billionaires in an economy and economic growth. These authors also find that heir-controlled Canadian firms' experienced negative excess returns upon the announcement that capital markets were to become relatively more open as a result of the Free Trade Agreement with the US.

In summary, the adequate match of jobs and managers is potentially crucial to firms' performance. When firms' ownership and control are separated, the preferred CEO successor of influential insiders and those of other shareholders may differ. The smaller the pool of acceptable CEOs for the controlling shareholders the larger the potential costs of this mismatch. Nowhere this pool tends to be smaller than in the case of family-controlled firms. The objective of the following sections is to investigate whether inherited control affects firms' performance.

## *II. Description of the Data*

To pursue this question empirically it was needed to identify a set of publicly traded firms that: (1) observed a CEO succession, and more importantly (2) for which the departing CEO was related to the founder of the corporation, henceforth defined as family firms. From the universe of Compustat firms in 1994 (the first year that the Security and Exchange Commission's (SEC) Edgar database is available online), the author identified all non-financial, non-utility firms with sales of at least $ 5 million that were incorporated before 1964.[8] From this universe of 973 firms, the author used the SEC proxy statements to identify the name of each firm's current CEO, and investigated every succession that each firm experienced in the last 20 years using an electronic search in the *Wall Street Journal*, the *New York Times* and the *Business Wire*.[9] The search was limited to the last two decades for which this electronic search is available through the *Dow Jones Interactive* publications library. When it was required, the

[8] Information on incorporation dates of all non-financial, non-utility Compustat firms in 1994 with sales of at least 5 million dollars was gathered using (1) Dun's Million Dollar Directory (various years), and (2) the firms' annual reports.

[9] The information from the SEC (http://www.sec.gov/) was the departing point to identify the family relationships of the firms' CEOs.

firms' web sites were used to clarify the characteristics of the departing and entering CEOs. 162 CEO successions met the two criteria.[10]

The requirement that the firm have been active for at least 30 years was imposed to concentrate on mature corporations, for which CEO successions are more likely than in new firms. There is, however, a potential drawback to this strategy: it introduces a survival bias, since the identified firms may not be representative of the universe of family firms. Ideally one would want to follow firms since their incorporations and investigate their business histories. This paper adopts the strategy described above due to the ease of the collection of the data. To the extent that these groups may be different, the conclusions of this paper are thus limited to the surviving firms. However, this potential problem does not, a priori, induce a clear bias towards finding/rejecting heir underperformance.

The summary statistics for all the CEO transitions and their firms at the time of the successions are presented in Table 1, Column II. Columns III and IV present the CEO and firm characteristics when successions are divided into two groups: *family succession* when the succeeding CEO and the departing CEO are related by blood or marriage to the founding family of the corporation (62 cases), *unrelated* succession when the departing CEO is member of the founding family of the corporation, but the successor is not (100 cases).

Given that all firms are "family firms," it may not be surprising that firms' characteristics upon succession are relatively similar across groups: firm age on average is close to 60 years, and both groups have average profitability to assets of a little over 8 percent, and average Q-ratios – the ratio of the market value of equity and debt over assets – of around 1.4. Other variables show that firms that select an outside successor may be larger as measured by assets (sales, not shown) and may observe lower sales growth, although in all these cases, the

[10] 22 other family firms were identified where the family sells the firm or agrees to merge with a larger corporation. Given that this paper concentrates on succession of continuing corporations, these observations are ignored in the empirical analysis.

differences are not statistically significant. Lastly, the average spending in research and development (R&D) does differ across groups; firms that stay under the control of family members have lower R&D spending than other firms at the time of the succession, a difference of 2 percent of assets.

In contrast, the characteristics of the entering CEOs differ consistently across groups. Family heirs are promoted to the CEO position at an average of nine years earlier than unrelated managers (43 versus to 52 years). The average ownership stake of heirs was 16.9 percent, while unrelated CEOs held 3.5 percent of the outstanding equity. The ownership concentration of the boards of directors at the time of the succession was also larger for family successions, whose board held an average of 35 percent of the outstanding stock versus 23 percent for firms that go to the hands of unrelated CEOs. Finally, it is interesting to note that only four successions led to the appointment of a female CEO, in all of these cases a daughter of the founder of the corporation.

The last row in Table 1 presents the trend in the share of heir successions relative to the total number of family successions in the sample. Family firms are increasingly picking unrelated CEOs to run their firms. Out of the 40 successions observed between 1982 and 1986, 48 percent went to family CEOs. This share fell to 41 percent for the 61 successions observed between 1987 and 1991 and to 30 percent for the 61 successions between 1992 and 1997. This declining share may alternatively be driven by the construction of the data since departing CEOs who are likely to select an outside successor, may stay longer in office, relative to those that inherit control to their offspring.

## *III. Methodology*

Given that the goals of this paper are to investigate the relative performance of firms that inherit control, and to account for this relative performance, this section is divided into two.

*Is inherited control prejudicial?*

With the data described in the previous section in hand, a natural test to evaluate the consequences of a family relative to an unrelated succession is to analyze firm performance before and after each CEO transition, for related and unrelated CEOs. If family heirs were to harm firms' prospects, one would expect that firms under heir-control would underperform after they are promoted to the CEO position. To the extent that CEO successions are expected (particularly when a firm selects a family heir), using a market-based approach that focuses on the price responses to the announcement of each appointment may be inadequate. Therefore the bulk of the empirical analysis in this paper evaluates changes in measures of operating performance; in particular, firm profitability and alternative performance measures such as profitability on sales, sales growth and Q-ratios. The paper does, however, perform analysis upon announcement of succession decisions.

Comparing the relative performance for the two types of successions is problematic since firms' that permit the control to be inherited within the founding family are not random. Ownership structure, heir's ability, firm and industry performance, the relative importance of firm specific human capital, etc. are likely to affect the decision to select a CEO from within the family. It is difficult to argue that any of these factors that affect the probability of selecting a CEO type is unrelated to the present of future performance of the firm (the subject of analysis). Comparing firms' performance may not reflect the exerted influence of a family heir relative to an unrelated CEO, but rather the different characteristics of the firm at the time of the transition.

For example, if CEOs who belong to the founding family of the corporation were only selected when firms outperform their rivals, and firm performance would tend to mean-revert, the analysis would identify the negative trend faced by the firm and not the CEOs' traits. Therefore endogeneity is a hurdle when the firm performance around CEO successions is correlated with the probability of naming a family or an unrelated CEO.

To address this problem, one would like to find an exogenous source of variation in the selection of family and unrelated CEOs and examine the relative performance of the two groups of firms. However, in the absence of such an instrument, controlling for firm, industry and time characteristics is crucial. Given that firms may differ in a number of observed and unobserved characteristics that may be hard to control for, and some of which may be held constant in time, using firm fixed-effects seems an appropriate setup. Within-firm estimation would capture information on the changes in firm performance around successions and not systematic differences between firms.

Using controls for firm fixed characteristics, however, may not account for industry trends. For example, if the performance of Hasbro corporation, the second largest toy manufacturer in the U.S. and controlled by an heir of the founding family, falls as a result of a general crisis in the toy industry, and this crisis coincides with the firm CEO succession, the estimated difference in performance would not reflect the qualities of the entrant CEO. Therefore, a more informative performance evaluation should analyze changes in excess performance relative to a firm's industry peers.

A direct way to account for differences in the control and treatment groups is to use pre-succession information that may affect the probability of selecting a family heir. Following Dehejia and Wahba (1999) one could estimate the "propensity score" for each firm, conditional on the observable characteristics such as ownership concentration, firm size, trends in profitability, etc. and then using as a control group only those unrelated firms with similar

propensity score. If both set of firms are comparable, we would expect that the majority of unrelated firms would exhibit similar "propensity scores" (i.e. it is hard to tell apart between firms only by looking at observable variables, as Table 1 seems to suggest).

Finally, an alternative way to deal with endogeneity problems is to perform an event-study of investors' responses to the announcement of succession decisions. To the extent that family heir transitions are expected, their successions may not reveal new information to the market participants. The promotion of an unrelated CEO, in contrast, may well be unexpected.

*Interpreting Relative Performance*

If inherited control were to harm firms' prospects, how should one interpret the evidence? As previously discussed, there are alternative ways in which inheriting CEOs may underperform. Although the available data is imperfect, one could test for the empirical validity of the predictions of each of these hypothesis as described below:

Lack of Motivation/Ability. Open and competitive successions would rarely yield a CEO from the family ranks. Therefore, a significant fraction of firms that choose a family heir are potentially forgoing a higher quality match in terms of the ability or motivation of the successor. To pursue this empirically, one could try to link the change in firms' performance to heirs' individual traits, for example, their educational background. In the U.S. wealthy individuals are often argued to find a relatively painless way to "selective" colleges or universities, regardless of their ability/motivation. The paper defines an institution as selective if they considered applicants who ranked in the top 50 percent of their graduating high school class according to Barron's (1980): a total of 90 colleges.[11] Thus, while attending such a program may not be informative, the lack of obtaining this signal may reveal the (low) motivation or ability of some of the heirs. If in fact heirs' characteristics affect firm performance, one would expect that firms whose CEOs graduated from selective institutions

[11] I would like to thank Stephane Goldsand for helping gather CEOs educational records.

should outperform those firms whose managers failed to attend such colleges or universities (90 institutions).

Likewise, unmotivated family heirs would not tend to react to high-powered incentives to perform such as those provided by holding a large share of the outstanding equity of the firm. One would expect to find opposite results for unrelated CEOs. Moreover, if underperformance were a result of the low motivation and/or ability of the family heirs, one would expect that firms in which the succeeding CEO is a family member would tend to grow slower after the transition, relative to other firms.

Lack of experience. If underperformance were a result of the lack of experience of the family heirs, one would expect superior performance by older heirs, or that all young CEOs regardless of whether they are members of the founding family should underperform. This test is potentially problematic since the age in which a CEO inherits the post is likely to be correlated with her ability. A related test is to examine whether underperformance disappears as the CEO gains "on the job" experience. Under this view, underperformance would disappear as one extends the window of analysis around the CEO transition.

Implicit contracts. If the gains from unrelated CEOs were to come from breaking implicit contracts with relevant stakeholders, such as employees, one would expect that these CEOs would be associated with reductions in the number of workers in the firm or with large divestiture programs. While the shareholders of these firms may benefit from reneging on these contracts, the interpretation of the relative performance would not be conclusive about the ability of the different group of managers. To test this hypothesis, the empirical section analyzes changes in employment levels, employment to capital rates and variation in sale of plant and equipment around CEO transitions.

Monitoring intensity. If two groups were to perform differently upon succession, it could be argued that their relative performance was a result of the differential monitoring

pressures put forth by the board of directors. The boards of directors are potentially active in the case of the firms in the sample since typically the founding family keeps a significant ownership stake after each succession. If this were the case, one would expect that those CEOs who run firms in which the departing CEO remains as chairman, or where the ownership concentration of the board is large (excluding the CEO), would outperform.

Following the logic of this section, the next part of the paper first tests whether there is evidence of underperformance by firms in which the succeeding CEO comes from inside the founding family of the corporation, and second, analyzes whether the alternative hypotheses described above help to explain the relative performance of the firms with related and unrelated managers.

## *IV. Results*

In principle, an entering CEO would use her talents and effort to improve the performance of the firm. If a succeeding CEO were beneficial to the firm, one would expect that her influence would result in an improvement of the allocation of firm resources, larger operating margins, firm growth, etc. Conversely, if a change in control were to hurt a firm's prospects, one would expect that the firm's performance would be harmed upon the arrival of the succeeding CEO to the management of the firm.

As a benchmark of analysis, this section tests for changes in firm profitability around the time of CEO succession, measured as return on firm assets. Panel I.A of Table 2 presents simple means of profitability for the three years before and after each transition. Firms in which the succeeding CEO was related by marriage or blood to the departing CEO had an average profitability on assets of 10.94 percent before the transition. Interestingly, this rate fell to 8.88 percent in the three years after the CEO change. Within firm mean profitability falls by 2.06

(18.8 percent) and it is statistically different from zero at the 95 percent confidence level. Conversely, firms under the control of unrelated successors seem to perform just as well before and after the transition. Return on assets is 9.5 and 9.8 percent, respectively, and the difference is not statistically different from zero. The difference-in-difference calculation suggests that heirs reduce firm profitability by 2.3 percentage points of assets. The decline in the average return on assets of these firms shows that operating performance fell after heir CEO successions; however, as previously discussed, interpreting this decline as a result of the characteristics of the family heirs is problematic.

Industry trends are likely to affect firms' prospects regardless of the CEO in command. Thus Panel I.B of Table 2 presents mean "excess" measures of profitability relative to their three-digit SIC peers. It is interesting to note that before CEO transitions both groups of firms seem to be outperforming their industry peers (by 2.8 and 2.1 percentage points respectively). After CEO successions, firms that inherit control observe excess profitability on assets of an average of 0.87 percentage points in the three years after heirs take over, implying a decline of 1.90 percentage points, which is statistically different from zero at the 99 percent confidence level. Industry adjusted calculations for unrelated managers suggests an increase in profitability of 0.40 percentage points to 2.48, which is not statistically different from zero. The mean difference-in-difference is equivalent to 2.3 percentage points and it is statistically different from zero at the 95-percent confidence level.

To test whether this results holds using an alternative measure of performance, Panel II in Table 2 presents market to book ratios for both related and unrelated successions around CEO transitions. Profitability measures are easy to manipulate relative to market valuations. When we control for industry-trends, market-to book ratios also suggest that upon succession, family heirs hurt firms' prospects: average Q-ratios fall by an average of 0.12 (Panel B). Unrelated successors do not seem to affect firms' market to book valuation.

To bolster the interpretation of the results discussed above, Table 3 investigates the robustness of the results, using firm fixed-effects, industry-year controls and year effects. On average heirs reduce firm profitability by 1.9 percentage points and market to book ratios by 0.12, which are consistent with the previous analysis. An alternative way in which CEOs may influence firm performance is by their impact on the growth of the firm. Highly motivated managers might get the most out of the products of the firms under their control, and thus may expand the sales of the company. Changes in sales growth are presented in Columns V and VI of Table 3. The findings are consistent with the heir-underperformance story: sales growth (in real terms) falls by at least 4 percentage points on average relative to pre-succession levels.

The results give support to the idea that heirs negatively affect the current operations of firms (profitability), but also its future prospects (sales growth and market valuation). In each of the cases the effects are statistically different from zero at the 95 percent confidence level and they are large in economic terms.

Columns VII and VIII of Table 3 investigate whether family heirs reduce the level of R&D spending. From Table 1 it was observed that average spending in R&D did differ at the time of the succession, between the two groups of firms. Unrelated CEOs succeeded firms with average R&D spending that was larger than firms under inherited control, which is consistent with the Morck, Stangeland and Yeung (2000) finding that heir-controlled Canadian firms invest less in R&D than their U.S. peers. The evidence for the U.S., however, does not support the idea that family heirs reduce spending in R&D. The joint test that both the *after* and the *after*family heir* indicator variables are zero cannot be rejected.

Beyond firm fixed-effects, firm profitability at the time of the succession, and industry and time trends, heir-underperformance may be the result of the differential conditions that each CEO confronts upon promotion that are not captured by these previous controls. For example, the conditions or reported "reasons" for the separation of the departing CEOs. In this regard,

family firms do not prove to be particularly informative since, as previously documented, family managers are rarely fired, and corporate control contests seldom succeed in these firms (Morck, Shleifer and Vishny (1989)). Consistent with this view, 131 out of 162 successions were reported in the news as CEO "retirements." Table 5 tests whether the separation explanations reported in the news could account the relative performance of the two groups of firms. For this purpose, the sample is divided into two groups using an indicator variable that takes the value of one when the departing CEO is not reported as retiring, and it is interacted with the dummy that takes the value of one after the CEO succession. The results are reported in Column I of Table 4. There is no evidence that heir-underperformance is explained by whether the departing CEOs cease to manage the firm due to retirement. Column II replicates the analysis, with unchanged conclusions for a three-year balance panel. Interestingly, non-retirement successions are correlated with an increase in firm performance.

Given that management and ownership are tightly related in firms, the age at which the departing CEO retires is potentially more informative about the conditions of the CEO separation than the explanations provided by the firm upon each succession. Perhaps firms whose CEOs "retire" at a younger age tend to behave systematically differently than other firms. If these firms were more likely to be controlled by any type of successor, the estimated coefficients would capture this trend. To pursue this idea empirically, an indicator variable for those firms whose family CEO leaves the firm before age 65 is created (14 cases), and in the analysis is interacted with the indicator variable that takes the value of one after the CEO transition. Columns III and IV in Table 4 present the results for both the balanced and unbalanced panels. The introduction of this added control does not affect the economic or statistical significance of family heir-underperformance.

To further address the issue of whether heir and unrelated successions are comparable, Table 5 presents results using as controls only those unrelated successions of firms whose

"propensity to inherit control" (defined on terms of the observed variables before succession *a la* Dehejia and Wahba (1999)) is similar to the estimated propensity to inherit control of the firms that actually inherit control.[12] The sample of unrelated successions that meet the criteria is reduced from 103 cases to 90 firms, which is supplementary evidence that the two groups of firms are comparable. The results, however, confirm that firms where control is inherited reduced profits per dollar of assets, market valuations and sales growth.

Finally, an alternative way to address endogeneity issues is to investigate the market response to announcements of CEO successions. As previously discussed, family heir transitions may be expected and thus their effect is likely to be incorporated in the price of the stock. Announcement of unrelated successions, in contrast, may be informative. To test this prediction, I calculate abnormal returns during using a two-day window around the announcement dates. The stock price of firms where control is inherited falls by an average of 1.8 percent (SE=0.90), while the stock price of those firms that elect unrelated successors increases by 2.1 percent (SE=0.69), both statistically different from 0 at the 95 percent confidence level. Figure 1 presents cumulative-abnormal returns starting 20 days before and after succession announcements.

*Why is inherited control prejudicial?*

As previously argued, the odds that a competitive CEO succession would yield a member of the founding family of the corporation are not high. Hence, those firms that select a family heir are typically forgoing a higher quality match, a cost that is potentially significant for firm performance. Yet the evidence presented thus far is also consistent with alternative

[12] The propensity to inherit control is estimated at the year previous to the succession with a probit specification using firms' board size, firm profitability, log of sales, excess valuation relative to a 3-digit benchmark, change in firm profitability relative to two-periods before, and industry R&D spending-to-assets ratios as controls (results not reported).

hypotheses of firm underperformance. This section tests the empirical validity of these (not always conflicting) hypotheses.

If family heirs were to explain the underperformance of the firms they control, one would expect that if a proxy of each CEO's (lack of) ability were at hand, it would be positively (negatively) correlated with the subsequent firm performance. As previously discussed, this paper uses an indicator variable that takes the value of one if the CEO did not attended a selective college or university, and zero otherwise. The evidence is presented in Table 6. When we concentrate on firms where control was inherited, we observe that those firms whose CEOs failed to attend a selective institution underperform their "highly educated" peers: profitability on assets is 3 percentage points lower after successions, which is statistically different from zero at the 95 percent confidence.

Column II compares the relative performance of family heirs and unrelated successors, all of which did not attend selective institutions. Family heirs underperform unrelated CEOs by 2.6 percentage points of assets. Column III concentrates on all CEOs that attended selective institutions both heirs and unrelated successors. The results fail to find a statistically significant and economically large difference across groups, even though, the coefficient on the family heir indicator variable is negative. Column IV compares the relative performance of unrelated successors when we split them by educational background. The results suggest that for contested successions, education is not a useful proxy of subsequent performance. The findings are startling: "unmotivated" family heirs explain the bulk of heir' underperformance.

We can test for the motivation hypothesis in an alternative way. In the extreme that family heirs were not to respond to incentives (which is of course not true), one would expect that firms' performance would have no relationship whatsoever to the stock of ownership held by succeeding CEOs. If they in contrast reacted to incentives, we would expect that those firms were ownership is concentrated around the CEO would outperform other firms were ownership

is dispersed. Column I in Table 7 presents the results for the sample of unrelated managers when it is divided into two according to the average shareholdings of successors. Consistent with the lack of motivation hypothesis we fail to find a positive association between firm performance and ownership concentration of the CEO. In column II, we perform the same analysis for the sample of unrelated managers. Consistent with the incentive hypothesis, when an unrelated manager has more than the average ownership stake (5 percent) the firm improves adjusted profitability by 6.2 percentage points of existing assets. This over performance is statistically different from zero at the 99 percent confidence level. In sum, the data seems to support the "Carnegie Conjecture" (Holtz-Eakin, *et al* (1993)).

Alternatively, family heirs may underperform because unrelated CEOs are monitored by the departing CEOs, who often take the chairman position, while heirs are unrivaled in firms' decision making. To test for this possibility I first analyze whether those firms in which the departing CEO stayed as a chairman performed differently than other firms in the two years after the transition. The Columns III and IV in Table 7 present the results first for unrelated CEOs only and then for family heirs. In neither case does the presence of the departing CEO as chairman affect firm performance.

Similarly, one could argue that the monitoring intensity that a CEO faces depends on the ownership concentration of officers and directors other than the chief executive officer. This possibility is tested by creating an indicator variable that takes the value of 1 if the firms' board minus CEO ownership is larger than the average for all firms (18 percent overall, 18.1 percent for unrelated and 17.9 percent for family heirs). Column V presents the estimated results. Although heir-underperformance is once again replicated, the impact of the stock holdings by the board is not statistically significant. Thus a pure monitoring hypothesis as developed above fails to explain heir-underperformance.

Table 1 suggests another potential explanation for family-heir-underperformance: family CEOs are promoted to the post at a younger age than professional managers (9 years). Thus a naïve test for whether experience is instrumental in explaining heir-underperformance is to compare the relative performance of family CEO successors and their age profile. The evidence is presented in Column I of Table 8. CEOs who are promoted to the post before age 43 (the average for this group) do not underperform relative to other family heirs. Neither is there evidence that younger CEOs in general – family heirs or unrelated CEOs –, underperform (Column II). These tests, however, are problematic since the age at which a CEO inherits the post is potentially correlated with the ability of the prospective manager: smarter CEOs are likely to be promoted at a younger age. The previously described finding that heir-underperformance continues to be both economically and statistically significant five years after the succession also tends to reject a pure lack of experience argument.

Another way in which out-of-the-family CEOs could improve firms' performance is by breaking pre-existing implicit contracts with relevant stakeholders, which may prove harder for family heirs to renege on. Under this view, the gains from unrelated managers are a transfer of rents from those stakeholders who benefited from these contracts to the firms' investors. To test this view, it is investigated whether these firms observed changes in their employment levels and the number of employees per dollar of capital, and whether there is evidence that unrelated managers are involved in large divestitures programs (sale of plant and equipment). The results are reported in Columns III through V of Table 8. There is no statistical evidence that changes in employment, labor-capital intensity, or divestitures explain the relative underperformance of family heir-controlled firms. Furthermore, in the last two specifications the joint hypothesis that both the *after* and the *after*family heir* indicator variables are zero cannot be rejected.

## *V. Conclusions*

The objectives of this paper were twofold: to investigate whether inherited control hurts firm performance and, if so, to explain the features of inherited control that drive firms to underperform. The evidence shows that family heirs hurt firm performance. Firms in which the succeeding CEO is related by blood or marriage to their predecessors consistently underperform, and their underperformance is not explained by firm characteristics, CEO separation conditions, industry fluctuations, or aggregate time trends.

The evidence suggests that underperformance may be driven by the lower ability and motivation of inheriting CEOs ("Carnegie Conjecture" (1891)). In particular, heirs' educational background helps to explain why some heirs underperform and others do not. The data rejects the idea that the relative underperformance of heir CEOs is explained by the ability of unrelated managers to renege on implicit contracts (Shleifer and Summers (1988), or by the intensive monitoring pressures exerted by the founding family on unrelated CEOs.

The findings of this paper suggest that the costs of heir-underperformance are large and that these costs are likely to be borne by minority investors, who don't share the private benefits of control. The evidence indicates that, as documented in other settings, matching jobs with the appropriate talent is crucial for performance (Barberis *et al.* (1996)). In the light of these results it is not surprising that the share of firms that are replacing their retiring family CEOs with professional managers is on the rise, despite the decrease in the average size of publicly traded firms observed in recent decades.

The paper contributes to the literature on ownership concentration and firm performance. While most of the empirical work has focused on whether ownership concentration affects firm valuation (Demsetz and Lehn (1985), Morck, Shleifer and Vishny (1988)), this paper describes some circumstances and ways in which ownership concentration may be prejudicial to firms' performance. The findings are consistent with recent empirical

evidence that documents that insiders play a determining role in firms' decision-making (Pérez-González (2000)), and often expropriate minority investors (Johnson *et al.* (2000) and Bertrand *et al.* (2000)). These findings may also help to explain the positive stock price reaction that firms experience upon the unexpected death of the founder of a corporation reported by Johnson, *et al.* (1985), and also why family firms are subject to intense corporate control activity after the death of a founder as documented by Slovin and Sushka (1993).

The results are generally consistent with the cross-sectional evidence presented by Morck, Stangeland and Yeung (2000), who find a negative correlation between heir-controlled Canadian firms and financial performance relative to otherwise similar U.S. firms. However, the paper does not find evidence that heir-controlled firms reduce spending in R&D, as suggested by these authors. By concentrating on CEO successions and analyzing firms' performance around these transitions, this paper helps to clarify when and how underperformance in heir-controlled firms arises.

The insights of these findings can be extrapolated to other countries where family corporations and family successions are relatively more pervasive than in the U.S. (Laporta, *et al*. (1999)) and were control to assets is typically inherited. The paper highlights the cost of inheriting assets rather than allocating them in a competitive way, and presents evidence that these costs may be large. The implications of these findings suggest a potentially beneficial effect on welfare from estate taxation.

The findings may also imply that managerial ability, like other individual physical or performance characteristics, such as height or earnings, tends to mean-revert (Galton (1886), Mulligan (1999)). Finally, the evidence illustrates the virtues of contested elections relative to uncontested successions. World history has shown that choosing a skilled leader for a nation is complicated, but finding a competent heir from the offspring of the current head is often disastrous.

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## Table 1 Summary Statistics: Family Firm Successions

Summary statistics at the year of CEO successions: the sample includes 162 CEO transitions where the pre-transition CEO is member of the founding family of a publicly traded corporation. CEO transitions are classified in two groups: (a) *family* when the succeeding CEO is also a member of the founding family (62 cases) and (b) *unrelated* when the succeeding and preceding CEOs are unrelated (100 cases). The definition of the variables are: (1) CEO age when promoted, (2) ownership: percent of ownership held by CEO, (3) Board ownership: percent of ownership held by officers and the board of directors, (4) firm age: year of succession-year of incorporation, (5) firm assets (1999 millions), (6) profitability: percent earnings before interest and taxes over assets, (7) Q-ratio: market value of equity plus liabilities over book value of assets, (8) sales growth: percent change in sales with respect to 1993, (9) R&D over assets: spending on research and development over assets. The last row presents the time trend of the share of family successions as percentage of the total. Ownership data are from the SEC; CEO data from the SEC and news search, and firm data from Compustat. Standard errors are reported in parentheses and the number of CEO succession in brackets.

| Variable | All Successions | Family Successor | Unrelated Successor | Difference of Means |
|---|---|---|---|---|
| | (I) | (II) | (III) | (II vs. III) |
| Age promoted (years) | 48.17<br>(0.667)<br>[159] | 42.56<br>(0.849)<br>[62] | 51.75<br>(0.752)<br>[97] | - 9.19 ***<br>(1.159) |
| Ownership (%) | 9.10<br>(1.142)<br>[145] | 16.87<br>(2.074)<br>[61] | 3.50<br>(0.858)<br>[84] | 13.41 ***<br>(2.033) |
| Board Ownership (%) | 27.84<br>(1.668)<br>[150] | 35.07<br>(2.597)<br>[61] | 22.89<br>(2.025)<br>[89] | 12.18 ***<br>(3.257) |
| Firm Age (years) | 60.16<br>(2.21)<br>[162] | 58.98<br>(2.90)<br>[62] | 60.89<br>(3.11)<br>[100] | - 1.91<br>(4.56) |
| Assets (m) | 705.0<br>(172.4)<br>[162] | 428.3<br>(101.9)<br>[62] | 876.5<br>(271.3)<br>[100] | - 448.2<br>(354.1) |
| Profitability (percent) | 8.144<br>(0.760)<br>[162] | 8.208<br>(1.182)<br>[62] | 8.105<br>(0.993)<br>[100] | 0.103<br>(1.567) |
| Q-ratio (ratio) | 1.436<br>(0.049)<br>[162] | 1.407<br>(0.073)<br>[62] | 1.454<br>(0.064)<br>[100] | - 0.047<br>(0.100) |
| Sales growth (%) | 5.318<br>(1.464)<br>[158] | 6.302<br>(2.560)<br>[61] | 4.699<br>(1.768)<br>[97] | 1.602<br>(3.015) |
| R&D (% assets) | 3.189<br>(0.415)<br>[95] | 1.706<br>(0.343)<br>[29] | 3.841<br>(0.561)<br>[66] | - 2.135 **<br>(0.879) |

**Trend in the Share of Heir Successions**

| | Total | 1982-1986 | 1987-1991 | 1992-1997 |
|---|---|---|---|---|
| Share family heir successions | 38.2<br>[162] | 47.5<br>[40] | 41.0<br>[61] | 29.5<br>[61] |

* Statistically different from zero at 90 percent level of confidence, ** at 95 percent, *** at 99 percent.

## Table 2 Firm Performance and Family Successions: Table of Means

This table includes information on 162 Chief Executive Officer (CEO) transitions where the pre-transition CEO is member of the founding family of a publicly traded corporation. CEO successions are classified in two groups: (a) *family heir* when the CEO successor and the departing CEO are related by blood or marriage (59 cases) and (b) *unrelated* when the succeeding and preceding CEOs are unrelated (103 cases). Firm performance is measured as (I) return on assets in percent: earnings before interest and taxes, over firm assets, and (II) ratio of market to book value: market value of equity plus liabilities over book value of assets. Excess performance is measured relative to 3-digit SIC industry averages. Clustered (firm) standard errors are in parentheses. The number of firm-years is reported in brackets.

| **Relation to Preceding CEO** | **Before CEO Transition** 3-yr average (I) | **After CEO Transition** 3-yr average (II) | **Difference** (I) vs. (II) | **Differences in Differences** |
|---|---|---|---|---|
| **I. A. Return on Assets** | | | | |
| Family Heir | 10.945 | 8.883 | - 2.061 ** | |
| | (1.014) | (0.922) | (0.851) | - 2.288 ** |
| | [170] | [172] | | (1.044) |
| Unrelated | 9.547 | 9.774 | 0.227 | |
| | (0.742) | (0.707) | (0.613) | |
| | [301] | [289] | | |
| **B. "Excess" Return on Assets (ROA-Industry ROA)** | | | | |
| Family Heir | 2.774 | 0.872 | - 1.902 *** | |
| | (0.943) | (0.848) | (0.693) | - 2.300 ** |
| | [170] | [172] | | (0.940) |
| Unrelated | 2.078 | 2.475 | 0.397 | |
| | (0.750) | (0.732) | (0.640) | |
| | [301] | [289] | | |
| **II. A. Market to Book Ratios (Ratio)** | | | | |
| Family Heir | 1.425 | 1.391 | - 0.034 | |
| | (0.084) | (0.069) | (0.061) | - 0.137 * |
| | [170] | [172] | | (0.788) |
| Unrelated | 1.409 | 1.513 | 0.104 ** | |
| | (0.054) | (0.070) | (0.050) | |
| | [301] | [289] | | |
| **B. "Excess" Market to Book Ratios (MB-Industry MB)** | | | | |
| Family Heir | 0.152 | 0.032 | - 0.121 ** | |
| | (0.078) | (0.061) | (1.145) | - 0.171 ** |
| | [170] | [171] | | (0.822) |
| Unrelated | 0.029 | 0.0785 | 0.050 | |
| | (0.560) | (0.730) | (0.056) | |
| | [295] | [284] | | |

* Statistically different from zero at 90 percent level of confidence, ** at 95 percent, *** at 99 percent.

## Table 3 Firm Performance and Family Successions: Fixed Effects

This table includes information on 162 Chief Executive Officer (CEO) transitions where the pre-transition CEO is member of the founding family of a publicly traded corporation. CEO successions are classified in two groups: (a) *family heir* when the CEO successor and the departing CEO are related by blood or marriage (59 cases) and (b) *unrelated* when the succeeding and preceding CEOs are unrelated (103 cases). The dependent variables are: (1) Return on assets in percent: earnings before interest and taxes, over firm assets, (2) Ratio of market to book value: market value of equity plus liabilities over book value of assets; (3) sales growth: growth in real dollar sales with respect to the previous year; and (4) R&D spending over assets: percent of research and development spending over total assets. (A) Presents analysis in levels and (B) subtracting its 3-digit SIC industry averages for each variable. The table presents fixed-effects estimates for the dependent variables of a three-year window around each CEO transition. *After* is an indicator variable that takes the value of one in the years after the transition. *After**Family Heir is the interaction of *after* variable with the *family heir* indicator variable. Standard errors are in parentheses.

| | **Return / Assets (%)** | | **Ratio of Market to Book Values** | | **Sales Growth (%)** | | **R&D Spending / Assets (%)** | |
|---|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A | B |
| | (I) | (II) | (III) | (IV) | (V) | (VI) | (VII) | (VIII) |
| **Family Heir*_After_** | **- 1.85**** *(0.756)* | **-1.93**** *(0.76)* | **- 0.12** ** *(0.053)* | **-0.19***** *(0.055)* | **-4.60** ** *(2.282)* | **-4.82** ** *(2.30)* | **- 0.010** *(0.021)* | **- 0.219** *(0.259)* |
| *After* | 1.90 * *(0.986)* | 1.742 * *(0.99)* | 0.081 *(0.070)* | 0.111 *(0.072)* | 4.069 *(2.929)* | 3.623 *(2.952)* | - 0.220 *(0.257)* | 0.219 *(0.259)* |
| Constant | 14.6*** *(0.328)* | 3.284 *(2.39)* | 1.348 *(0.168)* | 0.231 *(0.172)* | - 6.268 *(8.472)* | - 13.58 *(8.584)* | 3.68*** *(0.681)* | 0.419 *(0.683)* |
| Year Effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Firm Fixed-Effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry/Year Controls | No | Yes | No | Yes | No | Yes | No | Yes |
| R-squared within | 0.0513 | 0.0509 | 0.071 | 0.090 | 0.085 | 0.046 | 0.055 | 0.055 |
| Number of Successions | 162 | 162 | 162 | 161 | 162 | 161 | 100 | 100 |
| Number of Firm-Years | 932 | 932 | 932 | 920 | 903 | 891 | 543 | 540 |

* Statistically different from zero at 90 percent level of confidence, ** at 95 percent, *** at 99 percent.

## Table 4 CEO Separation Conditions and Firm Performance

The table presents information on CEO transitions where the pre-transition CEO is member of the founding family of a publicly traded corporation and financial information is available for a three-year window around each CEO transition. CEO transitions are classified in two groups: (a) *family* when the CEO successor and the departing CEO are related by blood or marriage and (b) *unrelated*. The dependent variables is industry adjusted return defined as percent earnings before interest and taxes over firm assets *minus* the profitability of its 3-digit SIC industry in that year (see text). The table presents fixed-effects estimates both for balanced and unbalanced panels. *After* is an indicator variable that takes the value of one in years after the transition. *After**Family Heir is the interaction of the *after* variable with the *family* indicator variable. *After**non-retirement is the interaction of the *after* variable with an indicator variable that takes the value of one when the departing CEO was not reported to be separating from the position due to retirement. *After**Young departing CEO is the interaction of the *after* variable with an indicator variable that takes the value of one when the departing CEO was younger than 65 years at the time of the transition. Standard errors are in parentheses.

| | **Industry Adjusted Return on Assets** | | | |
|---|---|---|---|---|
| | (I) | (II) | (III) | (IV) |
| | Unbalanced | Balanced | Unbalanced | Balanced |
| **Family Heir*_After_** | **- 2.14** *** ***(0.763)*** | **- 2.16** *** ***(0.831)*** | **- 2.250** *** ***(0.765)*** | **- 2.246** *** ***(0.838)*** |
| *After* | 0.090 *(0.498)* | 0.345 *(0.549)* | 0.263 *(0.474)* | 0.045 *(0.528)* |
| Non-retirement **After* | 1.339 *(0.905)* | 1.771 * *(0.989)* | | |
| Young departing CEO**After* | | | - 0.460 *(1.299)* | 0.066 *(1.429)* |
| Constant | 2.477 *** *(0.255)* | 2.488 *** *(0.283)* | 2.478 *** *(0.256)* | 2.487 *** *(0.283)* |
| Firm Fixed-Effects | Yes | Yes | Yes | Yes |
| R-squared within | 0.02 | 0.022 | 0.015 | 0.017 |
| Number of Successions | 159 | 126 | 159 | 126 |
| Number of Firm-Years | 914 | 756 | 914 | 756 |

* Statistically different from zero at 90 percent level of confidence, ** at 95 percent, *** at 99 percent.

## Table 5 Reduced Control Group (Propensity Score)

This table includes information on CEO successions with (a) *family heirs* (59 cases), and (b) unrelated entrants to firms with similar propensity score, see text (90 cases). The dependent variables are: (1) Return on assets in percent: earnings before interest and taxes, over firm assets, (2) Ratio of market to book value: market value of equity plus liabilities over book value of assets; and (3) sales growth: growth in real dollar sales with respect to the previous year. In all cases, the dependent variable is net of its 3-digit SIC industry averages. The table presents fixed-effects estimates for the dependent variables of a three-year window around each CEO transition. *After* is an indicator variable that takes the value of one in the years after the transition. *After**Family Heir is the interaction of *after* variable with the *family heir* indicator variable. Standard errors are in parentheses.

| | **Return on Assets (%)** | **Ratio of Market to Book Values** | **Sales Growth (%)** |
|---|---|---|---|
| **Family Heir****After*** | **- 1.831** ** <br> ***(0.784)*** | **-0.144** *** <br> ***(0.052)*** | **-4.415** * <br> ***(2.358)*** |
| *After* | 1.436 <br> *(1.053)* | 0.067 <br> *(0.069)* | 1.654 <br> *(3.122)* |
| Constant | 2.824 <br> *(2.425)* | 0.211 <br> *(0.160)* | - 8.681 <br> *(9.072)* |
| Year Effects | Yes | Yes | Yes |
| Firm Fixed-Effects | Yes | Yes | Yes |
| Industry/Year Controls | Yes | Yes | Yes |
| R-squared within | 0.051 | 0.078 | 0.0486 |
| Number of Successions | 149 | 148 | 148 |
| Number of Firm-Years | 859 | 847 | 819 |

* Statistically different from zero at 90 percent level of confidence, ** at 95 percent, *** at 99 percent.

## Table 6 Heirs' Underperformance and Individual's Academic Record

This table includes information on CEO successions with (a) *family heirs*, and (b) unrelated successors to firms. The dependent variable is the return on assets in percent: earnings before interest and taxes, over firm assets, net of its 3-digit SIC industry average. Each column presents the analysis for: (1) successors who attended "selective" institutions (see text), (2) successors that did not attend a "selective" college. (3) unrelated successors only, and (4) family heirs only. The table presents fixed-effects estimates for the dependent variables of a two-year window around each CEO transition. *After* is an indicator variable that takes the value of one in the years after the transition. *After**Family Heir is the interaction of *after* variable with the *family heir* indicator variable. *Not highly educated*After* is the interaction of *after* variable with the indicator variable that takes the value of one if CEOs did not attend a selective college or university. Standard errors are in parentheses.

| | **Industry Adjusted Return on Assets** | | | |
|---|---|---|---|---|
| | (I) | (II) | (III) | (IV) |
| | Family Heirs Only | All Not "Highly Educated" | All "Highly Educated" | Unrelated Successions Only |
| ***Not Highly Educated*After*** | **- 3.123** ** ***(1.075)*** | | | **- 1.145** **(*1.214)*** |
| *After* | 0.420 *(1.157)* | - 0.032 *(0.862)* | 1.114 *(0.994)* | - 0.032 *(0.814)* |
| **Family Heir*After*** | | **- 2.671** ** ***(1.314)*** | **- 0.694** ***(1.449)*** | |
| Constant | 0.980 * *(0.554)* | 0.942 ** *(0.460)* | - 1.064 ** *(0.333)* | - 0.796 * *(0.428)* |
| Firm Fixed-Effects | Yes | Yes | Yes | Yes |
| R-squared within | 0.019 | 0.042 | 0.010 | 0.009 |
| Number of Successions | 49 | 58 | 52 | 61 |
| Number of Firm-Years | 196 | 232 | 206 | 242 |

* Statistically different from zero at 90 percent level of confidence, ** at 95 percent, *** at 99 percent.

## Table 7 Heirs' Underperformance and Ownership

The table presents information on CEO transitions where the pre-transition CEO is member of the founding family of a publicly traded corporation and ownership information is available for a two-year window: around each CEO transition. CEO transitions are classified in two groups: (a) *family* when the CEO successor and the departing CEO are related by blood or marriage and (b) *unrelated*. The dependent variable is the industry adjusted return defined as percent earnings before interest and taxes over firm assets *minus* the profitability of its 4-digit SIC industry in that year (see text). The table presents fixed-effects estimates. The controls are: *After*, is an indicator variable that takes the value of one in years after the transition; *After**Family Heir, the interaction of *after* variable with the *family* indicator variable. Departing CEO remains as chairman**after* is an indicator variable that takes the value of one when the departing CEO stays as chairman after the succession. CEO ownership > 3.5 percent: indicator variable that takes the value of one when ownership is larger than 3.5 percent (the average for unrelated successors)**after*. CEO ownership > 18 percent: indicator variable that takes the value of one when ownership is larger than 18 percent (the average for family heirs)**after*. (Board-CEO ownership) > 18 percent: indicator variable that takes the value of one when the board *minus* CEO ownership is larger than 18 percent (the average for all successions)**after*. Standard errors are in parentheses.

| | **Industry Adjusted Return** | | | | |
|---|---|---|---|---|---|
| | Unrelated Successions Only | Family Heir Only | Unrelated Successions Only | Family Heir Only | All Transitions |
| | (I) | (II) | (III) | (IV) | (V) |
| *After* | - 0.996<br>*(1.764)* | 0.231<br>*(0.681)* | 1.460<br>*(1.147)* | - 1.875<br>*(1.501)* | 1.462 *<br>*(0.776)* |
| **Family Heir*_After_** | | | | | **- 2.698 ****<br>***(1.020)*** |
| Departing CEO is Chairman, *After* | | | - 0.909<br>*(1.334)* | 0.280<br>*(1.829)* | |
| CEO Ownership > 3.5%, *After* | | 6.228 ***<br>*(1.678)* | | | |
| CEO Ownership > 18%, *After* | - 0.575<br>*(1.985)* | | | | |
| Board-CEO Ownership >18%, *After* | | | | | - 0.527<br>*(1.044)* |
| Constant | - 0.141<br>*(1.985)* | - 0.032<br>*(0.440)* | - 0.508<br>*(0.415)* | - 0.082<br>*(0.604)* | - 0.078<br>*(0.355)* |
| Firm Fixed-Effects | Yes | Yes | Yes | Yes | Yes |
| R-squared Within | 0.018 | 0.071 | 0.010 | 0.023 | 0.017 |
| Number of Successions | 57 | 79 | 88 | 56 | 136 |
| Number of Firm-Years | 228 | 316 | 352 | 224 | 544 |

* Statistically different from zero at 90 percent level of confidence, ** at 95 percent, *** at 99 percent

## Table 8 Explaining Heir Underperformance

The table presents information on CEO transitions where the pre-transition CEO is member of the founding family of a publicly traded corporation and financial information is available for a two-year window $(t_{-2}, t_{-1})$ and $(t_{+1}, t_{+2})$ around each CEO transition. CEO transitions are classified in two groups: (a) *family* when the CEO successor and the departing CEO are related by blood or marriage and (b) *unrelated*. The dependent variables are: (1) Industry adjusted return defined as percent earnings before interest and taxes over firm assets *minus* the profitability of its 4-digit SIC industry in that year (see text); (2) employment defined as the number of employees in thousands; (3) employees/assets defined as number of employees per million dollar of firms' assets; (4) sale of plant and equipment defined as sale of plant and equipment over assets in percent. The table presents fixed-effects estimates. *After* is an indicator variable that takes the value of one in years $(t_{+1}, t_{+2})$ after the transition. *After**Family Heir is the interaction of *after* variable with the *family* indicator variable. Standard errors are in parentheses.

| | **Industry Adjusted Return** | **Industry Adjusted Return** | **Employment** | **Employees / Assets** | **Sale of Plant and Equipment** |
|---|---|---|---|---|---|
| | Family Heir Only | All Transitions | All Transitions | All Transitions | All Transitions |
| | (I) | (II) | (III) | (IV) | (V) |
| **Family Heir*_After_** | **- 2.55** ** <br> ***(1.194)*** | **- 2.668** ** <br> ***(1.128)*** | **- 1.507** <br> ***(1.409)*** | **- 0.402** <br> ***(0.614)*** | **- 0.186** <br> ***(0.363)*** |
| *After* | | 1.089 * <br> *(0.613)* | 3.033 *** <br> *(0.872)* | - 0.043 <br> *(0.379)* | - 0.009 <br> *(0.228)* |
| Young**After* | 1.449 <br> *(1.661)* | - 0.435 <br> *(1.276)* | | | |
| Constant | - 0.020 <br> *(0.586)* | - 0.052 <br> *(0.336)* | 6.193 *** <br> *(0.484)* | 12.77 *** <br> *(0.211)* | 0.871 *** <br> *(0.125)* |
| Firm Fixed-Effects | Yes | Yes | Yes | Yes | Yes |
| R-squared Within | 0.031 | 0.020 | 0.031 | 0.001 | 0.004 |
| Number of Successions | 58 | 151 | 149 | 149 | 104 |
| Number of Firm-Years | 232 | 604 | 596 | 596 | 416 |

* Statistically different from zero at 90 percent level of confidence, ** at 95 percent, *** at 99 percent.

# Cumulative Abnormal Return of Succession Announcements