

Internet Appendix for
Do Insiders Hire CEOs with High Managerial Talent?

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This appendix is divided into three sections. Section A1 provides additional details concerning the construction of our measure of managerial talent. Section A2 details the methodology used in our tests of cumulative abnormal returns following CEO hiring announcements. Section A3 presents additional results and robustness checks.

A1. Constructing the Measure of Managerial Talent

A1.1 Data Source and Sample Filters

Our measures of talent are based on résumé data contained in the BoardEx North America database from 2000–2012. BoardEx collects biographical data on board members and senior executives from approximately 18,000 companies worldwide. Included in these data is information on age, gender, education and degree information, civic and business awards or honors, and past employment history for each individual. Although our database begins in 2000, we can observe employment at companies many decades prior to that and at far more companies than BoardEx analyzes, because BoardEx attempts to collect a complete career history for each individual in the database. This history includes the name of the company that the individual worked for, the role of the individual within that company, and the beginning and ending dates for each role. The version of the data that we use presents the following data: 79,313 individuals with work or board experience at 215,961 unique companies; the earliest job begins in 1928; the median individual's first recorded job begins in 1984. Across the data, the median (mean) individual has work and/or board experience at 7 (8.9) different companies. Importantly, BoardEx verifies all the historical information using multiple sources before publishing it; consequently, we consider the available career history of each individual to be reliable.

To create our measures of talent, we need the complete career history, including dates of all job changes, for each individual in our sample. Consequently, we exclude all observations that

are missing either the starting or ending date for a role.¹ If the date variable only includes the year, we assume that the role started (ended) on January 1 (December 31) of that year. Similarly, if the date only contains the month-year, we assign the starting (ending) date to be the beginning (end) of the month. This methodology credits the individual with the maximum possible experience. We also limit the sample to individuals who show no between-job gap longer than 18 months. This restriction allows for transition time between jobs, while helping to alleviate the possibility our sample includes individuals with missing career history. After applying these two filters, we are left with 78,682 individuals with work experience at 132,808 unique companies, for a combined total of over 3 million individual-year-company observations.

A1.2 Measuring Managerial Talent

To construct the measure of managerial talent, it is necessary to quantify the managerial rank of each job role that appears in BoardEx. No standard ranking of managerial jobs (or even standardized job titles) exists; therefore, we classify job titles into the hierarchy described in Table I using a text algorithm based on our manual classification of the most frequently used job titles. To create this classification, we collect all current and past job titles for each individual in this sample (*Role*). There are 5,135 different job titles, which can be modified with a description (*Role Description*) for a total of 120,040 unique combinations. We manually classify every job title that appears more than 200 times on a hierarchical scale from 0 to 6 with 0 representing no management responsibilities and 6 representing the chief executive officer (see Table I in the main paper). This hand-classification represents only about 5% of the job titles, but nearly 85% of the sample.

Assigning rank is straightforward for certain job titles, e.g., “Chief Financial Officer.” Other job titles are more obscure, e.g., “Officer.” For obscure titles, we examine the most commonly

¹ Current positions have a separate code in the end date; we keep these positions in our sample.

used descriptions of the role and use this additional information to assign the most likely rank for the title. For example, in the case of “Officer,” the most common descriptions are “Loan Officer” and “Lending Officer,” thus we assign “Officer” a rank of 0 (no management experience). One very common title is “Various Positions.” Because in this case we are unable to determine either exact dates or position types, we assign missing values to the hierarchy measure for “Various Positions.”

We use this hand-classified sample of job titles to develop an algorithm to classify the rank of all job titles in BoardEx. We first assign all jobs that are not at either public (i.e. “Quoted”) or private firms a managerial rank of 0. These jobs include academic and government jobs, military experience, and charitable organizations and represent about 10% of the sample (see Table A.1). As these jobs are not primarily focused on profit maximization, the experience gained through these roles is not directly comparable to experience in managerial jobs at public and private for-profit firms.² For the remaining 90% of the sample, we use our hand-classified rankings for those job titles that have an exact match, but we modify these rankings based on the contextual information available in the role description. For instance, we rank the title “President” a level 5 (“Second-in-command”) in our hand classification. In our algorithm, however, we lower that ranking to a level 3 (“Senior managers”) if the role description contains information about a division, region, or group, due to the president of the company clearly being a more senior role than that of the president of a division.

Finally, we assign a rank to each of the other job titles based on their similarity to our hand-classified sample while accounting for the relevant information in the role description. We then subtract one from the rank of any title that is modified by the qualifiers “acting,” “interim,” or

² We use experience at these other types of firms to create various other measures of professional skills.

“assistant” to reflect the idea that these positions do not carry the same extent of signal about managerial ability as a full-time, permanent position.

To check if this classification scheme is reasonable, we perform several internal validity tests. Customarily, job titles do not always have a consistent meaning across firms. To ensure that this condition does not introduce a systematic bias into our measure, we check at the firm-year level that the ranking process leads to a pyramid-shaped employee structure: i.e., one CEO, a relatively small executive suite, and a larger number of lower level managers. After the first pass of the classification algorithm, this check revealed some clear outliers.³ We adjust the algorithm to account for the problematic titles and report the results in Table A.2. Two important things emerge from this table: first, the classification scheme we employ results in a roughly triangular shaped firm-hierarchy. In an average firm-year, we observe six mid-level managers; three senior managers; two members of the executive suite; one second-in-command (such as the CFO); and one CEO, which suggests that the classification scheme is reasonable. Second, we observe very few line managers (level 1). This result reflects both that early job history is underreported and the fact that our algorithm struggles to differentiate between level 1 and level 2 jobs.

Table A.2 also reveals that for the median firm-year we observe only one employee in any specific managerial level. This sparsity is expected because most of these firms are not specifically analyzed by BoardEx; consequently, they appear only in terms of the past working history of an individual in BoardEx’s database. Reassuringly, though, the triangular firm hierarchy persists across the entire upper half of the distribution where we observe many more individuals in any

³ For example, the maximum number of CEOs in a firm-year was over 100. In this case, the culprit was the “Managing Director” title which is often used by firms as an alternative to the CEO title. However, it is also used by some investment companies to represent a much lower role equivalent to a senior manager. We altered our algorithm to classify “Managing Director” as a level 3, rather than a level 6, if we find another CEO title in that company’s history.

given employee-year. Note also that there appears to be relatively little noise in the automated assignment of executive positions. At most, the algorithm assigns three chief executive officers to a firm-year, which is possible due to co-CEO positions and overlapping dates (we verify these observations by hand).

We next adjust the ranking of job titles to reflect firm size. In each year, we sort firms into quartiles based on total assets (we assign all private firms to the smallest size quartile). We then add one rank-level to managers working for firms in the largest size quartile and subtract one rank-level for managers working for firms in the smallest size quartile. This adjustment rationally infers that a division president at a very large firm (such as General Electric) might be functionally similar to a CEO at a small private firm. We only make this adjustment for job titles that are at or above senior manager positions (level 4 or higher), as we posit less likelihood that lower level managerial positions provide differing levels of managerial experience based on firm size.⁴ Note that this adjustment results in a maximum rank of 7 which corresponds to a CEO of a very large public firm.

After accounting for differences in job title based on firm size, we perform another internal consistency check at the job title-level by examining promotions. We examine promotions and demotions for each individual from year to year by looking at the change in managerial rank.⁵ Promotions are defined as an increase in managerial rank, while demotions are defined as a decrease in managerial rank. Note that in this context, demotion does not necessarily have a negative connotation. For example, we may observe a decrease in managerial rank because a CEO

⁴ Our main results are robust to making no adjustments for firm size.

⁵ The BoardEx database sometimes has multiple observations per individual-year. Most frequently this is because an individual is both currently working as an executive and serving as a non-executive board member at one or more firms. However, an individual occasionally holds multiple jobs simultaneously. In either case, we assign the highest managerial rank across all the individual's current roles as of December 31 to be the individual's managerial rank for that calendar year. There are 2,011,557 individual-year observations in our data.

retires and then serves as an advisor to the firm, or leaves the firm to found a start-up or work in a government position. Similarly, we are not able to measure promotions in the typical sense. We capture circumstances where an individual both changes titles and increases in managerial rank. Accordingly, an individual who moves from one CFO position to a different CFO position at a similarly-sized firm will not count as a promotion for this exercise.⁶

Although an individual may be promoted from a low managerial level to a high level, this type of promotion is rare in practice. Consequently, to the extent that our algorithm does a reasonable job of assigning managerial ranks, we expect to see relatively few cases of large jumps in rank from year to year. The data confirm this to be the case. In Table A.3, we summarize the distribution of changes in managerial rank sorted by the starting job rank. Panel A reports the results for promotions, while Panel B shows the distribution for demotions. On average, we observe that promotions (demotions) result in an increase (decrease) in managerial rank of between 1–2 levels. The only exception is individuals with no managerial experience (rank =0), which on average receive promotions of three ranks. This is driven by individuals in nonmanagerial positions (lawyers, accountants, engineers, professors, etc.) who are appointed as independent members of the board of directors (rank =3).

While the distributions reported in Table A.3 show relatively few cases of large jumps in managerial rank, the maximum increase in rank shown in Panel A implies that there is at least one individual promoted as CEO directly from each rank-level.⁷ This suggests that there are at least some instances where our algorithm does a poor job of classifying managerial rank.

⁶ These strict definitions mean that we observe relatively few promotions/demotions in the data. Over 1.5 million of our individual-year observations show no change in managerial rank.

⁷ The maximum increase in rank plus the existing rank is always equal to 7, implying that there is at least one promotion from that rank-level to a CEO of a large firm.

To discover whether this observation is driven by misclassification of any particular job title, we examine each starting job title where an individual receives a promotion of more than two rank-levels. The 25 most common job titles are reported in Table A.4. The top five most frequently observed titles are Partner, Employee, Consultant, Principal, and Founder. Our algorithm classifies each of these titles as having no managerial experience (rank=0). Generally, this classification is logical: the first four titles have no clear managerial role, and while a founder might also be a manager, a hand-check of a random sample of this title reveals both founders with an executive role in the firm and founders who are primarily providing capital. No automated way exists to present this distinction in the data, thus we take the conservative approach of assigning no managerial experience. Most of the other titles in the list are also assigned no or low levels of managerial experience for similar reasons. Collectively, however, none of the titles stands out as particularly implausible for receiving promotion to a senior executive or CEO position.

Table A.5 examines the 25 most frequently observed ending job titles after receiving a demotion of more than two managerial ranks. This table indicates that most large drops in managerial rank reflect partial retirements when CEOs leave to take jobs with titles of Consultant, Partner, Principal, Chairman, Independent Director, and Advisor. Additionally, a number of executives apparently turn to entrepreneurship with titles like Founder, Co-Founder, and Owner. Overall, the titles in Table A.5 are mostly consistent with the type of work expected of former executives.

Comparing both Table A.4 and A.5, one set of titles stands out as likely to be misclassified: Officer, Executive Officer, and Executive. These titles probably do not experience significant promotions and are not likely to be the end title following a substantial demotion. As a result, we

adjust the way our algorithm ranks these titles so that at the individual level the annual change in job rank is no more than 2.

As a final validation check of our classification of managerial ranks, we examine the relationship between rank and age at the individual-level. Various models of human capital accumulation predict that human capital starts out low, quickly rises throughout the early stage of one's career, slows down and then peaks around prime career age, and then declines as individuals approach retirement (see, e.g., Kuruscu, 2006; Lise and Postel-Vinay, 2020). We check to see if our classification of job ranks results in a similar pattern. Figure A.1 shows the average relationship between job rank and age across individuals and confirms that our measure of managerial rank results in the expected relationship. Individuals quickly climb up the managerial ladder early in their careers, promotions slow and then peak in the late 40s or early 50s, and then managerial rank falls as individuals approach typical retirement ages.

Figure A.1 also highlights the fact that career trajectories have shifted over time. Perhaps driven in part by a flattening of the corporate hierarchy (Rajan and Wulf, 2006), successive cohorts of individuals begin their careers at higher ranks, climb the corporate ladder more quickly, and reach their peak management positions at earlier ages. These generational shifts reinforce the importance of indexing our measure of talent relative to the individual's birth cohort.

Together, these results show that despite the noise inherent in our rank classification algorithm, no explicit cases of systematic misclassification occur. Having established that our ranking algorithm is internally consistent, we next use these ranks to create a measure of managerial talent at the individual-year level. As described in Section 3.1 of the main paper, for each individual-year we calculate the age-cohort average managerial rank by taking the average managerial rank of all individual-years in our sample that are a) the same age as that individual, and b) born in the

same decade as that individual.⁸ To mitigate the effect of outliers, we exclude employment history before the age of 25 and after the age of 70. We also exclude those cohorts born in 1980 and later, as these cohorts are scarcely populated (i.e., few individuals at such a young age have risen to sufficiently high managerial positions at large public firms to be captured by BoardEx data).⁹ For each individual-year, we then subtract the average age-cohort managerial rank from an individual's maximum managerial rank as of December 31. Finally, we take the cumulative sum of this measure of excess managerial rank from age 25 until the current year and refer to this measure as managerial talent. Summary statistics for this managerial talent measure are reported in Table II in the paper.

A1.3 Comparison with Talent Measure in Falato, Li, and Milbourn (2015)

Our measure shares some conceptual similarities with Falato, Li, and Milbourn's (2015) measure of CEO talent, which is calculated as the cohort-adjusted age at first CEO hire. Both measures imply that CEO candidates who quickly rise up the managerial ladder are talented. However, our measure captures variation in the path that an individual takes to become CEO, and also reflects experience gained post-first CEO appointment. To better understand how these additional features of managerial talent matter, in this section, we examine the extent to which our results generalize to using Falato et al.'s (2015) measure.

In Table A.6 and A.7 of this report, we replicate Tables III and IV from our paper using Falato et al.'s measure as a key independent variable. Note that in contrast to our measure, Falato et al.'s measure can only be applied to those individuals with previous CEO appointments; as a result,

⁸ E.g., for an individual at age 40 who was born in 1936, we take the average managerial rank of all individuals born in 1930–1939 when they are 40 years old.

⁹ Although BoardEx North America focuses primarily on U.S. firms, it also includes a small portion of Canadian firms. Because labor market mobility across the two countries is very high, and a large number of Canadian firms conduct business in the U.S. and are listed on U.S. stock exchanges, we do not exclude Canadian individuals or firms from the main sample. To ensure that our main findings (Table VII) are not driven by the presence of non-U.S. firms, we re-estimate the analysis after excluding all non-U.S. incorporated firms and find similar results (unreported).

sample sizes fall by nearly 75%. This limitation prevents us from estimating Table III Columns 1 and 2 using Falato et al.'s measure, as these specifications require individuals to have no previous CEO experience. Falato et al.'s measure (cohort-adjusted age at first CEO hire) is an inverse measure of talent: more talented individuals are hired at a younger age. As a result, we expect to find a negative relationship between this measure of talent and future career progression, awards, and pay. Reviewing Tables A.6 and A.7, we find the evidence is mixed. For example, in support of its validity as a proxy for talent, age of first CEO appointment is negatively and significantly related to the probability of serving on boards of S&P 500 firms and compensation in the first full year of service after becoming CEO. Perhaps because it is a static measure, it is unable to predict pay over longer intervals, as indicated in Columns 1 and 2. It is also insignificant in predicting outside director pay, service on prestigious boards and the number of future awards. In contrast, our measure of talent successfully predicts career progression, awards, pay, and board memberships. Moreover, our measure remains positive and statistically significant (with similar magnitudes) even after controlling for Falato et al.'s (2015) measure of talent (unreported). This finding indicates both that our measure is a more consistent proxy for talent and that our measure captures an aspect of talent that is distinct from Falato et al.'s (2015) measure.

We next proceed to replicate Tables VII and IX from our paper using Falato et al.'s (2015) measure. The results are reported in Table A.8 Panels A and B. Overall, having an insider on the board is negatively related to Falato et al.'s measure, which is consistent with inside directors hiring more talented CEOs. However, the significance is mixed. In the full sample (Table A.8 Panel A), only one out of the six specifications is significant. After splitting the sample into inside vs. outside CEO hires (Table A.8 Panel B), we find that the relationship is only significant for outside hires.

Broadly, using Falato et al.'s (2015) measure confirms the results of our paper. Using this alternative proxy for managerial talent, we continue to find evidence that inside directors hire more talented CEOs. However, the fact that the results are both more consistent and more significant using our measure of managerial talent highlights the importance of accounting for the dynamic nature of experience across all executive ranks in measuring managerial ability.

A1.4 Measuring Professional and Founder Experience

Our measure of talent is designed to reflect an individual's experience and success in the managerial career track and as such, the measure reflects managerial ability. We explore other dimensions of individuals' career success by creating various measures of professional work experience. We define eight types of professional experience: military; academia; government; medicine; finance; law; STEM; and entrepreneurship. Using the same sample described above in subsection A1.1, for each individual-year we add up the total years of prior experience an individual has in each of these areas. (Definitions of each type of experience are described below.) We then create an excess measure of experience by subtracting out the average amount of experience across that individual's age and birth cohort. We sum this excess experience over all prior years to create an index of professional experience in each dimension.

Military experience is defined as any job where the company type is "Air Force," "Armed Forces," "Army," or "Navy." Academic experience is any job where the company type is "Universities" or where the job title is "Professor."¹⁰ Government experience is any job where the company type is "Government." Medical experience is defined as any job where the company type is "Medical." Finance experience is any job where the job title includes any of the following terms or their derivatives: analyst, accountant, investment banker, auditor, financial analyst,

¹⁰ Or any of its derivatives, e.g., Assistant Professor, Associate Professor, etc.

economist, trader, and stockbroker. Law experience is any job title that includes the terms attorney, lawyer, counsel, and judge. STEM experience is defined as job titles that include engineer, scientist, geologist, scientific advisor, geophysicist, and chemist.

In addition to the individual indices described above, we add the military, academic, government, medical, finance, law, and STEM indices together to create an overall index of professional experience. Finally, we also measure entrepreneurial, or founder, experience. Entrepreneurial experience includes individuals who mention founder, owner, or entrepreneur in either their job title or the role description.

In Figures A.2 and A.3, we graph the average professional experience by age for each of these dimensions of professional talent, along with the overall professional experience index and the entrepreneurial experience index. From these figures, we see that experience in the government, academia, entrepreneurial work, law, medicine, and the military each increases more or less linearly over an individual's life, indicating that these career paths are orthogonal to managerial jobs. Most of these individuals end up in the BoardEx database because they served as independent directors and not because they have had any managerial experience (with the exception of entrepreneurs, who often end up on boards as CEOs of the companies they founded). In contrast, finance and STEM experience increases over the early part of an individual's life, but slowly decreases beginning in the mid-30s. This observation is driven by many of these individuals moving into the managerial track after beginning their career in other fields.

A2. Stock Market Reaction to CEO Hiring Announcements

In Section 3.2 of the paper, we present the results of an analysis of stock market reactions to CEO hiring announcements. In this section, we provide additional details about the construction of the sample used in those results. To begin, we utilize a BoardEx file named "Company Announcements" that provides both announcement and effective dates of hiring, departure, and

other role changes among directors and senior management.¹¹ We manually check all announcements to identify CEO appointments using the “role” and “description” fields. To this end, we first identify all the roles that include “CEO” or “Chief Executive Officer” titles (we exclude all temporary and dual CEO positions appointment such as “acting CEO”, “interim CEO”, “co-CEO” etc.).

Using this file, we identify new CEO appointments. Although for each job change BoardEx provides the individual’s new role, frequently the role definition is a combination of multiple positions (e.g., Chairman/President/CEO) and the announcement is related to only one (or to a subset) of those positions. To flag the announcements of CEO appointments only, we first identify all the roles that include “CEO” or “Chief Executive Officer” (we exclude all the temporary and dual CEO positions appointment such as “acting CEO,” “interim CEO,” “co-CEO,” etc.). For each of those positions we then read the role description field that provides details of the new/old role (e.g., “Antonio Sciacca steps down as President and remains as Chairman/CEO;” “will join the board;” “will leave this board”). We classify all the cases of “will join the board” as CEO appointments (this is because BoardEx seems to loosely apply the term “board” to the firm in general). To ensure that this assumption is correct, throughout the classification process we randomly investigate the announcement details using Internet searches and find that in all these cases the announcement concerned a new CEO appointment. We also classify as CEO appointments an additional set of cases that include: (i) cases in which an individual has received the CEO role as an additional position (e.g., “Sheng Zhai becomes Chairman/CEO in addition to the role President”); (ii) cases in which an individual switched from a non-CEO role to a CEO role

¹¹ Unfortunately, the file does not provide information on all the appointments and departures in the BoardEx universe (that is, information that appears in the director employment history file). However, the data set has information on 7,400 unique firms and 33,787 individuals, thereby providing a comprehensive universe of firms.

(e.g., “ Peter S. Ho will step down as Chief Banking Officer and become Chairman/CEO in addition to the role President”; and (iii) cases in which in individual was appointed to multiple positions, including position of a CEO, at the same time (e.g., “A. Laurence Jones becomes President/CEO”).

Throughout the classification process, we also randomly check the announcement dates using Internet searches to make sure that they match company releases/SEC reports/media articles, and find that in the vast majority of the cases, the announcement date is accurate. After identifying all cases of CEO appointment, we merge these announcements with our measure of managerial talent and firm characteristics. We then calculate cumulative abnormal returns (CARs) around the event. Following existing studies, such as Graham, Kim, and Leary (2020), we implement this event study using the 5-day window surrounding the announcement of the CEO appointment. We obtain 1,946 announcements (which represents about 53% of our sample of CEO appointments).

To examine whether stock markets value managerial talent, we focus on the announcements of external CEO hires. Existing literature documents a positive and significant market reaction to outside CEO appointment announcements, but an economically small and often insignificant reaction to appointments of insider CEOs (Borokhovich, Parrino, and Trapani, 1996; Huson, Parrino, and Starks, 2001; Huson, Malatesta, and Parrino, 2004). The muted market response to inside appointments is consistent with the conjecture that inside CEOs are often expected to maintain the previously established status quo (Borokhovich et al., 1996). Markets may also determine the identity of an inside successor more easily and incorporate it in stock valuation ahead of the official announcement. In either of these cases, managerial talent of the new CEO is unlikely to play an additional role in explaining announcement returns.

We also exclude cases of potential CEO succession planning. According to Cvijanović, Gantchev, and Li (2022), one-third of current companies have a formal succession plan, and the SEC encourages all firms to discuss their succession planning practices. Although these policies are designed to reduce the risk of succession failures, they can also substantially diminish market reaction to a new CEO appointment. To address this issue, we exclude cases with a significant gap between the announcement and the effective dates of CEO appointment. Although the median time gap between the announcement and the effective date is 9.5 days, some firms set the new CEO start date several months after the initial announcement. We therefore exclude CEO announcements with gaps longer than two months. Although this threshold is somewhat arbitrary, it is roughly equivalent to eliminating the top 20% of the distribution, which is consistent with Cvijanović et al. (2021), who document that around 21% of firms report having a succession plan over the time period that corresponds to our sample.

To gauge how reasonable these restrictions are, we perform a univariate analysis and examine the average market reaction to CEO announcements across inside versus outside hires, as well as announcements with short (fewer than or equal to 60 days) versus long (over 60 days) gaps between the announcement and the effective dates. The results, presented in Table A.9, show that our assumptions are justifiable and consistent with previously established findings. Specifically, the stock market experiences a positive and significant reaction only to external hires but responds in a mixed way to the appointment of inside CEOs. We also find that the market reaction is statistically significant mainly when the effective date falls within the two-month window of the initial announcement. This finding is consistent with the idea that the existence of a succession planning protocol reduces the market reaction.¹²

¹² To further ensure the robustness of our results, we repeat both the unconditional and CAR analyses using 30, 52 (75th percentile), 90, and 110 (90th percentile) days gap between the announcement and the effective dates as cutoff

Finally, Table A.10 shows the distribution of new CEO hires over time. Our sample of new CEO hires is evenly spread across years; no single year accounts for more than 11% of our sample.

A3. Additional Results

This section presents several additional results and robustness checks. These results are discussed in the paper, but tabulated here to conserve space.

In Table A.11, we re-estimate the main results (Tables VII and IX of the paper) using the talent measure that is not adjusted for firm size. Specifically, when measuring talent, we do not add (subtract) one rank for firms in the highest (lowest) size quartile. Consequently, the highest rank according to this definition of corporate hierarchy is 6. The results are robust to this alternative measure of talent.

We examine characteristics of the firms included in our SOX experiment in Table A.12. We find that treatment firms (non-compliant) and control firms (compliant) have similar firm characteristics, including size, profitability, and stock returns, in the period before SOX (i.e., year 2000). These firms also have similar trends in changes in firm characteristics pre-SOX to post-SOX (i.e., year 2000 to 2005). Together, this suggests that the exclusion restriction is plausible: these firms were unlikely to have differential trends in CEO hiring absent changes in the composition of the board. To further rule out the possibility that differences in firm performance could explain our result, we re-run the SOX experiment while controlling for the firm's mean annual stock return during 1996-2000 and 2001-2005 periods. The results, summarized in Table A.13 show that controlling for these returns does not impact the estimate of the effect of the change in board composition on new CEO talent.

thresholds. The results are similar to the ones presented in the paper, but statistical significance improves (weakens) when we filter the sample based on a shorter (longer) time gap. This pattern further supports the argument that structured succession planning potentially reduces the market reaction to announcements of new CEO appointments.

In Table A.14 we explore whether or not the SOX-induced change in board independence simultaneously changed other director characteristics. We use the same 2SLS methodology used in the paper to examine how the change in director influence affected the percentage of female directors, average board tenure, average age of directors, total number of outside board directorships, and average level of board managerial talent. We find weak evidence that the decrease in insider influence result in boards with a smaller fraction of female directors, but no evidence that this change affected other observable board characteristics.

In Table A.15, we reestimate the SOX analysis found in Table VIII of the paper after excluding cases where the CEO's tenure exceeds the average inside director tenure as of 2000. One concern with our SOX analysis is that the board that originally hired the CEO who holds the office in 2000 (i.e., the "old" CEO) might be different from the board of 2000. The restriction we use in Table A.15 alleviates this concern by ensuring that that the majority of inside directors on the board were the same both when the original CEO was hired and in 2000. Our results are robust to this specification.

Table A.16 reestimates our main results after excluding forced turnovers. Table A.17 excludes cases where the new CEO hire shared a prior connection to one or more of the inside directors. Our results are robust across each of these specifications.

Table A.18 examines the variation of compensation structure across board structure and with managerial talent. We find that the sensitivity of pay to talent is not affected by the presence of inside directors on the board.

Table A.19 looks at the variation of rate of departure for existing board members according to the managerial talent of newly hired CEOs. We find that both inside and outside directors are less likely to leave the firm following the hire of a CEO with high managerial ability.

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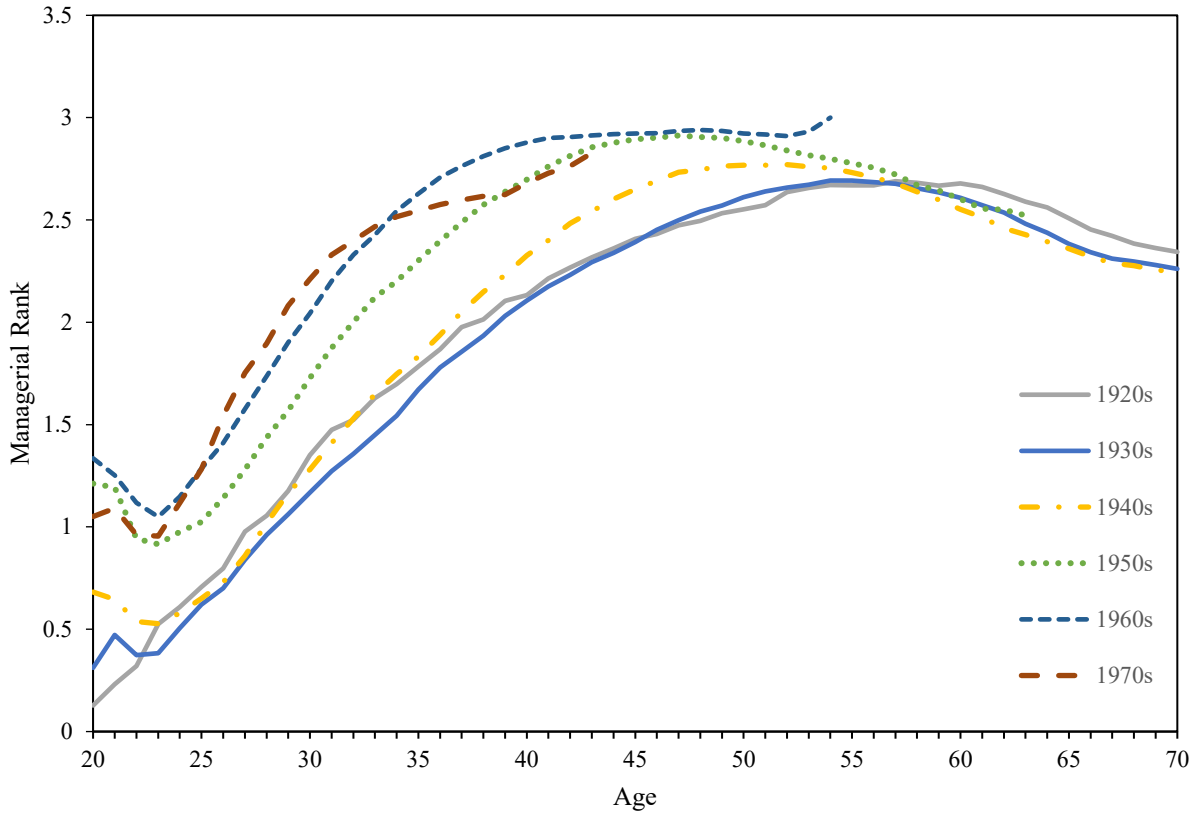


Figure A.1. Managerial Rank by Age. This figure displays the average managerial rank by age, split into cohorts based on birth decade. A rank of 0 corresponds to a position with no managerial responsibilities, while a rank of 6 corresponds to a chief executive officer (see Table I). The data are based on employment history for U.S. executives, senior managers, and directors found in the BoardEx database.

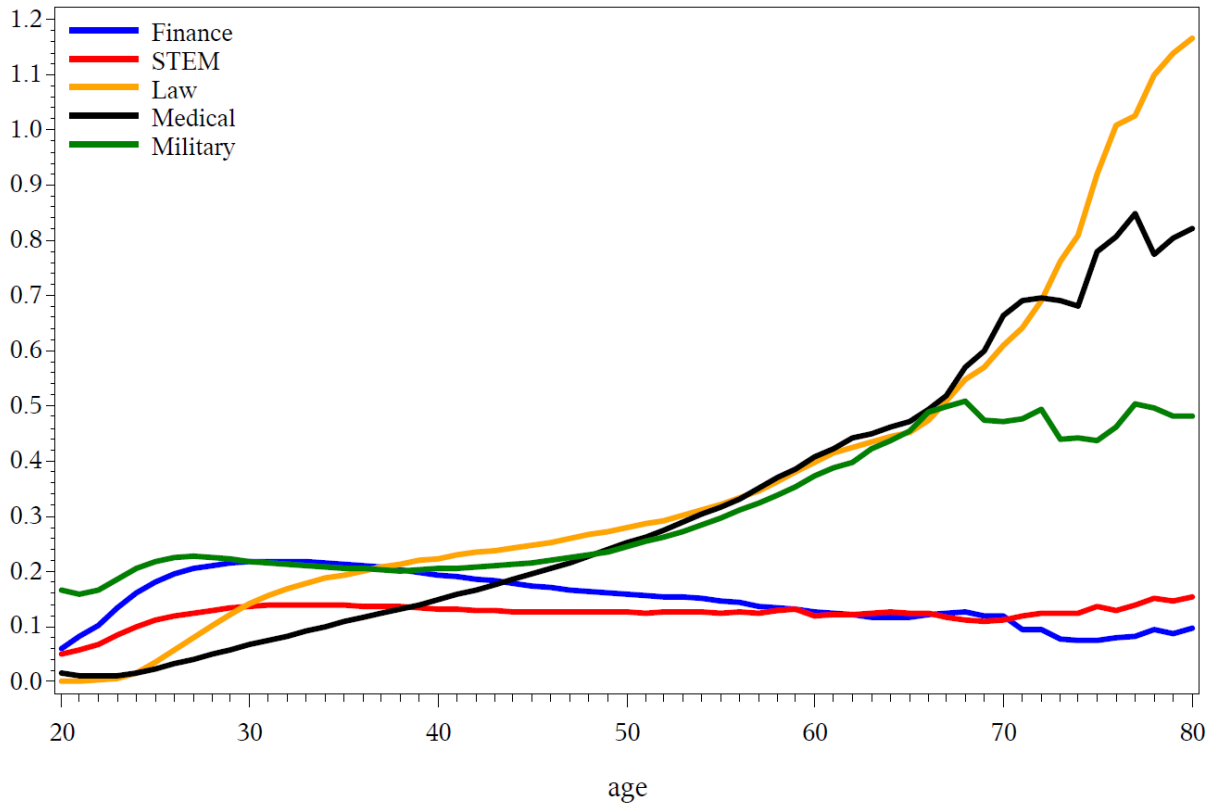


Figure A.2. Professional Experience by Age. This figure displays the average professional experience by age, split into cohorts based on birth decade. For each year, we take the cumulative sum of all previous job experience in finance, STEM, law, medical and military fields. The data are based on employment history for U.S. executives, senior managers, and directors found in the BoardEx database.

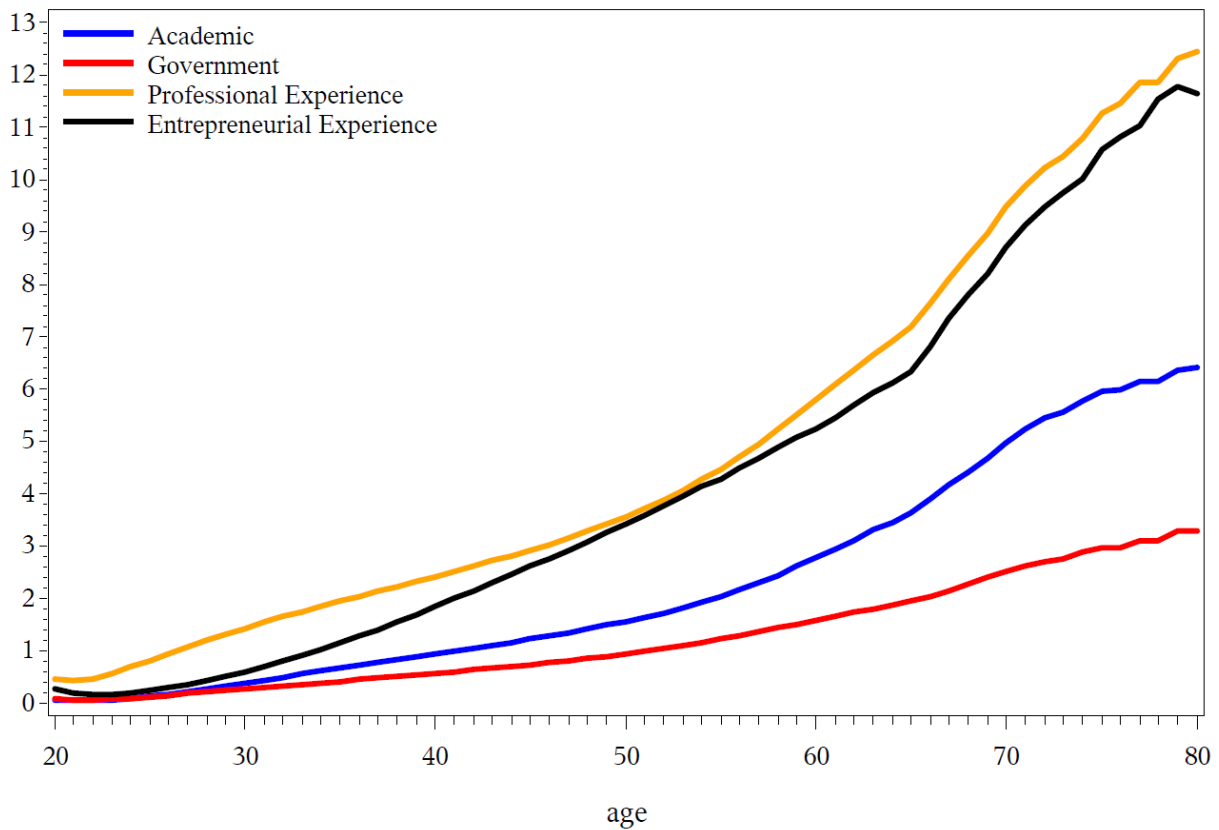


Figure A.3. Additional Professional Experience by Age. This figure displays the average professional experience by age. In each year, we take the cumulative sum of all previous job experience Academic, Government, and Entrepreneurial jobs. The professional index is the sum of these plus experience in finance, STEM, law, medical and military fields. The data are based on employment history for U.S. executives, senior managers, and directors found in the BoardEx database.

Table A.1
Company Types in BoardEx

This table summarizes the frequency and percent of distinct companies that appear in the résumé data of the BoardEx database sorted by company type. We only assign managerial experience to jobs that are at public (quoted) or private firms. We use experience at other types of organizations to create various other measures of professional experience.

Company Type	Frequency	Percent
Air Force	1,773	0.5
Armed Forces	304	0.1
Army	1,536	0.4
Charities	1,392	0.4
Clubs	769	0.2
Government	14,469	3.6
Medical	2,350	0.6
Navy	1,381	0.4
Private	203,767	51.3
Quoted	153,596	38.7
Sporting	245	0.1
Universities	15,416	3.9

Table A.2
Managerial Ranking Distribution by Company-Year

This table summarizes the distribution of managerial roles at the firm-year level based on the résumé data of individuals in the BoardEx database. We sort job titles into a managerial hierarchy ranging from levels 1 to 6 and then count the number of each type of managers for each firm-year and report the distribution.

Level	Type	Mean	Min	25%	Median	75%	99%	Max
1	Line managers	2.0	1	1	1	1	17	28
2	Mid-level Managers	5.9	1	3	5	8	16	38
3	Senior Managers	3.4	1	1	1	3	30	52
4	Executive Suite	1.8	1	1	1	2	9	19
5	Second-in-Command	1.2	1	1	1	1	3	5
6	CEO	1.0	1	1	1	1	2	3

Table A.3
Distribution of Promotions and Demotions by Managerial Rank

This table summarizes the distribution of promotions (defined as an increase in managerial rank from the prior year) and demotions (defined as a decrease in managerial rank from the prior year) by the rank level of the prior year job. Managerial rank is defined by job title and adjusted for firm size and ranges from 0 to 7. Note that Panel A excludes rank level 7 because it is not possible to be promoted higher than this rank. Similarly, Panel B excludes rank level 0, since it is not possible to be demoted lower than this rank. Promotions and demotions are measured at the individual level and we discard any individual with gaps in career history that are greater than 18 months; there are a total of 2,011,557 individual-year observations. For each starting level of managerial rank, we count the number of promotions (demotions) and report the distribution of the change in managerial rank. Panel A reports the distribution of rank-level increases for promotions, while Panel B reports the distribution for demotions. Note that in this table demotion does not mean that an individual is fired, but the individual took a job with a lower managerial rank. In addition to job dismissal, demotion can occur when an individual partially retires and takes a role as an advisor or board member or when an individual leaves management to pursue an alternative career path (entrepreneurship, government work, philanthropy, etc.).

Panel A: Managerial Rank Increases for Promotions

Level	# of Promotions	Mean	Min	25%	Median	75%	Max
0	27,680	3.6	1	3	4	4	7
1	5,293	2.4	1	2	2	3	6
2	4,493	1.6	1	1	1	2	5
3	34,529	1.4	1	1	1	2	4
4	21,205	1.1	1	1	1	1	3
5	7,619	1.1	1	1	1	1	2
6	1,490	1.0	1	1	1	1	1

Panel B: Managerial Rank Decreases for Demotions

Level	# of Demotions	Mean	Min	25%	Median	75%	Max
1	743	-1.0	-1	-1	-1	-1	-1
2	556	-1.7	-2	-2	-2	-1	-1
3	4,512	-2.4	-3	-3	-3	-2	-1
4	16,881	-2.1	-4	-4	-1	-1	-1
5	24,075	-1.5	-5	-2	-1	-1	-1
6	6,275	-1.8	-6	-2	-2	-1	-1
7	1,581	-2.3	-7	-3	-3	-1	-1

Table A.4
Substantial Promotions by Job Title

This table summarizes the 25 most frequently observed starting job titles where an individual receives a promotion greater than 2-rank levels. We report the number of promotions observed, the mean and median increase in rank for this promotion, and the maximum observed increase in rank (max values of 6 or 7 imply that the individual was promoted from this job title into the role of CEO).

Job Title	# of Promotions	Mean Increase in Rank	Median Increase in Rank	Max Increase in Rank
PARTNER	1,525	3.75	4	7
EMPLOYEE	826	3.55	3	7
CONSULTANT	676	3.90	4	6
PRINCIPAL	565	3.76	3	6
FOUNDER	473	4.26	4	6
ASSOCIATE	392	3.26	3	5
CO-FOUNDER	310	4.08	4	6
MANAGER	241	3.43	3	5
ATTORNEY	233	3.37	3	5
OFFICER	212	3.60	3	6
ANALYST	207	3.30	3	5
EXECUTIVE OFFICER	204	4.05	4	6
GENERAL PARTNER	188	3.76	3	6
MANAGING PARTNER	179	3.54	3	6
EXECUTIVE	169	3.80	3	6
ENGINEER	162	3.35	3	6
DIVISION PRESIDENT	146	3.16	3	4
OWNER	144	4.13	4	6
GENERAL MANAGER	139	3.03	3	4
SENIOR PARTNER	128	3.85	4	5
ADVISOR	124	3.99	4	7
ACCOUNTANT	120	3.39	3	5
ASSISTANT	120	3.33	3	5
COUNSEL	109	3.59	3	6
VICE CHAIRMAN	98	3.32	3	4

Table A.5
Substantial Demotions by Job Title

This table summarizes the 25 most frequently observed ending job titles where an individual sustains a demotion greater than 2-rank levels. We report the number of demotions observed, the mean and median decrease in rank for this demotion, and the maximum observed fall in rank (max values of -6 or -7 imply that the individual's previous job was CEO). Note that in this table demotion does not mean that an individual is fired, but the individual took a job with a lower managerial rank. In addition to job dismissal, this demotion can occur when an individual partially retires and takes a role as an advisor or board member or when an individual leaves management to pursue an alternative career path (entrepreneurship, government work, philanthropy, etc.).

Job Title	# of Demotions	Mean Drop in Rank	Median Drop in Rank	Max Drop in Rank
CONSULTANT	739	-4.2	-4	-7
PARTNER	596	-3.7	-3	-6
PRINCIPAL	377	-3.7	-3	-6
EMPLOYEE	248	-4.3	-4	-7
CHAIRMAN	207	-3.0	-3	-3
INDEPENDENT DIRECTOR	204	-3.0	-3	-3
ADVISOR	200	-4.3	-4	-7
FOUNDER	192	-3.9	-4	-7
DIRECTOR - SD	164	-3.0	-3	-3
GENERAL PARTNER	158	-3.8	-3	-7
SENIOR ADVISOR	114	-4.2	-4	-7
EXECUTIVE OFFICER	106	-3.9	-4	-7
MANAGING PARTNER	100	-3.6	-4	-5
VICE CHAIRMAN	96	-3.1	-3	-4
CO-FOUNDER	85	-3.8	-3	-7
OWNER	83	-3.8	-4	-6
EXECUTIVE	80	-3.7	-3	-5
SENIOR PARTNER	74	-3.7	-3	-6
CHAIRMAN EMERITUS	64	-4.6	-5	-7
OFFICER	58	-3.7	-3.5	-5
INDEPENDENT CONSULTANT	50	-4.0	-4	-7
MANAGER	46	-3.2	-3	-5
ATTORNEY	41	-3.5	-3	-6
DIVISION PRESIDENT	37	-3.1	-3	-4
DIRECTOR - ED	34	-3.2	-3	-4

Table A.6**CEO Talent and Out-of-Sample Awards/Honors Using Falato et al.'s (2015) Measure**

This table reestimates Table III Column 3 in the paper adding Falato et al.'s (2015) talent measure (cohort-adjusted age of first CEO appointment). The table presents results from estimating a linear regression where the dependent variable is one plus the number of business awards (collected by BoardEx) in the next 5 years, converted into natural logs. To alleviate concerns about autocorrelation, we limit the sample to individuals at 5-year spans between ages 25 and 65 and cluster the standard errors (in parenthesis) at the individual level. We report the raw logistic coefficients. *Age of First CEO App. (Cohort-Adj.)* is the age at which an individual was appointed to his/her first CEO position minus the median age at which all individuals in the same birth-cohort were appointed to their first CEO position (cohort is defined based on the calendar decade in which the individual was born). Definitions for the other independent variables are found in the Appendix. Because Falato et al.'s (2015) measure requires an individual to have CEO experience, we limit the sample to individuals who have been a CEO and whose age is greater than the age at which they were first appointed as CEO. *** indicates significance at the 1% level, ** indicates significance at the 5% level, and * indicates significance at the 10% level.

	Number of business awards next 5 years
Age of First CEO App.(Cohort-Adj.)	-0.000 (0.000)
Founder Exp.	0.000** (0.000)
Professional Exp.	0.000* (0.000)
Tenure	0.001 (0.001)
Female	0.043*** (0.009)
American	0.003* (0.002)
Ivy	0.004 (0.002)
MBA	0.001 (0.002)
Master	0.004* (0.002)
PhD	-0.000 (0.003)
MD	0.011*** (0.004)
Top25	-0.004** (0.002)
<i>N</i>	18,176
<i>R</i> ²	0.025
Age FE	Yes
Rank FE	Yes
Decade FE	Yes

Table A.7
Managerial Talent, Pay and Board Service

This table examines the contemporaneous relationship between managerial talent and in-sample career success. We augment our specification of Table IV in the paper with Falato et al.'s (2015) measure of CEO talent, defined as cohort-adjusted age of first CEO appointment. Because Falato et al.'s (2015) measure requires an individual to have CEO experience, we limit the sample to individuals who have been a CEO and whose age is greater than the age at which they were first appointed as CEO. In Columns 1–3, we show results from estimating a linear regression in which the dependent variable is the natural logarithm of total executive pay. In Column 3, we limit the sample to the first full year after the individual's first CEO appointment, to more closely approximate the tests in Falato et al. (2015). In Column 4, we estimate a linear regression in which the dependent variable is the natural logarithm of total pay derived from service on outside boards (i.e., service as a non-executive director). In Column 5, we estimate a logistic regression where the dependent variable is a binary indicator that is equal to one if the executive serves on more than one board of directors. In Column 6, we estimate a similar logistic regression where the dependent variable is an indicator for service on the board of an S&P 500 firm; these board positions are more prestigious. We report the raw logistic coefficients in Columns 5 and 6. All specifications include year and rank-level (i.e. job title) fixed effects. Specification 2 also includes firm fixed effects. Standard errors, clustered by individual, are in parentheses. *Age of First CEO App. (Cohort-Adj.)* is the age at which an individual was appointed to their first CEO position minus the median age at which all individuals in the same birth-cohort were appointed to their first CEO position (cohort is defined based on the calendar decade in which the individual was born). Definitions for the other independent variables are found in the Appendix. *** indicates significance at the 1% level, ** indicates significance at the 5% level, and * indicates significance at the 10% level.

	(1)	(2)	(3)	(4)	(5)	(6)
	log(Executive pay)	log(Executive pay)	log(Non-executive pay)	log(NED pay)	Multiple boards	S&P boards
Age of First CEO App.(Cohort-Adj.)	0.002 (0.004)	-0.005 (0.004)	-0.065** (0.028)	-0.001 (0.002)	-0.010*** (0.002)	-0.001 (0.003)
Founder Talent	-0.016*** (0.005)	-0.014*** (0.004)	-0.029* (0.017)	-0.004** (0.002)	-0.007*** (0.002)	- 0.026*** (0.003)
Professional Talent	0.001 (0.005)	-0.004 (0.005)	0.004 (0.011)	0.005*** (0.002)	0.014*** (0.002)	0.026*** (0.003)
Tenure	0.036 (0.023)	-0.054** (0.025)	0.057 (0.040)	0.037*** (0.012)	0.104*** (0.011)	0.190*** (0.020)
Female	-0.059 (0.148)	-0.165** (0.075)	-0.175 (0.181)	0.172*** (0.039)	0.408*** (0.049)	1.012*** (0.078)
American	0.360*** (0.052)	0.152*** (0.052)	0.275*** (0.088)	0.135*** (0.026)	0.246*** (0.024)	1.234*** (0.045)
Ivy	0.070 (0.072)	0.149*** (0.055)	-0.080 (0.121)	0.044 (0.035)	0.164*** (0.038)	0.121* (0.062)
MBA	0.153*** (0.051)	0.013 (0.047)	0.073 (0.081)	0.055** (0.026)	0.101*** (0.026)	0.256*** (0.047)
Master	-0.037 (0.060)	-0.086 (0.061)	0.144 (0.109)	0.082*** (0.028)	-0.014 (0.029)	0.154*** (0.053)
PhD	-0.127 (0.106)	0.070 (0.085)	-0.151 (0.153)	0.074* (0.042)	-0.118*** (0.045)	-0.065 (0.082)
MD	0.087 (0.069)	-0.001 (0.071)	-0.123 (0.140)	0.052 (0.038)	0.056 (0.038)	0.083 (0.065)
Top25	0.094 (0.065)	-0.052 (0.053)	0.224** (0.110)	0.008 (0.032)	0.042 (0.033)	0.280*** (0.058)
Age	0.008** (0.004)	0.000 (0.003)	0.031* (0.016)	0.018*** (0.002)	0.043*** (0.002)	0.067*** (0.003)
<i>N</i>	9,548	9,267	827	27,656	197,383	197,341
adj. <i>R</i> ²	0.309	0.670	0.348	0.167	N/A	N/A
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	No	No	No

Table A.8
Replicating Main Results Using Falato et al.'s Talent Measure

This table reestimates the results from Table VII and IX in the paper using Falato et al.'s (2015) talent measure. The dependent variable is the talent of a newly appointed chief executive officer, measured as the cohort-adjusted age at first CEO hire. We examine the talent of a newly hired CEO in year t as a function of firm characteristics in year $t-1$. The main independent variables of interest are an indicator variable that is equal to one if there is at least one non-CEO inside director on the board, the number of non-CEO EDs on the board, and the proportion of the board made up of non-CEO EDs. Panel A reports the results for the entire sample of CEO hires, while Panel B splits the sample into inside vs. outside hires. Standard errors, clustered by firm, are in parenthesis. Definitions for the independent variables are found in the Appendix. *** indicates significance at the 1% level, ** indicates significance at the 5% level, and * indicates significance at the 10% level.

Panel A: All Hires

	(1)	(2)	(3)	(4)	(5)	(6)
	All	All	All	All	All	All
Dummy(non-CEO ED>0)	-0.326 (0.214)	-1.063** (0.505)				
Number of non-CEO ED			-0.142 (0.125)	-0.255 (0.336)		
Prop. of all ED					-1.583 (1.002)	-4.113 (2.636)
Log(Market Cap)	-0.000 (0.069)	0.337 (0.289)	0.002 (0.069)	0.345 (0.292)	0.001 (0.069)	0.343 (0.291)
Log(Firm Age)	0.576** (0.154)	0.438 (1.221)	0.576** (0.154)	0.438 (1.221)	0.577** (0.154)	0.296 (1.227)
M/B	0.083* (0.050)	-0.053 (0.139)	0.081 (0.050)	-0.063 (0.137)	0.088* (0.051)	-0.061 (0.138)
EBITDA/Sales	0.142 (0.441)	0.249 (1.321)	0.131 (0.440)	0.190 (1.318)	0.112 (0.440)	0.239 (1.316)
R&D/Sales	0.829 (0.727)	-0.889 (2.192)	0.796 (0.725)	-0.977 (2.136)	0.748 (0.726)	-1.009 (2.161)
Positive R&D (dummy=1)	-0.200 (0.342)	1.361 (1.499)	-0.199 (0.342)	1.402 (1.490)	-0.210 (0.342)	1.433 (1.509)
Log(Board Size)	1.286** (0.418)	1.922* (1.132)	1.285** (0.421)	1.677 (1.120)	0.925** (0.428)	0.905 (1.157)
PP&E	2.293** (0.708)	1.377 (3.028)	2.307** (0.709)	1.503 (3.020)	2.295** (0.707)	1.385 (3.023)
Leverage	-0.497 (0.517)	-3.241* (1.757)	-0.494 (0.517)	-3.291* (1.773)	-0.485 (0.517)	-3.310* (1.770)
Dividend Payer (dummy=1)	0.532** (0.264)	0.104 (0.820)	0.525** (0.264)	0.012 (0.823)	0.536** (0.264)	0.033 (0.821)
<i>N</i>	3,703	1,636	3,703	1,636	3,703	1,636
adj. R^2	0.108	0.172	0.108	0.169	0.109	0.170
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
FF48 FE	Yes	No	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes	No	Yes

Panel B: Inside vs. Outside Hires

	(1)	(2)	(3)	(4)	(5)	(6)
	Inside Hires	Outside Hires	Inside Hires	Outside Hires	Inside Hires	Outside Hires
Dummy(non-CEO ED>0)	0.088 (0.267)	-1.533*** (0.359)				
Number of non-CEO ED			0.150 (0.152)	-1.010*** (0.242)		
Prop. of all ED					0.550 (1.271)	-6.349*** (1.673)
Log(Market Cap)	-0.025 (0.088)	-0.029 (0.107)	-0.018 (0.088)	-0.026 (0.107)	-0.024 (0.088)	-0.017 (0.107)
Log(Firm Age)	0.692*** (0.207)	0.186 (0.227)	0.697*** (0.207)	0.187 (0.226)	0.693*** (0.206)	0.205 (0.227)
M/B	0.050 (0.072)	0.097 (0.071)	0.044 (0.071)	0.103 (0.071)	0.047 (0.072)	0.115 (0.071)
EBITDA/Sales	-0.582 (0.658)	-0.167 (0.623)	-0.585 (0.660)	-0.156 (0.620)	-0.575 (0.659)	-0.261 (0.624)
R&D/Sales	-0.470 (1.115)	1.122 (1.007)	-0.427 (1.114)	0.964 (1.005)	-0.448 (1.115)	0.771 (1.009)
Positive R&D (dummy=1)	0.087 (0.457)	-0.179 (0.533)	0.092 (0.458)	-0.261 (0.533)	0.088 (0.458)	-0.261 (0.537)
Log(Board Size)	0.671 (0.569)	1.872*** (0.593)	0.548 (0.580)	2.042*** (0.590)	0.776 (0.565)	0.256 (0.651)
PP&E	1.285 (0.832)	2.652** (1.143)	1.281 (0.832)	2.714** (1.138)	1.280 (0.832)	2.584** (1.134)
Leverage	-0.704 (0.710)	0.101 (0.749)	-0.669 (0.711)	0.077 (0.747)	-0.698 (0.710)	0.227 (0.750)
Dividend Payer (dummy=1)	0.384 (0.334)	0.380 (0.439)	0.376 (0.333)	0.297 (0.439)	0.381 (0.334)	0.374 (0.440)
<i>N</i>	2,113	1,588	2,113	1,588	2,113	1,588
adj. <i>R</i> ²	0.098	0.105	0.099	0.107	0.099	0.104
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
FF48 FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A.9
Announcement Returns for Inside vs. Outside Hires

This table presents univariate analysis of cumulative abnormal stock returns for inside versus outside CEO hires, and various lengths of time gaps between the announcement and the effective dates of the new CEO appointments. See Internet Appendix Section A2 for the description of sample construction.

Panel A: Market-Adjusted Returns								
Hire Type	Time gap ≤ 60 days				Time gap > 60 days			
	N	Mean	Std. Err.	<i>t</i> -stat	N	Mean	Std. Err.	<i>t</i> -stat
Outside	800	1.32%	0.37%	3.51	92	0.72%	0.95%	0.76
Inside	733	-0.04%	0.32%	-0.13	316	-0.41%	0.28%	-1.45

Panel B: Market Model								
Hire Type	Time gap ≤ 60 days				Time gap > 60 days			
	N	Mean	Std. Err.	<i>t</i> -stat	N	Mean	Std. Err.	<i>t</i> -stat
Outside	800	1.00%	0.37%	2.67	92	0.62%	0.95%	0.66
Inside	733	-0.22%	0.32%	-0.67	316	-0.25%	0.29%	-0.86

Table A.10
CEO Hires Over Time

This table shows the number of CEO hires in our sample each year from 2001–2012. We also show the fraction of firms in our sample that hired a new CEO each year. We present the total number of CEO hires, as well as the subsample of hires by S&P1500 firms and hires by non-S&P500 firms.

Year	Total		S&P1500		non-S&P1500	
	Number of hires	% of firms	Number of hires	% of firms	Number of hires	% of firms
2001	284	5.4%	114	8.6%	170	4.3%
2002	304	5.5%	112	8.2%	192	4.6%
2003	289	4.9%	122	8.8%	167	3.7%
2004	371	6.1%	130	9.1%	241	5.1%
2005	417	6.6%	152	10.6%	265	5.5%
2006	447	7.1%	132	9.2%	315	6.5%
2007	387	6.3%	117	8.0%	270	5.7%
2008	403	6.8%	118	8.0%	285	6.4%
2009	378	6.6%	112	7.6%	266	6.3%
2010	310	5.5%	95	6.4%	215	5.2%
2011	307	5.6%	111	7.5%	196	4.8%
2012	277	5.0%	102	6.9%	175	4.4%
Total	4,174	5.99%	1,417	8.23%	2,757	5.25%

Table A.11
Main Results Using Size-Unadjusted Talent Measure

This table reestimates the results from Table VII and IX in the paper. The dependent variable is the managerial talent of a newly appointed CEO, unadjusted for the size of firm. We examine the talent of a newly hired CEO in year t as a function of firm characteristics in year $t-1$. The main independent variables of interest are (i) an indicator variable that is equal to one if there is at least one non-CEO inside director on the board; (ii) the number of non-CEO EDs on the board; and (iii) the proportion of the board made up of non-CEO EDs. Panel A reports the results for the entire sample of CEO hires, while Panel B splits the sample into inside vs. outside hires. Standard errors, clustered by firm, are in parentheses. Definitions for the independent variables are found in the Appendix. *** indicates significance at the 1% level, ** indicates significance at the 5% level, and * indicates significance at the 10% level.

Panel A: All Hires

	(1) All	(2) All	(3) All	(4) All	(5) All	(6) All
Dummy(non-CEO ED>0)	4.181*** (0.643)	4.515*** (1.581)				
Number of non-CEO ED			1.653*** (0.448)	1.156 (1.250)		
Prop. of all ED					16.283*** (3.208)	22.345*** (8.552)
Log(Market Cap)	-0.493** (0.207)	-0.277 (0.886)	-0.521** (0.208)	-0.311 (0.893)	-0.528** (0.208)	-0.294 (0.889)
Log(Firm Age)	-0.081 (0.485)	4.015 (3.291)	-0.089 (0.486)	4.030 (3.252)	-0.104 (0.486)	4.860 (3.293)
M/B	-0.277* (0.149)	0.125 (0.431)	-0.245 (0.150)	0.163 (0.421)	-0.309** (0.152)	0.148 (0.427)
EBITDA/Sales	0.227 (1.479)	-7.679** (3.874)	0.362 (1.483)	-7.449* (3.940)	0.572 (1.480)	-7.775** (3.870)
R&D/Sales	-4.065* (2.357)	-5.855 (9.682)	-3.675 (2.355)	-5.498 (9.459)	-3.206 (2.358)	-5.388 (9.570)
Positive R&D (dummy=1)	-1.706* (1.029)	-6.134 (4.397)	-1.742* (1.042)	-6.295 (4.397)	-1.652 (1.040)	-6.432 (4.433)
Log(Board Size)	-4.475*** (1.225)	-2.492 (4.176)	-4.308*** (1.211)	-1.538 (3.727)	-0.436 (1.300)	2.356 (4.298)
PP&E	-3.537 (2.242)	2.963 (10.175)	-3.717* (2.258)	2.445 (10.128)	-3.582 (2.242)	3.113 (10.134)
Leverage	2.439 (1.534)	8.740 (5.356)	2.348 (1.539)	8.958* (5.401)	2.208 (1.543)	9.083* (5.357)
Dividend Payer (dummy=1)	-1.069 (0.792)	1.693 (2.449)	-0.965 (0.794)	2.084 (2.428)	-1.066 (0.794)	1.965 (2.438)
<i>N</i>	3708	1638	3708	1638	3708	1638
adj. R^2	0.040	0.087	0.034	0.080	0.037	0.086
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
FF48 FE	Yes	No	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes	No	Yes

Inside vs. Outside Hires

	(1)	(2)	(3)	(4)	(5)	(6)
	Inside Hires	Outside Hires	Inside Hires	Outside Hires	Inside Hires	Outside Hires
Dummy(non-CEO ED>0)	3.494*** (0.805)	5.269*** (1.158)				
Number of non-CEO ED			0.953* (0.562)	2.996*** (0.784)		
Prop. of all ED					12.604*** (4.156)	22.320*** (5.349)
Log(Market Cap)	-0.810*** (0.264)	-0.021 (0.335)	-0.864*** (0.266)	-0.042 (0.335)	-0.847*** (0.265)	-0.057 (0.334)
Log(Firm Age)	0.397 (0.671)	-0.552 (0.701)	0.400 (0.676)	-0.584 (0.701)	0.404 (0.675)	-0.614 (0.701)
M/B	-0.198 (0.231)	-0.363* (0.201)	-0.141 (0.232)	-0.371* (0.202)	-0.206 (0.234)	-0.428** (0.203)
EBITDA/Sales	2.755 (2.133)	-1.100 (2.105)	3.029 (2.171)	-1.154 (2.097)	3.063 (2.153)	-0.776 (2.101)
R&D/Sales	0.720 (3.497)	-7.258** (3.258)	1.018 (3.517)	-6.793** (3.252)	1.234 (3.500)	-6.030* (3.268)
Positive R&D (dummy=1)	-3.397** (1.392)	-0.295 (1.613)	-3.534** (1.411)	-0.071 (1.621)	-3.461** (1.405)	-0.003 (1.636)
Log(Board Size)	-2.618 (1.700)	-6.474*** (1.725)	-2.153 (1.702)	-6.741*** (1.733)	0.395 (1.812)	-0.831 (1.831)
PP&E	-1.322 (2.677)	-4.173 (3.788)	-1.563 (2.697)	-4.393 (3.784)	-1.553 (2.690)	-3.928 (3.757)
Leverage	4.200** (2.062)	0.575 (2.321)	4.124** (2.065)	0.581 (2.325)	4.181** (2.081)	0.141 (2.332)
Dividend Payer (dummy=1)	-1.090 (0.995)	-0.878 (1.317)	-1.009 (1.001)	-0.620 (1.317)	-1.079 (1.000)	-0.862 (1.321)
<i>N</i>	2116	1590	2116	1590	2116	1590
adj. <i>R</i> ²	0.040	0.039	0.034	0.037	0.036	0.038
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
FF48 FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A.12
SOX Sample: Performance of Compliant versus Non-Complaint Firms

This table presents univariate analysis of firm characteristics for firms that were compliant with audit committee requirements as of year 2000, and those that were not. See the paper's Appendix for the definition of variables and Section 4.2 for the description of sample construction.

Variable	Compliant	Non-Compliant	Difference	<i>t</i> -stat
Managerial talent (t=2000)	23.43	32.36	-8.93	-3.26
Log(Mcap) (t=2000)	7.68	8.06	-0.38	-1.57
M/B (t=2000)	2.29	2.11	0.18	0.58
EBITDA (t=2000)	0.18	0.21	-0.03	-1.46
Log(Mean annual return) (1996-2000)	0.20	0.22	-0.02	-0.80
Change in Log(Mcap) (2005 vs. 2000)	0.41	0.37	0.04	0.37
Change in M/B (2005 vs. 2000)	-0.46	-0.43	-0.03	-0.14
Change in EBITDA (2005 vs. 2000)	-0.003	-0.005	0.002	0.21
Log(Mean annual return) (2001-2005)	0.13	0.10	0.03	1.36

Table A.13
SOX Experiment, Controlling for Stock Returns

This table presents the results of a two-stage least squares regression of the change in insider influence on the change in managerial talent. The sample is limited to firms that (i) appear in the IRRC database in years 2000 and 2005; and (ii) hire a new CEO in the 3 years following the SOX-induced board changes (2006–2008). In the first stage, we use a dummy variable for firms that did not have a 100% independent audit committee in 2000 (*noncompliance*) as an instrument for changes in insider influence (Columns 1, 3, and 5). Change in insider influence is measured as the firm-level change in one minus board independence from 2000 to 2005 (pre- to post-SOX). The dependent variable is the difference between CEO talent in years 2008 and 2000. Columns 2, 4, and 6 show the results of the second stage. Firm-level controls in Columns 1 and 2 are measured in levels as of 2000, while in Columns 3-6 they are measured in changes from 2000 to 2005. Heteroscedasticity robust standard errors are in parentheses. *** indicates significance at the 1% level, ** indicates significance at the 5% level, and * indicates significance at the 10% level.

	(1)	(2)	(3)	(4)	(5)	(6)
	IV stage I	IV stage II	IV stage I	IV stage II	IV stage I	IV stage II
Noncompliance (dummy=1)	-0.127*** (0.023)		-0.139*** (0.023)		-0.130*** (0.023)	
Δ Insider Influence		83.817*** (28.763)		80.785*** (24.708)		86.977*** (26.877)
Log(Market Cap)	0.007 (0.010)	-0.713 (1.895)	-0.008 (0.024)	7.205* (4.070)	-0.005 (0.022)	7.013 (4.290)
Log(Board Size)	0.049 (0.046)	15.724** (7.989)	-0.139** (0.057)	-20.960** (9.694)	-0.129** (0.058)	-20.580** (9.904)
Leverage	0.061 (0.070)	1.767 (11.490)	-0.057 (0.089)	6.003 (15.489)	-0.065 (0.089)	4.343 (16.225)
Log(Firm Age)	-0.063*** (0.023)	-5.940 (4.007)	0.177** (0.081)	21.656* (12.864)	0.162* (0.087)	15.484 (13.642)
Positive R&D (dummy=1)	-0.050 (0.037)	-2.877 (6.624)	0.012 (0.043)	-14.661** (7.384)	-0.001 (0.051)	-14.706* (8.450)
R&D/Sales	-0.124 (0.146)	-14.218 (28.424)	0.410*** (0.115)	37.031 (28.548)	0.355*** (0.130)	43.987* (24.633)
Dividend Payer (dummy=1)	0.013 (0.031)	-3.528 (5.455)	0.026 (0.038)	1.338 (6.544)	0.024 (0.040)	1.305 (6.623)
M/B	-0.004 (0.006)	0.774 (1.185)	0.005 (0.007)	-2.216 (1.374)	0.002 (0.008)	-2.220 (1.361)
EBITDA/Sales	0.039 (0.102)	2.557 (16.025)	0.250** (0.115)	13.464 (20.332)	0.236* (0.122)	12.536 (20.165)
PP&E	-0.111* (0.066)	-12.271 (12.683)	0.256** (0.124)	39.902** (18.979)	0.241* (0.127)	36.704* (20.080)
Log(Ret. 1996-2000)	-0.063 (0.063)	-9.701 (10.837)	0.065 (0.094)	-4.233 (15.056)	0.053 (0.071)	-0.612 (16.371)
Log(Ret. 2001-2005)			0.065 (0.094)	-4.233 (15.056)	0.053 (0.071)	-0.612 (16.371)
Δ %Female Board					0.258** (0.111)	27.182 (20.752)
Δ Board Tenure					-0.004 (0.005)	0.470 (0.664)
Δ Board Age					0.004 (0.003)	0.456 (0.616)
Δ Log(Board Firm Num)					0.061 (0.051)	1.796 (8.393)
<i>N</i>	223	223	220	220	220	220
adj. <i>R</i> ²	0.198	--	0.226	--	0.249	--
FF48 FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A.15
SOX Experiment Excluding “Old” CEOs Appointed Before Year-2000 Board Members

This table reestimates the SOX experiment presented in Table VIII of the paper after excluding cases in which the CEO’s tenure exceeds the average ED tenure as of 2000. The table presents both first and second stage estimates. Insider influence is defined as one minus board independence, and is measured as the firm-level change pre- to post-SOX (2000 versus 2005). The sample is limited to firms that hire a new CEO during the 2006–2008 period, and the dependent variable is the change in CEO managerial talent from the old CEO as of 2000 to this new CEO hire. Firm-level controls in Columns 1 and 2 are measured in levels as of 2000, while in Columns 3–6 they are measured in changes from 2000 to 2005. Heteroscedasticity robust standard errors are in parentheses. *** indicates significance at the 1% level, ** indicates significance at the 5% level, and * indicates significance at the 10% level.

	(1) IV stage I	(2) IV stage II	(3) IV stage I	(4) IV stage II	(5) IV stage I	(6) IV stage II
Noncompliance (dummy=1)	-0.132*** (0.041)		-0.134*** (0.039)		-0.123*** (0.037)	
Δ Insider Influence (instr.)		91.474** (45.694)		79.869** (39.125)		109.090*** (41.083)
Log(Market Cap)	0.010 (0.022)	-5.062 (3.261)	-0.005 (0.036)	5.654 (6.097)	-0.003 (0.040)	5.917 (6.811)
Log(Board Size)	0.046 (0.090)	32.550** (15.297)	-0.25*** (0.092)	-51.311*** (18.875)	-0.241** (0.093)	-54.120*** (19.569)
Leverage	0.138 (0.154)	23.795 (21.107)	-0.095 (0.170)	-17.541 (24.061)	-0.071 (0.165)	-24.741 (25.670)
Log(Firm Age)	-0.026 (0.039)	-4.215 (5.979)	-0.001 (0.121)	17.387 (18.601)	-0.023 (0.153)	12.926 (24.199)
Positive R&D (dummy=1)	0.067 (0.067)	2.365 (8.656)	-0.056 (0.054)	-17.184** (6.892)	-0.064 (0.055)	-21.326** (9.253)
R&D/Sales	-0.340 (0.415)	20.201 (67.958)	1.511*** (0.543)	206.156** (83.005)	1.420** (0.560)	243.249** (98.321)
Dividend Payer (dummy=1)	0.016 (0.057)	-2.984 (9.301)	0.132* (0.067)	26.909** (12.863)	0.151** (0.063)	34.145*** (12.125)
M/B	0.002 (0.014)	1.663 (2.011)	-0.005 (0.013)	-2.498 (2.028)	-0.007 (0.013)	-2.883 (2.122)
EBITDA/Sales	-0.129 (0.231)	20.735 (40.268)	0.623** (0.271)	100.577** (50.412)	0.454 (0.287)	89.537 (55.075)
PP&E	-0.087 (0.114)	-11.178 (20.775)	0.337* (0.176)	52.920* (31.718)	0.371** (0.176)	65.658** (30.517)
Δ %Female Board					0.487*** (0.171)	81.961** (32.305)
Δ Board Tenure					-0.010 (0.008)	-0.642 (1.288)
Δ Board Age					0.002 (0.005)	-0.562 (0.781)
Δ Log(Board Firm Num)					-0.014 (0.079)	23.329* (12.349)
<i>N</i>	101	101	100	100	100	100
adj. <i>R</i> ²	0.065	–	0.289	–	0.347	–
FF48 FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A.16
Main Results Excluding Forced CEO Turnover Based on Peters and Wagner (2014)

This table reestimates the results from Table VII and IX in the paper after excluding cases of forced CEO turnover as defined by Peters and Wagner (2014). The dependent variable is the managerial talent of a newly appointed CEO. We examine the talent of a newly hired CEO in year t as a function of firm characteristics in year $t-1$. The main independent variables of interest are an indicator variable that is equal to one if there is at least one non-CEO inside director on the board, the number of non-CEO EDs on the board, and the proportion of the board made up of non-CEO EDs. Panel A reports the results for the entire sample of CEO hires, while Panel B splits the sample into inside vs. outside hires. Standard errors, clustered by firm, are in parentheses. Definitions for the independent variables are found in the Appendix. *** indicates significance at the 1% level, ** indicates significance at the 5% level, and * indicates significance at the 10% level.

Panel A: All Hires

	(1)	(2)	(3)	(4)	(5)	(6)
	All	All	All	All	All	All
Dummy(non-CEO ED>0)	3.693*** (0.555)	4.706*** (1.542)				
Number of non-CEO ED			1.347*** (0.403)	0.802 (1.219)		
Prop. of all ED					12.769*** (2.692)	20.596*** (7.474)
Log(Market Cap)	0.432** (0.179)	-0.135 (0.869)	0.398** (0.180)	-0.155 (0.874)	0.391** (0.179)	-0.152 (0.872)
Log(Firm Age)	0.399 (0.421)	5.594* (3.057)	0.399 (0.422)	5.619* (3.018)	0.382 (0.423)	6.428** (3.066)
M/B	-0.275** (0.119)	0.385 (0.388)	-0.244** (0.119)	0.431 (0.376)	-0.290** (0.121)	0.423 (0.383)
EBITDA/Sales	0.230 (1.284)	-8.359** (3.905)	0.337 (1.289)	-8.045** (4.043)	0.533 (1.285)	-8.456** (3.934)
R&D/Sales	-2.397 (2.025)	-7.243 (8.535)	-2.094 (2.019)	-6.791 (8.296)	-1.711 (2.025)	-6.841 (8.377)
Positive R&D (dummy=1)	-1.945** (0.905)	-2.690 (3.014)	-1.978** (0.915)	-2.868 (2.877)	-1.921** (0.914)	-3.054 (2.916)
Log(Board Size)	-3.746*** (1.052)	-4.886 (3.844)	-3.495*** (1.027)	-3.420 (3.334)	-0.359 (1.131)	0.228 (4.131)
PP&E	-3.317* (1.893)	3.671 (9.660)	-3.494* (1.911)	2.719 (9.670)	-3.386* (1.898)	3.289 (9.629)
Leverage	3.622*** (1.334)	6.725 (5.054)	3.536*** (1.336)	6.821 (5.123)	3.394** (1.341)	6.817 (5.060)
Dividend Payer (dummy=1)	-0.870 (0.699)	0.365 (2.788)	-0.762 (0.702)	0.751 (2.738)	-0.836 (0.702)	0.593 (2.759)
<i>N</i>	3,324	1,238	3,324	1,238	3,324	1,238
adj. R^2	0.034	0.068	0.026	0.055	0.029	0.064
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
FF48 FE	Yes	No	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes	No	Yes

Panel B: Inside vs. Outside Hires

	(1)	(2)	(3)	(4)	(5)	(6)
	Inside Hires	Outside Hires	Inside Hires	Outside Hires	Inside Hires	Outside Hires
Dummy(non-CEO ED>0)	3.464*** (0.711)	3.588*** (0.961)				
Number of non-CEO ED			0.889* (0.528)	1.873*** (0.611)		
Prop. of all ED					10.840*** (3.620)	14.293*** (4.232)
Log(Market Cap)	0.419* (0.234)	0.335 (0.288)	0.356 (0.236)	0.308 (0.289)	0.367 (0.236)	0.302 (0.287)
Log(Firm Age)	1.143** (0.580)	-0.483 (0.615)	1.153** (0.587)	-0.509 (0.617)	1.150** (0.586)	-0.528 (0.617)
M/B	-0.272 (0.192)	-0.304* (0.158)	-0.217 (0.193)	-0.304* (0.159)	-0.269 (0.195)	-0.339** (0.159)
EBITDA/Sales	2.899 (1.904)	-1.049 (1.844)	3.129 (1.940)	-1.071 (1.842)	3.194* (1.920)	-0.811 (1.846)
R&D/Sales	1.814 (3.034)	-5.206* (2.803)	1.987 (3.052)	-4.888* (2.801)	2.192 (3.040)	-4.381 (2.820)
Positive R&D (dummy=1)	-3.419*** (1.255)	-0.540 (1.377)	-3.521*** (1.268)	-0.390 (1.384)	-3.488*** (1.265)	-0.336 (1.396)
Log(Board Size)	-2.942** (1.500)	-4.518*** (1.431)	-2.400 (1.488)	-4.613*** (1.434)	-0.115 (1.603)	-0.768 (1.533)
PP&E	-0.399 (2.253)	-5.823* (3.157)	-0.597 (2.278)	-6.006* (3.163)	-0.617 (2.276)	-5.690* (3.132)
Leverage	6.119*** (1.847)	0.951 (1.958)	6.040*** (1.852)	0.941 (1.957)	6.045*** (1.864)	0.661 (1.969)
Dividend Payer (dummy=1)	-1.524* (0.881)	0.014 (1.140)	-1.425 (0.890)	0.179 (1.143)	-1.485* (0.889)	0.037 (1.145)
<i>N</i>	1,919	1,403	1,919	1,403	1,919	1,403
adj. <i>R</i> ²	0.042	0.032	0.033	0.028	0.036	0.030
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
FF48 FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A.17
Main Results Excluding ED-Connected Hires

This table reestimates the results from Table IX in the paper after excluding cases of where the new CEO shared a prior connection (i.e., worked at the same firm in the past) with one or more non-CEO inside directors. The dependent variable is the managerial talent of a newly appointed CEO. We examine the talent of a newly hired CEO in year t as a function of firm characteristics in year $t-1$. The main independent variables of interest are an indicator variable that is equal to one if there is at least one non-CEO inside director on the board, the number of non-CEO EDs on the board, and the proportion of the board made up of non-CEO EDs. We split the sample into inside vs. outside hires. Standard errors, clustered by firm, are in parentheses. Definitions for the independent variables are found in the Appendix. *** indicates significance at the 1% level, ** indicates significance at the 5% level, and * indicates significance at the 10% level.

	(1)	(2)	(3)	(4)	(5)	(6)
	Inside	Outside	Inside	Outside	Inside	Outside
	Hires	Hires	Hires	Hires	Hires	Hires
Dummy(non-CEO ED>0)	3.011*** (0.707)	4.131*** (0.974)				
Number of non-CEO ED			1.510*** (0.408)	2.699*** (0.676)		
Prop. of all ED					13.178*** (3.143)	18.829*** (4.496)
Log(Market Cap)	0.613*** (0.236)	0.733** (0.288)	0.611*** (0.236)	0.734** (0.287)	0.593** (0.237)	0.710** (0.286)
Log(Firm Age)	1.161** (0.576)	-0.594 (0.587)	1.166** (0.578)	-0.595 (0.587)	1.154** (0.578)	-0.624 (0.588)
M/B	-0.307 (0.194)	-0.266* (0.157)	-0.295 (0.192)	-0.274* (0.157)	-0.337* (0.195)	-0.318** (0.158)
EBITDA/Sales	1.678 (1.867)	-0.435 (1.768)	1.756 (1.873)	-0.495 (1.764)	1.890 (1.863)	-0.153 (1.767)
R&D/Sales	-0.743 (2.994)	-5.393** (2.714)	-0.513 (3.002)	-5.049* (2.710)	-0.342 (2.983)	-4.399 (2.720)
Positive R&D (dummy=1)	-2.570** (1.230)	-0.460 (1.306)	-2.552** (1.235)	-0.274 (1.315)	-2.548** (1.233)	-0.215 (1.325)
Log(Board Size)	-2.155 (1.459)	-5.289*** (1.397)	-2.273 (1.481)	-5.620*** (1.402)	0.840 (1.514)	-0.577 (1.514)
PP&E	-1.607 (2.353)	-2.638 (3.061)	-1.868 (2.371)	-2.811 (3.046)	-1.820 (2.365)	-2.388 (3.027)
Leverage	6.113*** (1.768)	0.611 (1.926)	6.216*** (1.777)	0.607 (1.922)	6.135*** (1.785)	0.222 (1.927)
Dividend Payer (dummy=1)	-1.069 (0.887)	-0.729 (1.128)	-1.038 (0.890)	-0.471 (1.123)	-1.065 (0.891)	-0.720 (1.127)
<i>N</i>	1,971	1,531	1,971	1,531	1,971	1,531
adj. <i>R</i> ²	0.039	0.032	0.036	0.032	0.037	0.033
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
FF48 FE	Yes	Yes	Yes	Yes	Yes	Yes

Table A.19
CEO Managerial Talent and Director Departures

This table estimates the fraction of directors that leave the board in the first full calendar year following a new CEO hire as a function of the managerial talent of a newly appointed chief executive officer. To calculate turnover, we first identify all the directors that were present in the firm one year prior to the new CEO appointment. We then flag all the directors within ED/NED group that leave the firm in the same the calendar year as the year of the new CEO appointment (for those cases, we further limit the departures to cases where the end date of the director service with the firm is later that the date of the new CEO appointment), or in the following calendar year. Finally, we calculate %ED [%NED] departure by dividing the number of ED [NED] directors that left by the total number of ED [NED] directors on board one year prior to the CEO announcement. To avoid possible truncation bias, we drop CEO appointments in 2012. We also exclude firms with no ED on board one year prior to the new CEO appointment. Columns 1–2 examine the fraction of EDs that depart the firm, while Columns 3–4 examine the percentage of NEDs that leave. Standard errors, clustered by firm, are in parentheses. Definitions for the independent variables are found in the Appendix. *** indicates significance at the 1% level, ** indicates significance at the 5% level, and * indicates significance at the 10% level.

	%ED departure		%NED departure	
	(1)	(2)	(3)	(4)
	All Hires	Outside Hires	All Hires	Outside Hires
CEO Managerial Talent	-0.002*** (0.000)	-0.003*** (0.001)	-0.001*** (0.000)	-0.002*** (0.001)
Log(Market Cap)	-0.000 (0.005)	0.014 (0.012)	0.003 (0.005)	-0.003 (0.009)
Log(Firm Age)	-0.009 (0.013)	0.025 (0.029)	0.004 (0.011)	0.026 (0.020)
M/B	-0.000 (0.004)	0.005 (0.008)	-0.006* (0.004)	-0.004 (0.005)
EBITDA/Sales	-0.025 (0.041)	-0.045 (0.077)	-0.116*** (0.038)	-0.150** (0.060)
R&D/Sales	-0.132** (0.065)	-0.202* (0.111)	-0.013 (0.059)	-0.046 (0.082)
Positive R&D (dummy=1)	0.032 (0.030)	-0.055 (0.063)	-0.001 (0.026)	-0.039 (0.045)
Log(Board Size)	0.084** (0.039)	0.032 (0.083)	-0.045 (0.035)	-0.053 (0.067)
PP&E	-0.040 (0.060)	0.022 (0.143)	-0.008 (0.054)	-0.176* (0.098)
Leverage	0.085* (0.047)	0.099 (0.100)	0.121*** (0.045)	0.238*** (0.074)
Dividend Payer (dummy=1)	-0.004 (0.023)	-0.004 (0.056)	-0.027 (0.018)	-0.036 (0.037)
Board Independence	-0.227*** (0.086)	0.208 (0.175)	0.143 (0.090)	0.312* (0.179)
<i>N</i>	1,697	577	1,688	572
adj. <i>R</i> ²	0.111	0.060	0.222	0.122
Year FE	Yes	Yes	Yes	Yes
FF48 FE	Yes	Yes	Yes	Yes