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# The Market for CEOs

Finance Working Paper N° 831/2022
Revised September 2026

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This paper can be downloaded without charge from:
https://doi.org/10.67929/ecgi-fin-831-2022

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ECGI Working Paper Series in Finance

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# Abstract

We study the market for CEOs of large publicly traded US firms, analyze new CEOs' prior connections to the hiring firm, and explore how hiring choices are determined. Firms hire CEOs they are already familiar with - their current or former executives, current or former board members, or managers its directors have worked with - more than 90% of the time. There are few reallocations of CEOs across firms. Firms raid CEOs of other firms for only 3.5% of hires, and the CEO raids that occur are typically from much smaller firms. These patterns are difficult to reconcile with perfectly competitive and frictionless assignment. They instead suggest that the CEO labor market is imperfectly competitive, and that firm-specific human capital, asymmetric information, or other frictions have first-order effects on the assignment of CEOs to firms.



**Keywords:** CEO labor markets; CEO-firm matching; assignment models; CEO turnover, CEO compensation



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**Abstract**

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We are grateful for comments and suggestions by Renée Adams (EFA discussant), Ashwini Agrawal, Ken Ahern, Pat Akey, Heski Bar-Isaac, Philip Bond, Claire Célérier, Ling Cen, Pierre Chaigneau, Claudia Custodio (GCGC discussant), Alex Edmans, Daniel Ferreira, Ricard Gil, Juanita Gonzalez-Uribe, Florian Englmaier, Guido Friebel, Maria Guadalupe (NBER SI discussant), Charles Hadlock (AFA discussant), Camille Hebert, Steve Kaplan, Ira Kay, Ambrus Kecskés, Christian Laux, Katharina Lewellen, Peter Limbach, Jonathan Mackey, Nadya Malenko (NFA discussant), Hamid Mehran, Phuong-Anh Nguyen, Martin Oehmke, Avri Ravid, Adriana Robertson, Harley Ryan (MFA discussant), Aloysius Siow, Léa Stern, Nicolas Sureda, Willem van Vliet, Scott Yonker (Cavalcade discussant), and Ján Zábojník, by seminar audiences at CUHK, Coventry, the Chicago Fed, Florida State, Georgia State, Heidrick & Struggles, Johns Hopkins, the Joint Finance Seminar (Bonn, Dortmund, Wuppertal, and WHU), LSE, McGill, McMaster, Oklahoma State, Queen's, SUNY Buffalo, Syracuse, Texas A&M, TCU, Alabama, Bristol, Delaware, Guelph, Massachusetts Amherst, New South Wales, and Toronto, and by participants at the Drexel Corporate Governance Conference (early ideas session) the UBC Summer Finance Conference (early ideas session), the Finance In The Cloud IV Conference, the NBER Corporate Finance Summer Institute, the EFA Annual Meeting, the NFA Annual Meeting, the 7th Empirical Management Conference, the AFA Annual Meeting, the MFA Annual Meeting, the Society of Labor Economists Annual Meeting, the SFS Cavalcade, and the Global Corporate Governance Colloquium. Thomas Aalbers, Nour Chehab Eddine, Yudi Chen, David Cimon, Will Courchene, Freda Fang, Jennifer Furman, Jason Ho, Sophia Hua, Soomin Lee, Megan Li, Jerry Qin, Neha Sarraf, Saarah Sheikh, Alison Taylor, Eric Wilson, and Kitty Wu provided able research assistance. Part of the work on this paper was completed while Peter Cziraki was visiting Cornell University. He thanks Cornell for their hospitality. Peter Cziraki acknowledges financial support from a Connaught New Researcher Award, the University of Toronto Excellence Award, and an SSHRC Insight Development Grant.

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CEOs have first-order effects on firms, which makes an efficient assignment of CEOs to firms important. The CEO labor market, however, has been studied much less than, for example, CEO pay. As a result, it remains unclear how efficient CEO hiring is, and what model(s) best describe the matching of CEOs to firms.

Labor economics has shown that asymmetric information, firm-specific human capital, and search frictions help explain the matching of rank-and-file workers to firms. Yet, models with these features have found little use in the CEO literature. Instead, influential studies have made the case that data on the CEO labor market, and especially the evidence on CEO pay, is consistent with perfectly competitive and frictionless assignment models (Tervio 2008; Gabaix and Landier 2008; Edmans, Gabaix, and Landier 2009).

In these models, CEO skills are observable and perfectly portable across firms, so all firms hire from the same talent pool, with no preference for insiders. With perfect competition, CEO pay is fully determined by CEOs' and firms' outside options, with no role for bargaining. These models can explain the sharp rise in CEO pay since the 1970s by assuming complementarity between CEO ability and firm scale, combined with increasing firm sizes (Gabaix, Landier, and Sauvagnat 2014).

In a separate literature, Murphy and Zabojnik (2004, 2007) and Frydman (2019) make the case that firms' managerial skill requirements have shifted from firm-specific to general skills, which improves managers' ability to switch firms and moves the CEO labor market closer to the competitive ideal. Combined with evidence that CEOs have been acquiring more transferrable skills, this offers another explanation for rising CEO pay (Custodio, Ferreira, and Matos 2013).

This paper examines actual CEO hiring patterns and compares them to the predictions of these (and other) theories. For all new CEOs in the S&P 500 from 1993 to 2021, we document whether they are insiders, their prior connections to the hiring firm, whether new CEOs were raided from other firms, and how hiring choices differ across firms. We focus on the largest publicly traded firms as they face the fewest frictions in the managerial labor market and, because of their range of activities, are likely to require CEOs with general skills.

Many of the statistics we focus on have appeared in prior studies, and our contributions are to replicate them in a consistent sample, complement them with new findings, and use them to assess theories of the CEO labor market. The last element is our main contribution, since no other paper has contrasted the full set of statistics we have assembled with the predictions of different models.

Our results show that most firms hire from a small pool of candidates, and that the vast majority of new CEOs have close links to the hiring firm. Seventy-three percent of new CEOs are promoted internally, and an additional 8.7% are former executives or current or former board members. Thus, 81.2% of CEO hires are insiders, and only 18.8% are new to the firm.[1] There are slightly fewer outsiders in later than in earlier years, so the previously documented trend to more outside hiring appears to have ended.

Using employment histories, we next show that a majority of the 18.8% outsiders are already known to the hiring firm's board. Fifty-four percent have previously worked with at least one of its directors, compared to only 14% of a matched sample of alternative candidates. Thus, more than 90% of new CEOs are from the hiring firm's current executives, former executives, board members, or co-workers of its directors.

This evidence is hard to reconcile with perfectly competitive models of the labor market in which skills are easily observable, CEOs are chosen for general skills, and CEOs can easily move across firms. In these models, there are infinitely many firms and executives, and each firm ranks all executives in the same order, with no reason to prefer insiders. The evidence suggests instead that most firms choose among insiders and those already known to its board, making each firm's effective candidate pool much smaller than the overall market.[2]

Our second set of results documents where firms find the 18.8% outsider hires. The most striking result is the rarity of CEO raids: only 3.5% of new CEOs are poached from the CEO position at another firm. Large firms rarely poach successful CEOs of smaller firms, and smaller firms almost never raid CEOs of larger firms. When firms poach CEOs, it is typically from firms that are two to three times smaller. Instead of raided CEOs, most outsider hires are below-CEO executives at other (typically much larger) firms (53%) or unattached, i.e., not currently in an executive position (33%).

The rarity of CEO raids suggests severe frictions in the reallocation of CEOs across firms. If CEO ability is gradually revealed over time (Hermalin and Weisbach 1998, 2017; Pan, Wang, and Weisbach 2015), firms that benefit more from CEO ability – e.g., large firms – should poach well-performing CEOs from firms that benefit less. In the opposite direction, small firms should

[1] Future CEOs are also not joining firms a few years before their promotion. The average pre-promotion tenure of insiders is almost 17 years, with a median of 16 years and a 25$^{th}$ percentile of 7 years.

[2] The idea of a unified CEO talent pool has previously been challenged by Cremers and Grinstein (2014) and Yonker (2017), who provide evidence of segmentation by industry and geography, respectively.

raid large-firm CEOs whose performance fell just short of those firms' retention thresholds. Reallocations should also occur after CEO retirements, and after technological and other shocks to firms' skill requirements. The lack of CEO raids reduces CEOs' career incentives, and it raises questions about how efficiently the labor market reallocates talent.

We next analyze how hiring choices differ across firms. Notably, larger firms are even more likely to choose insiders than smaller ones. A top-quintile S&P 500 firm by firm value has a 91% probability of hiring an insider, compared to 77% for a bottom-quintile firm. If firm size and general managerial ability are complements, as in Tervio (2008) and Gabaix and Landier (2008), we would expect the opposite pattern, with the largest firms most eager to maximize CEO ability by searching broadly.

Firms with low stock returns and bad operating performance are more likely to hire outsiders, but even for them insiders remain the most frequent choice.[3] For example, outsiders are chosen by 28% of firms with bottom quintile industry-adjusted stock returns, compared to only 14% of firms with top-quintile returns. Badly performing firms are also more likely to hire board members or former executives. Hence, many apparently troubled firms turn to former employees or directors (rather than outsiders) for help.

Our final set of results explores whether differences in CEO pay might explain firms' hiring choices. Outsiders are more expensive than internal promotions, consistent with outsiders having more transferrable human capital, receiving a premium for the risk of a bad match, or being compensated for frictions in changing jobs or locations. However, the pay differences are small compared to the scale of S&P 500 firms: during the hiring year, outsiders receive on average $5.1 million more than internal promotions, which falls to $1.3 million in the first full year. Capitalizing these differences at a typical cost of capital, their present value would be less than 0.1% of firm value. The differences between raided CEOs, raided other executives, and unattached hires are even smaller. For these differences to explain the dominance of insider hiring, the expected value created by hiring from a much larger pool would have to be smaller still.

Most of this paper's results can be explained by a combination of firm-specific human capital and asymmetric learning about CEO ability. With firm-specific human capital, executives accumulate valuable firm-specific skills or knowledge that do not transfer to other companies

[3] For prior evidence that bad performance is associated with more external CEO successions see, among others, Datta and Guthrie (1994), Parrino (1997), Huson, Parrino, and Starks (2001), and Fee and Hadlock (2003).

(Becker 1962, 1993; Jovanovic 1979; Hashimoto 1981). With asymmetric learning, executives' employers learn more about their executives' abilities than outsiders (Waldman 1984; Greenwald 1986; Hermalin and Weisbach 1998).

Both mechanisms predict a preference for hiring insiders. Both make raiding other firms' executives less attractive, as the other firm responds with a more aggressive retention offer the more value the executive creates. These retention offers effectively force the hiring firm to pay for any lost firm-specific human capital, and they expose the hiring firm to adverse selection.

Both mechanisms can also explain why firms raid CEOs of smaller firms or division heads of larger firms: if ability and scale are complementary, the value created by executive skill increases in the scale of the operation the executive runs. This also applies to firm-specific skill and to the skill component known only to the current employer. Thus, raiding skilled executives who run larger operations causes larger retention offers and more severe adverse selection.

Both mechanisms are needed to explain our findings. Firm-specific human capital alone cannot explain why, conditional on hiring an outsider, firms tend to hire executives their directors have worked with. Asymmetric learning can explain this: having worked together might provide inside knowledge of an executive's ability, thus reducing adverse selection. Alternatively, the executive might have learned about the directors, increasing the executive's willingness to join their firm.

Asymmetric learning by itself cannot explain the sheer dominance of insider hiring. Typical non-executive directors have decades of experience across multiple firms and, as a result, are acquainted with more top executives in other firms than in the one hiring the CEO. Large firms also routinely use executive search consultants to assess candidates' skills.[4] Thus, boards should have no trouble identifying high-ability outsiders.

Besides firm-specific human capital and asymmetric learning, the literature suggests several other reasons for why firms might prefer internal CEO candidates. These include promotion tournaments, agency problems between shareholders and directors, contractual frictions (such as golden handcuffs and non-compete agreements), and behavioral biases. We discuss this literature and the extent to which it can explain our evidence in Section 2.

[4] Kaplan, Klebanov and Sorensen (2012) and Kaplan and Sorensen (2021) provide details of executive assessments by ghSMART, a company that grades candidates for top management positions on thirty characteristics.

The literature on CEO-firm matching has focused on firms' demand for executive talent. Several of our results indicate the importance of talent supply, and specifically of top executives' preferences for firm attributes.[5] In a typical CEO raid, the hiring firm is two to three times larger than the raided one, which suggests that raiding requires offering the top job at a much larger firm. In the same vein, firms that raid CEOs tend to be large and relatively well performing, firms that hire unemployed executives tend to be small and badly performing, and firms that raid below-CEO executives tend to be in between. This suggests that executives consider firm size and performance when deciding whether to accept the CEO job at another firm.

Finally, our results affect our understanding of CEO compensation. In standard assignment models, the level of pay must meet both the CEO's and the firm's outside options, and any surplus created by the match is split according to their relative bargaining strength.[6] If the managerial labor market is perfectly competitive, as in Tervio (2008) and Gabaix and Landier (2008), this surplus is zero.

In reality, most firms appear to focus on a small number of inside candidates, and CEOs seem to have few comparable outside options. With few candidates, there are likely to be discrete differences between them. This in turn implies that there is a match surplus to be shared: the value created by the top candidate is discretely larger than that created by the runner-up, and that difference is bargained over between the top candidate and shareholders.[7]

Moving from perfect competition to a model with few viable candidates reconciles the evidence from the two dominant strains of the CEO pay literature. The "rent extraction" literature spearheaded by Bebchuk and Fried (2003) argues that the rise in CEO pay is caused by captured boards allowing CEOs to extract rents from shareholders. This is backed by evidence that empowering shareholders, e.g., through say-on-pay, is associated with lower CEO pay (Ferri and Maber 2013, Correa and Lel 2016, and Denis, Jochem, and Rajamani 2020). In contrast, the "efficient contracting" literature points out that firm size is the best predictor of CEO pay, that the

[5] Prior evidence that CEOs care about firm attributes is provided by Yonker (2017) and Duchin and Sosyura (2025), who focus on the firm's location, and by Focke, Maug, and Niessen-Ruenzi (2017), who focus on prestige. Rosen (1986) reviews the broader evidence that employees trade off firm and job attributes against pay.
[6] See, among others, Tinbergen (1956), Sattinger (1975, 1979), and Rosen (1981, 1982).
[7] Models of bargaining that might explain the surplus sharing between CEO and shareholders include Shaked and Sutton (1984), Rubinstein and Wolinsky (1985), Stole and Zwiebel (1996), Hermalin and Weisbach (1998), and Hall and Milgrom (2008).

period of rapidly rising CEO pay was a period of improving corporate governance, and that PE-owned firms pay their CEOs even more (see Edmans, Gabaix, and Jenter (2017) for a review).

These observations can be reconciled by a model in which CEOs' contributions to firm value increase with firm size (as in the efficient contracting literature), but in which there a few viable CEO candidates, so there is a large match surplus, which the CEO is able to extract in whole or part (as in the rent extraction literature). This rent extraction need not be inefficient, contrary to Bebchuk and Fried (2003), but may simply be the CEO's share of the surplus created. It may still be controversial, as it may result in high CEO pay, and the sharing may be affected by social norms, board independence, media attention, analyst coverage, and shareholder pressure, again consistent with evidence from the rent-extraction literature.[8]

In sum, this paper's evidence changes our understanding of the CEO labor market. The most striking result is that firms hire CEOs they are already familiar with – current or former executives, current or former board members, or managers its directors have worked with – more than 90% of the time. This suggests that the CEO labor market is not well described by perfectly competitive assignment models in which ability is perfectly observable and portable. Instead, most firms' effective candidate pool is much smaller than the overall market. Most of our results can be explained by a combination of firm-specific human capital and asymmetric learning about CEO ability, but we cannot rule out that agency frictions, contractual frictions, or behavioral biases contribute. In addition, several results suggest the importance of talent supply, and specifically of top executives' preference for larger and better performing firms.

The next section relates our results to the empirical literature. Second 2 provides conceptual background. Section 3 describes the data and provides summary statistics, Section 4 describes the main CEO hiring patterns, Section 5 examines the determinants of firms' hiring choices, and Section 6 analyzes new CEO pay. Section 7 summarizes and concludes.

[8] See Piketty and Saez (2003) on social norms, Chhaochharia and Grinstein (2009) on board independence (Guthrie, Sokolowsky and Wan (2012) for contrary evidence), Kuhnen and Niessen (2012) on media attention, and Chen, Harford, and Lin (2015) on analyst coverage. Surplus sharing is also suggested by evidence that directors care about the CEO's perception of "pay fairness" (Edmans, Gosling, and Jenter 2023).

## 1. Relation to the literature

Many of the statistics reported in this paper have appeared in prior studies. Our contributions are to replicate them in a consistent sample, complement them with new findings, and highlight their collective importance for finding the right model of the CEO labor market.

The percentage of external CEO hires has been reported in many studies,[9] and several have shown that external hires are more common in smaller and worse-performing firms.[10] We contribute fourfold. First, we show that the trend to more external hiring since the 1970s documented by Huson, Parrino, and Starks (2001), Murphy and Zabojnik (2007), and Frydman (2019) has ended. Murphy and Zabojnik (2007), for example, report 15% external hires in the 1970s, 17% in the 1980s, and 26.5% in the 1990s. We observe 27% external hires from 1993 to 2021, with a small but insignificant downward trend over this period.

Second, we confirm that smaller and worse-performing firms are more likely to hire externally in a larger and more recent sample. Third, we show that almost one-third of external hires are not in fact outsiders but former executives or current or former board members, and that firms are especially likely to draw on such "external insiders" after bad performance. Finally, we show that most of the actual outsiders are current or former co-workers of the firm's directors. Thus, the percentage of new CEOs who are neither insiders nor personally known to directors is below 10%.

Few studies have focused on CEO raids.[11] Hayes and Schaefer (1999) show that firms whose CEOs are raided suffer negative announcement returns, consistent with Lazear's (1986) prediction that raided managers are of high ability. Fee and Hadlock (2003) show that raided CEOs tend to be from firms with above-average stock price performance. In Barry, Graham, Kim, and Kim (2026), CEO moves to other firms (which include raids) increase over time but remain rare:

[9] See, for different subsets of US public firms and different time periods between 1978 and 2006, Dalton and Kesner (1983; 23% external hires), Reinganum (1985; 16%), Datta and Guthrie (1994; 21%), Denis and Denis (1995; 22%), Borokhovich, Parrino, and Trapani (1996; 19%), Parrino (1997; 15%), Huson, Parrino, and Starks (2001; 19%), Fee and Hadlock (2003; 27%), Zhang and Rajagopalan (2003; 39%), Agrawal, Knoeber, and Tsoulouhas (2006; 18%), Naveen (2006; 21%), Eisfeldt and Kuhnen (2013; 29%), and Cremers and Grinstein (2014; 30%).

[10] See, for example, Dalton and Kesner (1983), Datta and Guthrie (1994) and Parrino (1997).

[11] Studies that report frequencies of CEO raids in their summary statistics include Vancil (1987), Weisbach (1988), Gibbons and Murphy (1992), Faulkender and Yang (2010), Gao, Luo, and Tang (2015), Colak and Korkeamäki (2021), Fee, Hadlock, and Pierce (2018), Jochem, Ladika, and Sautner (2018), Cziraki and Groen-Xu (2020), and Choi, Cicero, and Mobbs (2022).

during 1946-85, 1.2% of departing CEOs become CEO of another public firm within two years, which rises to 2.8% and 2.6% during 1986-2000 and 2001-2022, respectively.

Our contribution is again four-fold. First, taking the perspective of the hiring firm, we show that only 3.5% of CEO hires are CEO raids. Second, we find that the hiring firm is typically much larger than the raided firm and relatively well performing, and that raided CEOs are paid only marginally more than other external hires. Third, raids of below-CEO executives are more frequent, and the hiring firm is typically smaller and worse performing than the raided firm. Fourth, we use these patterns to discuss potential reasons for the lack of CEO mobility – e.g., CEOs might be unwilling to move unless the new firm is larger and well performing, and hiring firms might be constrained in their ability to pay for CEO talent.

Our results also have implications for CEO career concerns. Fama (1980) and Holmstrom (1999) show that, if executives' performance affects their job opportunities, a well-functioning labor market improves incentives and alleviates agency problems. This has spurred a sizeable literature on the effects of top executives' career concerns.[12]

Our evidence suggests that external labor market opportunities for top executives, and especially for CEOs, are limited. Most CEO positions are filled by insiders, and even well-performing CEOs are rarely poached. This is not to say that CEO career opportunities are completely absent – 7.8% of new CEOs in our sample are former CEOs of other firms, in addition to the 3.5% raided CEOs. Most CEOs, however, are unlikely to be in serious contention for another CEO job.

Finally, our results speak to the evidence that firms' managerial skill requirements have shifted from firm-specific to general, and therefore portable, managerial skills (Murphy and Zabojnik 2004, 2007; Frydman 2019; Custodio, Ferreira, and Matos 2013; Falato, Li, and Milbourn 2015). By facilitating the movement of executives across firms, such a shift should bring the CEO labor market closer to the frictionless and perfectly competitive ideal.

Our evidence does not refute an increasing role for general skills. However, it suggests that this increase has stalled in recent years and that other mechanisms, such as firm-specific human capital or asymmetric learning, are more important in matching CEOs to firms. Hiring externally

[12] See, for example, Holmstrom and Ricart i Costa (1986), Gibbons and Murphy (1992), Fee and Hadlock (2003, 2004), Giannetti (2011), Colak and Korkeamäki (2021), Coles, Li, and Wang (2018), Huang, Jain, and Kini (2019), Kubick and Lockhart (2021), Islam et al. (2022), and Lonare, Mart, and Tuncez (2022).

would allow firms to access a much larger talent pool and maximize their new CEOs' general skills. Yet, most firms continue to choose insiders.

## 2. Conceptual background

Assignment models have long been used to analyze the allocation of workers to jobs and their equilibrium pay (Tinbergen 1956, Sattinger 1975, 1979; Rosen 1981, 1982).[13] More recently, Gabaix and Landier (2008) and Tervio (2008) have applied perfectly competitive and frictionless assignment models to CEOs.[14] Without frictions, the equilibrium assignment of CEOs to firms maximizes aggregate output. CEO talent is observable, unidimensional, and transferrable across firms, so firms hire from a unified talent pool. Firms have no reason to prefer insiders or candidates they are already familiar with.[15]

The static models of Gabaix and Landier (2008) and Tervio (2008) do not have many of the elements we focus on, such as CEOs moving from one firm to another. There are no dynamic versions of the perfectly competitive and frictionless CEO assignment model in the literature, likely because such models would produce predictions starkly at odds with the data. For example, there would be no internal promotions, since the best executives would already be CEOs of other firms, and any CEO departure would trigger a cascade of CEO moves across firms.

The dynamic CEO assignment models in the literature introduce frictions or firm-specific human capital to reduce the distance between the model implications and the data. Two perfectly competitive models that predate our study are Eisfeldt and Kuhnen (2013) and Nickerson (2014). Eisfeldt and Kuhnen (2013) assume firm-specific human capital, while Nickerson (2014) introduces a CEO replacement cost and assumes that firms cannot hire away other firms' CEOs. Neither model features internal promotions nor hiring of below-CEO executives from other firms.

More recently, several authors have taken up the challenge posed by our results and proposed new dynamic CEO matching or assignment models (Geelen and Hajda 2024, Barry,

[13] This section borrows heavily from the literature survey by Edmans, Gabaix, and Jenter (2017).

[14] Edmans, Gabaix, and Landier (2009), Baranchuk, MacDonald, and Yang (2011), Edmans and Gabaix (2011), Eisfeldt and Kuhnen (2013), Bandiera, Guiso, Prat, and Sadun (2015), Gayle, Golan, and Miller (2015), Jung and Subramanian (2017), and Pan (2017) provide extensions to unobserved effort choice, endogenous firm size distributions, managerial risk aversion, multi-dimensional CEO skills, nonpecuniary job benefits, human capital accumulation, fixed costs of terminations, and imperfectly competitive product markets.

[15] Pan (2017) estimates an assignment model in which CEOs' skills and firms' skill requirements are multi-dimensional. This might result in a preference for hiring insiders if insiders are more likely to offer the specific combination of transferrable skills a firm requires (see also Lazear (2009)).

Lyman, and Zhao 2025, He and Schroth 2025, Waldman and Zabojnik 2025, Capron, Hamilton, Hincapié and Lyman 2026). Structurally estimating these models yields different explanations for the high rate of internal promotions and the rarity of CEO raids: Barry, Lyman, and Zhao (2025) attribute them to firm-specific human capital, He and Schroth (2025) to boards' preference for insiders, and Capron et al. (2026) to greater uncertainty about outsiders.[16] Thus, while the literature is making progress, more work is needed.

The literature has suggested several other reasons for why firms might prefer internal candidates. First, a bias towards insiders can motivate lower-ranked managers to compete for the CEO position (Lazear and Rosen 1981; Rosen 1986; Chan 1996).[17] While likely a contributing factor, it is unlikely that promotion tournaments are the main reason for the dominance of insiders in CEO hiring. Many firms curtail promotion tournaments by identifying an heir apparent long before the promotion (Vancil 1987, Cannella and Shen 2001, Naveen 2006), possibly because tournaments can induce noncooperation within the management team (Lazear 1989, Chen 2003). Biasing the selection process also lowers the expected quality of the CEO (Chan 1996), and tournaments cannot explain why firms, when hiring externally, tend to hire their own non-executive directors or their directors' coworkers.

Second, contractual frictions might make external hires expensive. Unvested options, restricted stock, and other unvested pay increase the cost of raiding executives. The prior literature, however, finds no evidence that unvested pay reduces raids by large public firms, which appear willing to compensate their new hires for any losses (Fee and Hadlock 2003; Balsam and Miharjo 2007). Another barrier against executives moving to other firms are non-compete agreements (Marx, Strumsky, and Fleming 2009; Garmaise 2011; Kini, Williams, and Yin 2021). Our own analysis, however, finds an insignificant correlation (of the wrong sign) between the enforceability of non-compete agreements and internal promotions, which dominate even in states in which non-competes are effectively void.

Finally, firms' preference for insiders might be the result of agency problems or behavioral biases. CEOs might advocate for an internal successor out of loyalty to their team or to protect

[16] Geelen and Hajda (2024), which features learning about the CEO and an internal successor, and Waldman and Zabojnik (2025), which features firm-specific human capital and asymmetric information, do not estimate their models.

[17] For empirical evidence on CEO succession tournaments and their effects see Agrawal, Knoeber, and Tsoulouhas (2006), Kale, Reis, and Venkateswaran (2009), Kini and Williams (2012) and Burns, Minnick, and Starks (2017).

their legacy. Directors can expect more blame for a bad hire than credit for a great one, which might cause them to prefer familiar candidates. Boards might face constraints on CEO pay that prevent them from poaching other firms' executives, even if doing so would increase firm value.[18] Alternatively, directors might be biased and make systematic mistakes, with status-quo bias, familiarity bias, and ambiguity aversion likely to create a preference for insiders (Fox and Tversky 1995; Zajac and Westphal 1996; Guenzel and Malmendier, 2020).

While it is likely that both agency problems and behavioral biases contribute to directors' preference for insiders, they are unlikely to be the main cause. The pervasiveness of internal promotions suggests that they are also done by firms with good governance. Large firms, usually associated with better governance, are even more likely to promote internally than smaller ones. Our own analysis finds no relationship between the presence of large shareholders and firms' tendency to hire insiders. Moreover, shareholder objections to new CEOs are rare, suggesting that most investors do not view standard hiring practices as governance problems or mistakes.

## 3. Sample selection, data collection, and variable definitions

Our main sample consists of all new CEO appointments by S&P 500 firms during 1993 to 2021. The sample construction starts with the ExecuComp database, which we correct for mistakes and supplement with hand-collected data from a variety of sources. There are 1,890 CEO appointments. Of these, 164 are no longer in office after 12 months. From SEC filings, press releases, and press reports we identify 115 as interim CEOs and 49 as regular hires, and we drop the interim CEOs, leaving us with a sample of 1,775 CEOs.[19]

We collect information on the date of the appointment, the name of the old and the new CEO, whether the new CEO is an employee of the firm, and when the new CEO joined the firm. For external appointments, we use ExecuComp, BoardEx, nndb.com, Crunchbase, Bloomberg, and LinkedIn to obtain information on the last job of the new CEO, and whether they had previously been an executive or a director of the hiring firm. We also search LexisNexis and Factiva for press releases and media coverage of CEO transitions.

[18] In Edmans, Gosling, and Jenter (2023), directors report that constraints imposed by investors and other stakeholders prevent them from offering what they believe to be value-maximizing CEO pay.
[19] The appointment of the interim CEO's successor is again included in our sample.

We classify all new CEOs into three types based on whether they are insiders or outsiders. Current employees of the firm are "internal promotions." To account for succession processes in which an executive joins a firm and is promoted to CEO soon thereafter, we follow Parrino (1997) and require that internal promotions must have been with the firm for at least 12 months.[20] Former employees and current or former board members are labeled as "external insiders."[21] All other new CEOs are classified as "outsiders."

We further sort outsiders into three groups based on their employment at the time of the hiring: unattached managers, raided other executives, and raided CEOs. Unattached managers are not employed in an executive position at the time of their hiring. They might be unemployed, retired, working for a non-profit or the government, or running their own (usually consulting) business. Raided executives are executives, CEO or other, at another firm when hired as CEO. We require the hiring to be immediate or with almost no delay, and we ensure, based on firms' announcements and other sources, that the cause of the move was the employment offer by the hiring firm. We classify cases in which there is any indication the executive was dismissed by the old firm, as well as cases in which the old firm was acquired by another firm, as hires of unattached executives, not as raids. For CEO raids, we require the executive to have been the old firm's top executive, and for that firm to not be a subsidiary.[22]

We collect additional information on the employment history of all external hires, including the most recent employer, the start and end dates of the employment, and the most recent job title. We record whether the previous employer was a private or foreign firm, and whether the executive left as the result of an acquisition. We identify the highest position held in the executive's career, ranking CEOs highest and permanent positions above interim ones. We mostly ignore firms founded by the executive, as these firms are typically tiny and cease to operate after the executive leaves.[23] We also record whether the new CEO was ever an executive or a non-executive director

[20] There are 35 CEO appointments that follow a merger or acquisition and in which the new CEO was previously an executive, typically the CEO, of the other firm. Most are large deals compared to the size of the hiring firm, so hiring the CEO is unlikely to have been the primary motivation. We classify these CEO appointments as internal, unless the executive joined within the previous 12 months.

[21] This includes comeback CEOs (Fahlenbrach, Minton, and Pan 2011) as well as non-executive directors who have never been an employee of the firm (Hoitash and Mkrtchyan 2018).

[22] We do not count CEO positions at firms founded by the executive. This is to exclude cases in which Jane Smith leaves an executive position, founds and runs "Smith Consultants," and is then hired as CEO of an S&P 500 firm. We verify that none of these firms are large enough to warrant reclassification of the hire as "raided CEO."

[23] We make an exception if the firm continues to operate at significant scale or is later acquired.

in the same 2-digit SIC industry as the hiring firm. Finally, for unattached managers, we calculate the length of time since they were last employed.

Because there are only 61 CEO raids by S&P 500 firms during our sample period, we assemble a supplementary dataset of all CEO raids we can find by publicly traded US firms. By searching press releases and news articles on Factiva and LexisNexis from 1993 to 2021, we are able to identify another 105 CEO raids by firms outside the S&P 500. We use this extended sample of CEO raids in our analyses in Section 5.

Table 1 presents summary statistics for the firms and CEOs in the main sample. Financial statement data is from Compustat and stock return data from the Center for Research in Security Prices. The descriptive statistics for accounting variables exclude financial firms (SIC codes 6000-6999).

By design, the firms in our sample are large, with average (median) market valuations of $41 billion ($17 billion), and complex, with an average and median number of four operating divisions. Firms appointing CEOs are slightly smaller than the average S&P 500 firm (shown in the second-to-last column) and have worse performance in terms of industry-adjusted stock returns, ROA, and the market-to-book ratio. This confirms the standard result that CEO turnover becomes more frequent after bad firm performance.[24]

Departing CEOs, shown in Panel B, are older and have longer tenures than the average CEO in the S&P 500. Newly hired CEOs, shown in Panel C, are younger and more likely to be female than the average S&P 500 CEO. For those promoted internally, the average (median) tenure in the firm is almost 17 (16) years, giving them sufficient time to accumulate firm-specific skills and become known by its directors.

## 4. Insiders vs. outsiders

Analyzing new CEO hires by S&P 500 firms from 1993 to 2021, this section documents whether they are insiders, their prior connections to the hiring firm, their previous jobs, and whether outside hires were raided from other firms.

[24] See, among many others, Coughlan and Schmidt (1985), Warner, Watts, and Wruck (1988), Weisbach (1988), Jensen and Murphy (1990), Kim (1996), Denis, Denis, and Sarin (1997), Parrino (1997), Murphy (1999), Huson, Parrino, and Starks (2001), Kaplan and Minton (2012), and Jenter and Lewellen (2021).

### 4.1 Internal promotions, external insiders, or outsiders

We first document how close new CEOs were to the hiring firm before their appointment. Table 2 classifies all new CEOs from 1993 to 2021 as either internal promotions or external hires, defined as anyone who has not been with the firm for at least one year before becoming CEO. Seventy-three percent of the 1,775 new CEO appointments are internal promotions, leaving 27% external hires. Hence, firms' own executives dominate CEO successions.

A closer look at the external hires reveals that insiders play an even greater role. Table 2 reports whether external hires have previously worked for the hiring firm, either as an executive or as a board member. Almost one-third have: 28% of external hires are current or former board members, while 14% are former executives. There is considerable overlap, as most of the former executives are also board members. Taking this into account, 32% of external CEO hires are "external insiders", defined as former executives or current or former board members of the hiring firm. Thus, genuine outsiders make up only 18.8% of CEO appointments. This is strong evidence against the hypothesis that all firms choose CEOs from the same talent pool.

Importantly, the reallocation of future CEOs across firms does not occur a few years before the appointment. As shown in Panel C of Table 1, the average (median) pre-promotion tenure of internally promoted CEOs is almost 17 (16) years, with a 25$^{th}$ percentile of 7 years. More than 84% have been with the firm for at least 5 years (untabulated). Thus, firms tend to promote executives who have been insiders for many years.[25] As a result, junior and mid-level executives recruited years earlier are the main pool from which CEOs are selected. Unless firms are able to identify CEO talent many years in advance, this makes mismatches likely. It also underscores the importance of junior recruiting and internal executive development for future CEO quality.

The result that more than 80% of new CEOs are insiders is especially notable given our focus on S&P 500 firms. We expect these large and complex firms to require CEOs with general skills and to be attractive to external talent. To examine the effect of firm size further, Panels B and C of Table 2 rank firms each year by book assets and report results for firms above and below the median. The percentages of new CEOs who are current employees or any type of insider are higher for larger (77% and 85%) than for smaller firms (69% and 78%). If firm size and general ability were complementary and observable general ability the focus of firms' hiring decisions, as

[25] Murphy and Zabojnik (2007) report an average tenure of internally promoted CEOs of more than 20 years, while Cremers and Grinstein (2014) observe that 93% have been with the firm for at least 5 years.

in Tervio (2008) and Gabaix and Landier (2008), we would expect the opposite pattern: the largest firms should be most eager to search externally for highly skilled CEOs.

*4.1.1 Is the importance of outsiders increasing?*

Several studies have reported an increase in external CEO hiring (e.g., Huson, Parrino, and Starks 2001; Murphy and Zabojnik 2007), which others have attributed to an increase in firms' demand for general managerial skills (Murphy and Zabojnik 2004, 2007; Frydman 2019). To assess whether this increase in external hiring continues in our sample, Table IA1 in the Internet Appendix reports CEO hiring patterns for 1993-1999, 2000-2006, 2007-2013, and 2014-2021.

There is no evidence that insiders' dominance has decreased during our sample period. The percentage of internal promotions dips from 73% in 93-99 to 69% in 00-06 before recovering to 72% in 07-13 and 76% in 14-21. The percentage of genuine outsiders, i.e., appointees who are neither former nor current executives nor board members, rises from 19.4% in 93-99 to 20.6% in 00-06 before falling to 19.3% in 07-13 and 15.4% in 14-21. While the decline from the second to the last period is statistically significant (p=0.04), the difference between the first and last period is not (p=0.12).

Figure 1 displays the year-by-year percentages of outsider hires. Since the yearly data is noisy, it also shows rolling three-year moving averages. Based on these, outsider hiring peaks at 22.6% in 2006, declines to 11.1% in 2016, increases again to 19.1% 2019, and finally declines slightly to 18.9% in 2021.[26] In sum, the evidence in Table IA1 and Figure 1 suggests that the previously observed trend to more outsider hiring has ended.

*4.1.2 Prior connections between boards and new CEOs*

The results so far show that more than 80% of new CEOs are insiders. There are at least two explanations. One is a need for firm-specific knowledge, such as familiarity with the firm's processes and technology, which can only be gained by working for the firm. Alternatively, directors of hiring firms might have a preference for candidates they are familiar with. This

[26] The year-by-year numbers show a peak in outsider hires in 2021. However, the Covid pandemic made 2021 unusual. There were only seven CEO hires, two of whom were outsiders. For comparison, the average (median) number of annual CEO hires in other sample years is 61.5 (60).

preference might be efficient, if it improves the board's information about candidates, or it might be inefficient, if it is due to agency problems or behavioral biases.

If directors prefer candidates they are familiar with, even those who are outsiders might not have been chosen from the overall labor market, but from the smaller set of personal acquaintances of the hiring firm's board. To examine whether directors' acquaintances are favored in CEO hiring, Table 3 documents the professional and other connections between new CEOs and the hiring firm's board.

We restrict the analysis to outsiders, i.e., to those 18.8% of new CEOs who are neither current nor former insiders. Using data from BoardEx, we define a connection as having contemporaneously worked at the same firm, served on the same board, attended the same school, or been a member of a club, organization, or charity at any time before the CEO appointment. To assess whether there are unusually many connections between directors and the CEOs they hire, we match each new CEO to an alternative executive the firm could have chosen instead. The alternative candidate is a new CEO hired or promoted by a similar firm (based on industry and size) within ±2 years of the focal CEO's hiring. The matching algorithm is described in Appendix A. Because BoardEx's and our sample period only partially overlap, we observe connections for only 197 of the 334 outsider hires in our sample.

Table 3 shows a striking difference in board connections between actually chosen CEOs and alternative candidates. Fifty-four percent of newly hired outsiders have previously worked with at least one of the hiring firm's directors. It is only 14% for other CEOs hired by similar firms in the same period. Hence, familiarity between directors and CEO candidates appears to matter for hiring decisions. The relevant connections are through employment or board service, as new CEOs and directors do not have unusually many educational or social ties.

Hiring directors' co-workers who have never been employed by the firm cannot be explained by firm-specific human capital. It is, however, consistent with asymmetric learning. Having worked together can give directors visibility of an executive's abilities and cultural fit, reducing adverse selection. Having worked together might also give the candidate information about the firm's directors, making the candidate more willing to join. Alternatively, the hiring of connected CEOs might be due to an agency problem (e.g., directors hiring a friend) or a behavioral bias, such as familiarity bias or ambiguity aversion. With all these mechanisms, the familiarity between directors and candidates increases the (perceived) value of the match.

The importance of professional networks in CEO hiring is underexplored. Several studies show that networks facilitate job searches by rank-and-file employees and young managers.[27] There is also evidence that networks play a role in the selection of new directors (Adams and Ferreira 2009; Agarwal, Qian, Reeb, and Sing 2016; Cai, Nguyen, and Walkling 2022) and that connections between directors and CEOs are correlated with higher CEO pay (Hwang and Kim 2009; Kramarz and Thesmar 2013, Balsam, Kwack, and Lee 2017), less CEO turnover (Hwang and Kim 2009; Nguyen 2012, Balsam et al. 2017), and lower firm values (Fracassi and Tate 2012). Our results add evidence that executives' connections to directors increase their chances of being hired as CEO.[28]

Alternatively, it is also possible that shared work histories between directors and CEO candidates indicate an unobserved executive characteristic relevant to hiring, such as knowledge of a specific technology, narrow industry, geographic area, or type of firm.[29] If this were the case, the evidence in this section would reinforce the conclusion that specific, rather than general, knowledge is important in selecting CEOs. In either case, the evidence is hard to reconcile with models in which CEOs are chosen for their observable general managerial skills.

### 4.2 Where do firms find external CEO hires?

To better understand the challenges firms face when hiring externally, we next examine the backgrounds of the 27% (488) external CEO hires. External hires come from one of three sources: current CEOs of other firms ("raided CEOs"), below-CEO executives of other firms ("raided other executives"), and managers who are not currently in an executive role ("unattached managers"). The results, shown separately for genuine outsiders (Panel A) and former executives and board members (Panel B), are in Table 4.

The most interesting result is the rarity of CEO raids. Only 3.5% of new CEOs are poached from the CEO position at another firm: 2.8% outsiders (Table 4 Panel A) and 0.7% former

[27] See, for example, Rees (1966), Corcoran, Datcher, and Duncan (1980), Granovetter (1995), Kasinitz and Rosenberg (1996), Bayer, Ross, and Topa, (2008), Kramarz and Skans (2014), Hacamo and Kleiner (2021), and the review by Ioannides and Datcher Loury (2004).

[28] In contemporaneous work, Wang (2022) finds consistent evidence that both internal and external candidates' connections to directors increase their probability of becoming CEO.

[29] Connections between the focal firm's board and the alternative candidate are more frequent if the firm that hired the alternative candidate is in the same 4-digit SIC industry (30% have a professional connection) than if it is in the same 1-digit SIC industry (only 8% do). This suggests that directors have connections to many CEO candidates in their narrow industry. However, the frequency of connections to the actual CEO hire (54%) remains much higher.

executives or board members (Panel B).[30] Hence, when choosing a new CEO, firms tend to ignore the most obvious source of established CEO talent.

This result rejects any model that implies frequent reallocations of CEOs across firms. If CEOs with greater general skills match frictionlessly with larger firms, any change in firms' size ranking should cause CEOs to switch firms. Similar reallocations should occur after technological and other shocks to firms' skill requirements. On-the-job learning about CEO ability (as in Hermalin and Weisbach 1998) should allow successful CEOs to move to larger firms and force less successful ones to smaller firms. Moreover, each CEO departure should trigger a cascade of CEO moves, as each affected firm raids the CEO of the next smaller firm.

There are several potential explanations for the lack of CEO mobility. Some CEOs might feel loyal to their employer, or they might simply not want to prolong their career beyond their current job. Uncertainty about match quality might make CEOs reluctant to switch firms. Incumbent CEOs might be penalized for interviewing with other firms. Moving costs might be high for CEOs with working spouses or school-age children. Whatever the explanation, CEOs' apparent immobility limits firms' outside options and CEOs' outside options and career concerns.

If outsider hires are not CEOs of other firms, who are they? Table 4 Panel A shows that most are below-CEO executives at other firms (53% of outsider hires and 10% of all hires). This suggests that firm-specific human capital alone does not explain the lack of CEO raids – raids of below-CEO executives are more than three times as frequent. Instead, other frictions appear to make raiding CEOs especially difficult.

The remaining 33% of outsider hires (6% of all CEO hires) are unattached managers, i.e., outsiders not currently in an executive position. Hiring unattached managers should be relatively easy, as they lose neither firm-specific human capital nor a good match nor have concerns about upsetting their employer. On the other hand, most skilled executives are likely to be employed, limiting the supply of unattached talent. This might explain why, among outsider hires, only one-third are unattached.

Table 4 Panel B tabulates the sources of the 154 "external insiders," i.e., former employees or board members. Most are unattached at the time they are hired (73%), with below-CEO raids (19%) and CEO raids (8%) making up the rest. The high percentage of unattached executives

[30] Among raided outsider CEOs, 74% have a professional connection to the hiring firm's directors.

indicates that their skills are not in demand by other firms, suggesting that they are hired because of their close connection to the hiring firm. Their lack of labor market appeal is also evident in the average (median) length of time since their last executive position, shown in Panel C: it is 28 (21) months for unattached managers who are "external insiders", compared to only 12 (8) months for those who are outsiders to the hiring firm.

To better understand what human capital firms acquire when hiring outsiders, Table IA2 in the Internet Appendix tabulates separately the professional backgrounds of the 225 raided and 109 unattached executives. Besides 49 CEO raids, most raids target presidents, segment and division leaders, and vice presidents of operating units. Hence, firms tend to poach senior executives with direct responsibility for business operations. The backgrounds of unattached hires, shown on the right, reflect a similar preference for operating experience. This is consistent with operational, rather than staff roles (such as finance, accounting, or human resources) preparing executives for the CEO position.

Table IA2 also shows substantial demand for prior CEO experience: 22% of raids target CEOs, and 63% of unattached outsiders have previously been a CEO. The pattern is similar when hiring former executives or board members (untabulated): 25% are former CEOs of the hiring firm, 39% have been the CEO of another firm, and 8% are raided from current CEO jobs, for a total of 64% with prior CEO experience. This again suggests that raiding CEOs is difficult – firms fill most of their demand for CEO experience by hiring ex-CEOs.[31]

Finally, Panel C of Table IA2 shows that most of the hired outsiders have prior experience in the hiring firm's 2-digit SIC industry. Among raided hires, 46% have worked as an executive and 54% as an executive or director in the same industry. Among unattached hires, 52% have industry experience as executives and 58% as executives or directors. Given the difficulties of assigning large firms to SIC industries (see, e.g., Hoberg and Phillips 2016), this likely understates the percentage of CEO hires with same-industry experience. Thus, consistent with Parrino (1997) and Cremers and Grinstein (2014), industry-specific human capital appears to also be important when hiring CEOs, further reducing firms' effective talent pool.

In sum, this section has shown that CEO raids are rare: only 3.5% of new CEOs are poached from the CEO position at another firm. Instead, most outsider hires are below-CEO executives at

[31] A significant part of the supply of ex-CEOs is due to acquisitions. Among outsider hires who are former (but not current) CEOs, 32% of unattached and 24% of raided hires lost their CEO job after their firm was acquired.

other firms or unattached, and many have prior CEO experience. The reason(s) for firms' reluctance to poach CEOs, or for CEOs' reluctance to switch firms, are an important topic for further research.

### 4.3 The prior firms of raided executives

The previous section has shown that only 15% of new hires are raided from other firms – 3.5% through CEO raids and 11.5% through below-CEO raids. Given the importance of talent reallocation in theories of the executive labor market and for CEOs' career concerns, an interesting question is why raids are not more frequent. As a first step, this section examines what types of firms CEO hires are raided from.

The top panel of Table 5 shows that almost 80% of raids target publicly listed US firms. Between 15 and 16 percent of raids target unlisted US firms and less than 10% foreign firms. This suggests further limits to the effective candidate pool: it consists mostly of executives of listed US firms, with few private-firm executives and almost no foreigners included. Whether this is because boards are unfamiliar with private-firm or foreign executives, or because these executives lack (or could not demonstrate) the skills required to run an S&P 500 firm is an open question.

Because there are only 61 CEO raids in our sample, we also report results from an extended dataset where the hiring firms are not restricted to the S&P 500.[32] Searching press releases and news reports from 1993-2021 for CEO raids by public US firms increases their number to 166. Results from this extended sample, reported in the two right-most columns in Tabel 5, are similar to those from the S&P 500.

The second interesting result in Table 5 is that CEOs are poached from very different firms than below-CEO executives, especially in terms of size. CEO raids target smaller firms, both in absolute and relative terms: the firm value (book assets) of the median prior firm is only 38% (32%) of that of the hiring firm. Raids of below-CEO executives target larger firms: the firm value (book assets) of the median prior firm is 468% (437%) of that of the hiring firm.

These size differences are an indicator of the challenges firms face when raiding executives. If raiding CEOs were costless, we would expect frequent moves of CEOs between almost similar firms. Instead, CEO moves are rare and, when they occur, are to much larger firms.

[32] See Section 3 for more information about the data collection for this extended sample of CEO raids.

This suggests large costs of poaching CEOs, so that large benefits (e.g., a more talented executive running a much larger firm) are required to compensate.

Both firm-specific human capital and asymmetric learning about executive ability can explain why firms raid executives who run significantly smaller operations than the hiring firm. If ability and scale are complementary, talented executives who run larger operations create more value, and, if they do not yet receive all the surplus they create, their firm will respond with a retention offer. Because the raider must beat this offer, the raider effectively pays for any lost value, including value created by firm-specific human capital. With asymmetric information, the raider does not know how much value the executive creates, but the larger the operation they run, the more it could be. Limiting raids to executives who run smaller operations limits the potential for adverse selection.

An alternative to raiding the CEO of a smaller firm is raiding a below-CEO executive of a larger firm. With efficient assignment, the head of a large division may be as skilled as the CEO of a smaller stand-alone firm. Many raided below-CEO executives are indeed heads of segments or divisions (see Section 4.2) and move to a smaller firm for their first CEO job.

In sum, when choosing whom to raid, we expect firms to trade off the candidates' expected ability against the costs of adverse selection and of paying for lost firm-specific human capital. If ability and scale are complementary, this means raiding executives who run operations significantly smaller than the hiring firm.

Table 5 also suggests that the prior firms of raided CEOs are mediocre performers in terms of 3-year stock returns and ROA, while the prior firms of raided other executives outperform on these metrics. That below-CEO executives are being poached from well-performing firms has previously been shown by Fee and Hadlock (2003). The observation that CEOs are raided from worse performers is new.

One explanation is that even S&P 500 firms find it difficult to lure away other firms' CEOs. If CEOs view switching firms as costly, they will only accept offers that are large improvements on their position. This would explain why CEO moves are rare, are to much larger firms, and are by CEOs with relatively mediocre recent performance, who are likely less enamored by their current match. In contrast, many below-CEO executives are likely to view becoming CEO itself as a large improvement and might therefore accept an offer from a less attractive firm.

## 5. What determines firms' hiring choices?

We next examine the determinants of firms' CEO hiring choices. Firms have a choice between promoting internally or hiring externally and, when hiring externally, between external insiders or genuine outsiders. Moreover, when hiring outsiders, firms can poach a CEO or a below-CEO executive, or they can hire an unattached manager.

### 5.1 Insiders vs. outsiders

We begin by analyzing firms' choice between promoting internally, hiring an external insider, and hiring a true outsider. Table 6 shows that both firm size and performance are important determinants of this choice. Panel A reports firm characteristics by type of hire, while Panel B reports hiring frequencies for the top and bottom quintile of firms sorted by their characteristics.

Larger firms are much more likely to promote internally than smaller ones. Firms promoting internally (hiring external insiders) have an average firm value of 44bn (45bn), significantly larger than the 23bn of firms hiring outsiders (Table 6 Panel A). Firms in the largest value quintile promote internally in 82% of cases, while firms in the smallest quintile do so in only 66% of cases (Panel B). The difference is made up by hiring outsiders, who are 10% in the largest quintile but 23% in the smallest one.

The small number of outsider hires among the largest firms challenges our understanding of the CEO labor market. If the value of general skills increases with firm size, the largest firms should be most eager to search externally for the most able CEOs. In reality, the largest firms are most likely to promote internally. One potential explanation is that the value of firm-specific skills might also increase with size, and it might increase even faster than the value of general skills. In addition, larger firms have a deeper pool of insiders to choose from, they are more likely to engage in internal succession planning (Cvijanović, Gantchev, and Li, 2023), and their executives might be able to acquire general skills by moving around within the organization.

Table 6 also shows that, consistent with Datta and Guthrie (1994) and Parrino (1997), better performing firms are more likely to promote internally. Internal promotions are associated with higher industry-adjusted stock returns, market-to-book ratios, ROA, and sales growth (Panel A). Firms in the top industry-adjusted stock return (ROA) quintile promote internally in 80% (77%) of cases, while firms in the bottom quintile do so in only 56% (62%) of cases (Panel B).

The literature proposes several reasons for why boards are more likely to choose outsiders after bad performance – outsiders may offer new perspectives on how to run the firm, outsiders may be more willing to make radical changes, and the board may have updated negatively about the current management team.[33] However, even among firms with bottom quintile performance, fewer than 30% choose outsiders. Thus, while these mechanisms are likely to matter, the forces that favor insiders dominate even after bad performance.

Another interesting observation is that hiring external insiders – i.e., former executives or board members – is associated with even lower stock returns, ROA, and market-to-book ratios than hiring outsiders. These hires are also associated with the prior CEO leaving early in tenure and at an unusually low age, suggesting performance-induced turnovers. Not hiring a current insider after bad performance can be explained by the reasons discussed above. On the other hand, a firm in crisis may have a strong preference for a familiar leader who knows the firm and can hit the ground running. Former employees or board members offer a solution: they are not discredited by recent bad performance and bring ideas from other firms, yet they also have firm-specific human capital and are known by the board. This also implies that, after bad performance, there is an important distinction between current and former insiders.

Multivariate regressions in Panel C of Table 6 confirm these results. The first regression estimates a linear probability model of an indicator for internal promotions on firm characteristics. The second regression estimates a multinomial logit model with three choices – internal promotions, hiring an external insider, or hiring an outsider – on the same characteristics.[34]

Results are consistent across models. Focusing on the linear probability model, the estimates confirm that internal promotions are significantly positively related to firm size, industry-adjusted stock returns, and ROA, and insignificantly positively to sales growth. Internal promotions are also significantly positively correlated with industry stock returns and negatively with R&D intensity. Consistent with the univariate results, the largest effects are from industry-adjusted stock returns (an 8.7 percentage point increase in internal promotions for a one standard deviation change) and from firm size (a 4.5 percentage point increase).

[33] See, among others, Hofer (1980), Nystrom and Starbuck (1984), Dalton and Kesner (1985), Kesner and Sebora (1994), Parrino (1997), Shen and Cannella (2002), and Finkelstein, Hambrick, and Cannella (2008).

[34]Because of partially missing data, we omit the number of operating segments from the regressions. Including it yields suggestive but insignificant evidence of a mildly stronger preference for insiders in more complex firms.

The observation of more internal promotions in larger firms raises the question whether the dominance of internal hires extends to firms outside the S&P 500. Eisfeldt and Kuhnen (2013) and Cremers and Grinstein (2014) analyze S&P 1,500 firms and observe 29% and 30% external CEO hires during 1992-2006 and 1992-2005, respectively.[35] Both estimates are only marginally higher than the 27% in our sample (see Table 2), which suggests that external hires are not much more common in the S&P MidCap 400 and SmallCap 600.[36] In stark contrast, Gompers, Kaplan, and Mukharlyamov (2026) analyze private-equity owned firms during 2010-16 and observe more than 75% external CEO hires and 67% outsiders. More work is needed to understand why CEO hiring differs across firm types, and especially why PE-owned firms hire CEOs very differently from public firms.

Panel A of Table IA3 in the Internet Appendix adds the enforceability of non-compete agreements at the state level from Garmaise (2011) to the Table 6 regressions. Against expectations, the enforceability index is insignificantly negatively correlated with internal promotions. This suggests that non-competes do not cause the popularity of internal promotions. Even among hires for which non-compete enforceability is weak (Garmaise index $\leq 3$ of 12; 46% of our sample), only 18% of new CEOs are outsiders (untabulated).

Panel B of Table IA3 adds blockholder ownership, defined as the percentage of equity held by those with stakes of at least 5 percent, to the Table 6 regressions.[37] Because of missing data, this reduces the number of observations by about 20%. Blockholder ownership is insignificantly negatively correlated with internal promotions in both the linear probability and the multinomial logit model. Using an indicator for "at least one 10-percent blockholder" yields insignificant positive correlations with internal promotions in both models (untabulated). Hence, there is little evidence that large shareholders oppose internal promotions or favor outsiders. This speaks against agency problems as the main reason for firms' tendency to hire insiders.

[35] The S&P 1,500 is the union of S&P 500, S&P MidCap 400, and S&P SmallCap 600.
[36] Neither of these two studies examines whether the external hires are former employees or current or former board members, so we cannot compare the percentages of true outsiders.
[37] The blockholder data is available for 1996-2012 and was collected as described in Dlugosz, Fahlenbrach, Gompers, and Metrick (2006). We are grateful to Rudi Fahlenbrach and Jasmin Gider for sharing their data.

### 5.2 Raiding executives vs. hiring unattached managers

Conditional on hiring an outsider, firms have a choice between raiding another firm's CEO, raiding a below-CEO executive, and hiring an unattached manager. Table 7 examines the firm characteristics associated with these choices. Panel A reports average firm characteristics by source of outsider hire, while Panel B sorts firms into terciles based on their characteristics and reports hiring choices for the top and bottom tercile.[38]

Even though raiding below-CEO executives is the most frequent choice across the board, larger firms are relatively more likely to be successful in raiding a CEO, while smaller firms are relatively more likely to raid a below-CEO executive or hire an unattached manager. Firms raiding CEOs have an average firm value of 36bn, compared to 24bn for firms raiding below-CEO executives and 19bn for firms hiring unattached managers (Table 7 Panel A). Firms with value in the top tercile raid CEOs for 20% of their outsider hires, while firms in the bottom tercile do so in only 6% of cases (Panel B).

Table 7 also shows that, conditional on hiring an outsider, unattached managers are more frequently chosen by firms with low stock returns, low ROA, low sales growth, low market-to-book, and high leverage. For example, firms with bottom-tercile industry-adjusted stock returns choose unattached managers for 39% of their outsider hires, while firms in the top tercile do so in only 29% of cases. This is consistent with badly performing firms finding it difficult to hire other firms' executives. Better-performing firms do so more frequently, with larger firms poaching both CEOs and other executives and smaller firms focusing on below-CEO executives.

These univariate results are confirmed in Panel C of Table 7 using a multinomial logit model that relates the same three choices – CEO raids, below-CEO raids, hiring unattached managers – to firm characteristics. CEO raids are significantly positively related to firm size and sales growth, and insignificantly positively to industry-adjusted stock returns and capital expenditures. Below-CEO raids are significantly positively correlated with industry returns, ROA, and R&D intensity, and insignificantly positively with investment into physical capital. Unattached hires, on the other hand, are significantly negatively related to industry returns, significantly positively to leverage, and insignificantly negatively to firm value, industry-adjusted stock returns, ROA, sales growth, and investment into R&D and physical capital. Hence, except

[38] We sort firms into terciles rather than quintiles (used in Table 6) because of the small number of outsider hires.

for the market-to-book ratio, hiring unattached managers is associated with signs of bad performance.

The evidence in this and the prior sections suggests that the attractiveness of the hiring firm is an important factor in the CEO labor market. The few CEO raids that occur are almost all done by large and relatively well-performing firms, at least compared to other firms hiring outsiders, and target much smaller and relatively badly performing firms (see Section 4.3). Better firm and industry performance are associated with more CEO and below-CEO raids, while worse performance predicts unattached hires. Hence, smaller and badly performing firms, which are likely to be most in need of talent, appear least able to attract executives from other firms.

## 6. CEO pay

One potential explanation for firms choosing internal promotions over outsiders is differences in CEO pay. There are several reasons why outsiders, and especially outsiders employed by other firms, might be more expensive. First, outsiders are presumably hired because of their general (and therefore transferrable) skills, which are prized by the managerial labor market (Murphy and Zabojnik 2007; Custodio, Ferreira, and Matos 2013; Falato, Li, and Milbourn 2015). Second, outsiders are likely to be uncertain about their fit with the new firm, which necessitates paying a risk premium (Peters and Wagner 2014; Carter, Franco, and Tuna 2019). Third, loyalty to their current employer, and contractual or other frictions (such as unvested equity or the need to move a family), are likely to make outsiders more costly.

Panel A of Table 8 compares initial compensation levels of new CEOs who are internal promotions, external insiders, and outsiders. CEO pay is measured using ExecuComp's TDC1 variable and includes salary, bonuses, cash incentive-plan payouts, the grant-date fair value of stock and option awards, reportable deferred compensation, and other compensation.[39] Because most new CEOs do not start on the first day of a fiscal year, their first reported CEO pay is for a partial year. We therefore report compensation levels for both the fiscal year in which the new CEO starts and the subsequent year.

During the hiring year, outsiders are paid substantially more than external insiders and internal promotions. Average pay for outsiders is 16.4 million, compared to 14.4 million for

[39] Other compensation includes perquisites, company retirement-plan contributions, insurance premiums, and tax gross-ups.

external insiders and 10.7 million for internal promotions (all in 2021 dollars). These numbers are, however, misleading as there are also large firm size differences between these categories (see Section 5.1). We therefore also report abnormal pay, calculated as the residual from a regression of total pay on firm size, year fixed effects, industry fixed effects, and the interaction of firm size and industry fixed effects, estimated using all CEOs in ExecuComp.[40] This reduces the differences, with mean abnormal pay of 4.1 million for outsiders, 1.4 million for external insiders, and -1.0 million for internal promotions.

These pay differences are consistent with outsiders having more transferrable human capital, with outsiders receiving a premium for accepting the risk of a bad match, and with outsiders being compensated for frictions in changing jobs and locations. Consistent with front-loaded risk premia and compensation for moving costs, the pay differences decline sharply in the subsequent fiscal year: mean abnormal pay falls to 0.3 million for outsiders and 0.6 million for external insiders, and it is still -1.0 million for internal promotions. Front loading pay premia, rather than embedding them in a permanently shifted pay scale, might be more palatable to shareholders and proxy advisors.

These pay differences appear moderate, and it is an open question whether they can explain the dominance of internal promotions. As a percentage of firm value, CEO pay in S&P 500 firms is small – average pay in the first full year is 0.11% of firm value for outsiders, 0.09% for external insiders, and 0.06% for internal promotions. The pay differences between insiders and outsiders are even smaller, and capitalized at a typical cost of capital, their present value would be less than 0.1% of firm value. Thus, for these pay differences to explain firms' choices, the expected additional value created from expanding the candidate pool beyond insiders would have to be even smaller.[41]

Conditional on hiring an outsider, firms have a choice between raiding CEOs, raiding below-CEO executives, and hiring unattached managers. Panel B of Table 8 examines whether these choices might be explained by differences in CEO pay. Pay and abnormal pay in the hiring year are highest for raided below-CEO executives, consistent with firms having to pay a premium

[40] Firm size is measured as the natural logarithm of firm value. Using the natural logarithm of book assets instead leaves the results qualitatively unchanged.

[41] Several studies suggest that CEOs can have large effects on firm policies and values (see, among others, Bertrand and Schoar (2003), Chang, Dasgupta, and Hilary (2010), Salas (2010), Donatiello, Larcker, and Tayan (2018), Bandiera, Prat, Hansen, and Sadun (2020), Bennedsen, Pérez-González, and Wolfenzon (2020), and Jenter, Matveyev, and Roth (2026), but also Fee, Hadlock, and Pierce (2013) for contrary evidence).

to lure them from their (usually larger and better-performing) prior employers. Perhaps surprisingly, raided CEOs are not especially expensive, with hiring-year total and abnormal pay that are even lower than for unattached executives. After the hiring year, abnormal pay is similar for all three categories of outsiders. In the first full year, average abnormal pay is 0.4 million for raided CEOs, -0.1 million for other raided executives, and 0.7 million for unattached managers. Hence, differences in pay do not offer an obvious explanation for why firms rarely poach CEOs.

These univariate results are confirmed in multivariate analyses in Panel C of Table 8. We regress the log of CEO pay in the first full year on indicators for the different types of CEO hires and controls for firm size, performance, other firm characteristics, year fixed effects, industry fixed effects, and interactions between firm size and industry fixed effects. All firm characteristics are measured before the new CEO's arrival. The results confirm that outsiders are paid more than internal promotions, but also that the pay differences between raided CEOs, raided other executives, and unattached hires are moderate. The estimated pay premia for outsiders are larger when controls for firm performance are included. This is because outsiders are typically hired into badly performing firms, in which internal promotions are paid relatively little. Interestingly, there is no evidence that badly performing firms pay a premium to attract talent, as new CEO pay is positively correlated with pre-hiring industry-adjusted stock returns and sales growth.

Finally, to better understand executives' rewards from accepting a CEO position, we analyze how the compensation of new CEOs changes from the last full year before their appointment to the first full year after. We can compute compensation changes for most new CEOs in our sample. We exclude those whose last executive position ended more than one year before the appointment. For those previously at a US public firm but not in its compensation disclosure, we use the pay of the third highest-paid executive besides the CEO or CFO as an upper bound. Please see Appendix B for details.

The results are in Table 9. On average, executives experience large pay increases when becoming CEO, but there are significant differences across types. Panel A compares insiders to outsiders. Focusing on medians, a typical internal promotion receives a $4 million raise, with a ratio of new-to-old pay of 2.1. External insiders (i.e., former executives and current or former board members) receive a $5.2 million raise, with a ratio of new-to-old pay of 1.9. For outsiders, the median increase is only $2.5 million, and the ratio of new-to-old pay is 1.5.

Large raises for internal promotions are consistent with several theories. The promotion is a signal that may improve outside options (Bernhardt 1995), promotion tournaments optimally feature large prizes (Rosen 1986), such prizes may also provide ex-ante incentives for human capital investment (Kwon 2006), and high CEO pay may compensate for the greater effort, stress, or risk associated with being a CEO (Prendergast 1999, Peters and Wagner 2014, Borgschulte, Guenzel, Liu, and Malmendier 2025). Finally, if the chosen CEO is discretely better than the next best candidate, they may extract part of a potentially large match surplus.[42]

Outsiders receiving smaller raises, while being paid more in absolute terms (Table 8), means that they already earned more in their prior job. As outsider hires, they are likely to have high general ability, which puts upward pressure on their pay at the prior firm. Nonetheless, they still receive a substantial raise. This may compensate for moving costs or for the greater effort, time commitment, stress, or risk associated with the new job. For those raided directly from other firms, a pay increase may also be required to overcome the previous employer's retention offer. Finally, if there are few suitable candidates, the chosen CEO is likely to be discretely better than the next best alternative and may bargain for part of the match surplus.

Focusing on outsiders, Panel B distinguishes between those raided directly from other firms and those that were unattached. Pay increases are substantial for both raided CEOs and raided below-CEO executives (median increases of $3.2 million and new-to-old pay ratios of 1.7 for both), which suggests that executives require large rewards to switch firms. Pay increases for unattached executives (even after restricting the sample to those employed within the last year) are substantially smaller, with a median increase of $1.1 million and median new-to-old pay ratio of 1.2. This is arguably unsurprising – unattached executives do not have the option to stay in a well-paying job, and the hiring firm does not have to worry about counteroffers.

## 7. Summary and conclusion

This paper's most striking result is that firms hire CEOs they are already familiar with – the firm's current or former executives, current or former board members, or managers its directors have worked with – more than 90% of the time. This suggests that the CEO labor market is not well

[42] Most of these explanations also apply to external insiders. In addition, since they are often hired when firms are not doing well (see Section 5.1), and since the supply of top executives who have firm-specific knowledge but are untainted by recent bad performance is likely to be small, their match surplus might be especially large.

described by perfectly competitive assignment models in which ability is perfectly observable and portable. Instead, most firms choose among insiders and those already known to its board, reducing competition and making each firm's effective candidate pool much smaller than the overall market.

Most of this this paper's results can be explained by a combination of firm-specific human capital and asymmetric learning about CEO ability, but we cannot rule out that agency frictions, contractual frictions, or behavioral biases contribute. In addition, several results suggest the importance of talent supply, and specifically of top executives' preference for larger and better performing firms. A small literature inspired by our findings has started exploring which combination of frictions and preferences is best suited to explaining the data, but more work remains to be done.[43]

Finally, our results have implications for CEO pay. With only a small number of candidates, there are likely to be discrete differences between them: the value created by the top candidate will be discretely larger than that created by the runner-up. This implies that there are match surpluses to be shared, which will be bargained over between the top candidate and shareholders. This is not because there are governance failures, but because each firm's top candidate is discretely better than its second choice, and in large firms even small differences in skills can result in large differences in value added.

[43] See, for example, Geelen and Hajda (2024), Barry, Lyman, and Zhao (2025), He and Schroth (2025), Waldman and Zabojnik (2025), Capron et al. (2026), and the discussion in Section 2.

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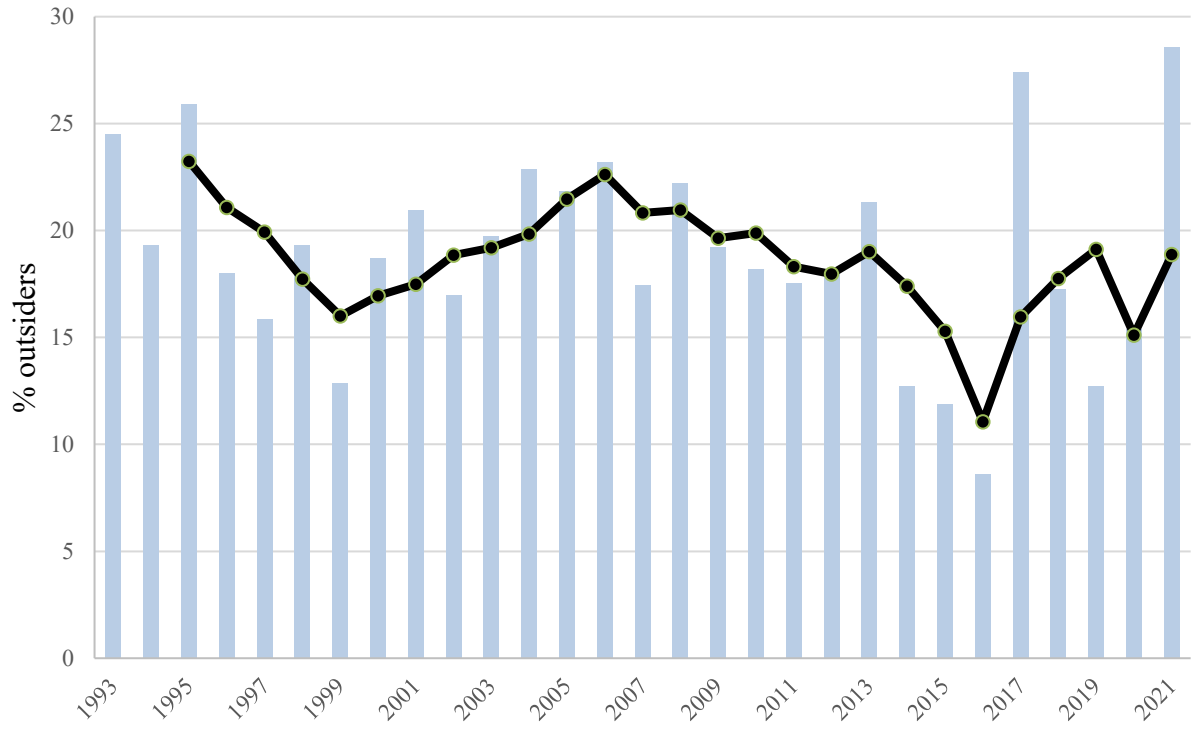
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**Figure 1: Outsider hires over time**
This figure shows the percentage of outsiders among new CEO appointments in S&P 500 firms from 1993 to 2021. *Outsiders* are neither former nor current executives or board members of the hiring firm. The gray bars depict yearly averages and the solid black line shows a three-year moving average over years t-2 to t.



## Table 1: Characteristics of hiring firms

This table shows descriptive statistics for all CEO hiring firms in the S&P 500 from 1993-2021. There are 1,775 (non-interim) CEO appointments. Panel A shows firm characteristics, Panels B and C show characteristics of old and new CEOs, respectively. All dollar values in Panel A (B) are in millions (thousands) of 2021 dollars. *Firm value* is book assets minus book value of equity plus market value of equity, where book value of equity is shareholders' equity plus deferred taxes plus balance sheet tax credits minus book value of preferred stock. *Number of segments* is the number of operating segments reported by the firm. *12m industry-adjusted returns* are average monthly stock returns net of the value-weighted 3-digit SIC industry return. *12m industry returns* are average monthly value-weighted 3-digit SIC industry returns. Returns of hiring firms are measured up to the month preceding the CEO hiring; returns of all S&P 500 firms are measured to the end of the fiscal year. *ROA* (return on assets) is operating cash flow divided by book assets. *Sales growth* is the year-on-year growth rate of sales. *M/B* (market-to-book) is firm value divided by book assets. *Leverage* is total debt divided by book assets. *Ownership stake* is the CEO's percentage equity ownership and includes vested options. All accounting variables are measured at the end of the fiscal year preceding the CEO hiring, are winsorized at the 1% level, and exclude financial firms (SIC codes 6000-6999). The last column shows a t-test of equal means between the CEO hiring firms and the S&P 500.

**Panel A: Firm characteristics**

| | Mean | Median | Std. | P25 | P75 | Obs. | S&P Mean | Diff. T-stat. |
|---|---|---|---|---|---|---|---|---|
| Firm value | 41,225 | 17,436 | 67,276 | 7,487 | 41,744 | 1,455 | 48,906 | -4.03*** |
| Book assets | 25,348 | 11,283 | 42,362 | 4,818 | 28,257 | 1,457 | 26,998 | -1.39 |
| Number of segments | 4.10 | 4.00 | 2.71 | 2.00 | 5.00 | 1,616 | 4.03 | 0.95 |
| 12m ind.-adj. return | -0.27 | -0.12 | 2.72 | -1.25 | 0.81 | 1,680 | 0.04 | -4.51*** |
| 12m industry return | 0.65 | 0.80 | 2.62 | -0.37 | 1.94 | 1,684 | 0.94 | -4.41*** |
| ROA | 0.05 | 0.05 | 0.08 | 0.02 | 0.09 | 1,457 | 0.06 | -5.39*** |
| Sales growth | 0.07 | 0.04 | 0.19 | -0.01 | 0.13 | 1,448 | 0.06 | 2.57** |
| M/B | 2.11 | 1.60 | 1.55 | 1.19 | 2.38 | 1,441 | 2.22 | -2.50** |
| CapEx/Assets | 0.05 | 0.04 | 0.04 | 0.03 | 0.07 | 1,448 | 0.05 | 7.38*** |
| R&D/Assets | 0.03 | 0.00 | 0.04 | 0.00 | 0.03 | 1,457 | 0.02 | 3.00*** |
| Leverage | 0.26 | 0.25 | 0.16 | 0.15 | 0.36 | 1,451 | 0.23 | 6.62*** |

**Panel B: Old CEO**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | 60 | 61 | 7 | 56 | 64 | 1,607 | 56.83 | 16.98*** |
| Tenure as CEO | 8.4 | 7.0 | 7.0 | 4.0 | 11.0 | 1,584 | 6.5 | 10.17*** |
| Female | 0.02 | 0.00 | 0.14 | 0.00 | 0.00 | 1,626 | 0.028 | -2.00** |
| Ownership stake (%) | 1.25 | 0.40 | 2.77 | 0.17 | 1.00 | 1,531 | 1.055 | 2.40** |
| Value vested options | 22,520 | 3,753 | 48,662 | 0.00 | 20,879 | 1,624 | 29,317 | -1.23 |
| Value unvested options | 5,353 | 350 | 13,014 | 0.00 | 4,505 | 1,624 | 11,125 | -1.41 |
| Value unvested shares | 5,481 | 635 | 10,601 | 0.00 | 6,556 | 1,624 | 8,623 | -4.59*** |

**Panel C: New CEO**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | 54 | 54 | 6 | 50 | 58 | 1,591 | 56.83 | -18.81*** |
| Female | 0.04 | 0.00 | 0.20 | 0.00 | 0.00 | 1,592 | 0.028 | 2.72*** |
| Tenure in firm (internal) | 16.86 | 16.00 | 10.72 | 7.00 | 26.00 | 1,220 | - | - |

**Table 2: CEO hires in S&P 500 firms 1993-2021**

This table classifies 1,775 CEO appointments in S&P 500 firms from 1993 to 2021. *Internal promotions* are employed by the firm at least one year before the CEO appointment, while *external hires* are not. Among external hires, *former executives* used to work at the firm but do not at the time of the appointment. *Board members* are current or former directors of the firm. *Outsiders* are neither former nor current executives or board members of the hiring firm. Panel A shows results for the entire sample, while Panels B and C show only firms of above- or below-median size, respectively. Size is measured using book assets and firms are ranked each year.

**Panel A: All firms (1,775 CEO hires)**

| Internal promotion | External hire | | | |
|---|---|---|---|---|
| **73%** | **27%** | | | |
| | Former executive | Board member | Former executive or board member | Outsider |
| As % of all hires | 3.9% | 7.7% | 8.7% | 18.8% |
| As % of external hires | 14.3% | 28.1% | 31.6% | 68.4% |

**Panel B: Above median size (878 CEO hires)**

| Internal promotion | External hire | | | |
|---|---|---|---|---|
| **77%** | **23%** | | | |
| | Former executive | Board member | Former executive or board member | Outsider |
| As % of all hires | 3.6% | 7.1% | 8.1% | 15.4% |
| As % of external hires | 15.5% | 30.1% | 34.5% | 65.5% |

**Panel C: Below median size (897 CEO hires)**

| Internal promotion | External hire | | | |
|---|---|---|---|---|
| **69%** | **31%** | | | |
| | Former executive | Board member | Former executive or board member | Outsider |
| As % of all hires | 4.2% | 8.4% | 9.3% | 22.2% |
| As % of external hires | 13.5% | 26.6% | 29.4% | 70.6% |

**Table 3: Prior connections between boards and CEOs**

This table shows professional and other connections between directors and new CEOs using data from BoardEx. Only outsiders, i.e., new hires who are neither current nor former insiders, are included in the analysis. A connection between a director and a new CEO is defined as having contemporaneously worked at the same firm, served on the same board, attended the same school, or been a member of the same club, organization, or charity at any time before the CEO appointment. For comparison, each CEO hire is matched with an alternative candidate, who is a new CEO hired or promoted by a similar firm (based on industry and size) within plus or minus two years of the focal CEO's hiring. The matching algorithm is described in Appendix A. Because our sample period only partially overlaps with the period covered by BoardEx, we observe connections for only 197 of the 334 outsider hires in our sample.

| **Connections between directors and new CEO hires** | | |
|---|---|---|
| | CEO hires | Alternative candidates |
| Connections through shared employment or board service: | 53.8% | 13.7% |
| All connections: | 55.3% | 19.8% |
| Observations | 197 | 197 |

**Table 4: Sources of external CEO hires**

This table examines how firms hire external CEOs. A *raided CEO* is employed by a different firm as CEO at the time of the hiring and the cause of the CEO's move is the job offer by the new firm. A *raided other executive* is employed by a different firm at the time of the hiring in an executive position, but not as CEO. An *unattached manager* is not employed as an executive at the time of the hiring, and her last known employment was with a different company. Panel A reports results for *outsiders*, defined as neither former nor current executives or board members of the hiring firm. Panel B reports results for *external insiders*, who are former executives or current or former board members of the hiring firm. Panel C reports summary statistics for the length of time since the last executive position of unattached hires.

| **Panel A: Outsiders (334 CEO hires)** | | | |
|---|---|---|---|
| All outsiders | | 18.8% | |
| | Raided CEO | Raided other executive | Unattached manager |
| As a % of all hires | 2.8% | 9.9% | 6.1% |
| As a % of outsiders | 14.7% | 52.7% | 32.6% |

| **Panel B: External insiders (154 CEO hires)** | | | |
|---|---|---|---|
| All external insiders | | 8.7% | |
| | Raided CEO | Raided other executive | Unattached manager |
| As a % of all hires | 0.7% | 1.6% | 6.4% |
| As a % of external insiders | 7.8% | 18.8% | 73.4% |

| **Panel C: Time since last executive position for unattached hires** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | Median | SD | P10 | P25 | P75 | P90 | Obs. |
| Time since last position (months) | | | | | | | | |
| ... for outsiders | 12.4 | 8 | 13.3 | 1.0 | 3.0 | 19.0 | 32.0 | 108 |
| ... for external insiders | 27.8 | 21 | 26.0 | 2.0 | 8.0 | 43.0 | 58.0 | 113 |

**Table 5: The prior firms of raided executives**

This table analyzes the origin firms of raided executives, i.e., the firms from which raided executives were recruited. *Firm value* is book assets minus book value of equity plus market value of equity, where book value of equity is shareholders' equity plus deferred taxes plus balance sheet tax credits minus book value of preferred stock. *Firm value* and *book assets* are in millions of 2021 dollars. *Industry-adjusted returns* are averages of monthly returns, in percent, net of the value-weighted 3-digit SIC industry return, and measured ending the month preceding the CEO hiring. *ROA* (return on assets) is operating cash flow divided by book assets. *Sales growth* is the year-on-year growth rate of sales. *M/B* (market-to-book) is firm value divided by book assets. All balance sheet items are measured at the end of the fiscal year preceding the CEO hiring, are winsorized at the 5% level, and exclude financial firms (SIC codes 6000-6999). Definitions of types of executive raids are in Table 4.

| | Raided other executives | | Raided CEOs | | Raided CEOs (extended sample) | |
|---|---|---|---|---|---|---|
| | Obs. | % | Obs. | % | Obs. | % |
| Type of origin firm | | | | | | |
| US public | 160 | 78.0% | 46 | 75.4% | 137 | 82.5% |
| US private | 33 | 16.1% | 9 | 14.8% | 22 | 13.3% |
| Foreign public | 12 | 5.9% | 2 | 3.3% | 3 | 1.8% |
| Foreign private | 0 | 0.0% | 4 | 6.6% | 4 | 2.4% |
| Observations | 205 | | 61 | | 166 | |
| | Mean | Median | Mean | Median | Mean | Median |
| Market value | 151,495 | 89,173 | 23,657 | 7,143 | 10,587 | 3,102 |
| Book assets | 89,407 | 42,356 | 13,033 | 6,130 | 6,671 | 2,857 |
| 12m ind.-adj. return | 0.28 | -0.04 | -0.63 | -0.04 | -0.57 | -0.09 |
| 12m industry return | 0.85 | 1.00 | 0.99 | 1.07 | 0.01 | 0.01 |
| 36m ind.-adj. return | 0.20 | 0.05 | -0.18 | 0.01 | -0.19 | -0.07 |
| 36m industry return | 0.73 | 0.80 | 1.00 | 0.82 | 0.96 | 0.87 |
| ROA | 0.06 | 0.06 | 0.02 | 0.04 | -0.01 | 0.03 |
| Sales growth | 0.04 | 0.00 | 0.05 | 0.04 | 0.08 | 0.06 |
| M/B | 1.97 | 1.72 | 1.78 | 1.59 | 2.01 | 1.67 |
| Ratio (origin/destination) firm: | | | | | | |
| Market value | 12.04 | 4.68 | 0.57 | 0.38 | 0.98 | 0.45 |
| Book assets | 13.50 | 4.37 | 0.69 | 0.32 | 0.97 | 0.38 |
| Difference (origin-destination) firm: | | | | | | |
| 12m ind.-adj. return | 1.31 | 0.60 | 0.20 | 0.01 | 0.59 | 0.48 |
| 12m industry return | 0.06 | 0.00 | 0.29 | 0.00 | 0.00 | 0.00 |
| 36m ind.-adj. return | 0.65 | 0.56 | 0.00 | -0.02 | -0.03 | -0.03 |
| 36m industry return | -0.04 | 0.00 | 0.32 | 0.00 | 0.23 | 0.00 |
| ROA | 0.02 | 0.01 | -0.01 | 0.00 | -0.01 | 0.00 |
| Sales growth | 0.02 | 0.00 | 0.05 | 0.05 | 0.04 | 0.04 |
| M/B | 0.04 | 0.04 | 0.32 | 0.08 | 0.15 | 0.04 |

**Table 6: Firm characteristics and hiring choices – insiders vs. outsiders**

This table shows descriptive statistics and regression models of CEO hiring choice for S&P 500 firms hiring 1,775 CEOs from 1993-2021. Panel A sorts firms by type of CEO hired. Panel B shows the percentages of each hiring type for the top and bottom quintiles of firm characteristics. Panel C shows coefficient estimates from a linear probability model with internal promotion as the dependent variable in column 1 and marginal effects from a multinomial logit model for internal promotion, external insider, and outsider in columns 2-4. Definitions of hiring types are in Table 2. *Firm value* is book assets minus book value of equity plus market value of equity, where book value of equity is shareholders' equity plus deferred taxes plus balance sheet tax credits minus book value of preferred stock, all in millions of 2021 dollars. *Number of segments* is the number of operating segments. *Industry-adjusted returns* are averages of monthly returns, in percent, net of the firm's value-weighted 3-digit SIC industry return, measured ending the month preceding the CEO hiring. *Industry returns* are monthly value-weighted average returns of all firms in the firm's 3-digit industry. *ROA* (return on assets) is operating cash flow divided by book assets. *Sales growth* is the year-on-year growth rate of sales. *M/B* (market-to-book) is firm value divided by book assets. All balance sheet items are measured at the end of the fiscal year before the CEO hiring, are winsorized at the 1% level, and exclude financial firms (SIC codes 6000-6999). In Panel C, the marginal effects are evaluated at the means of the independent variables, which are rescaled to have a standard deviation of one. Standard errors are clustered by 3-digit SIC industry. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

**Panel A: Characteristics of hiring firms (by type of hire)**

| | Internal promotion | | External insider | | Outsider | |
|---|---|---|---|---|---|---|
| | Mean | Median | Mean | Median | Mean | Median |
| Firm value | 43,649 | 19,230 | 44,769 | 17,572 | 23,058 | 13,336 |
| Book assets | 26,045 | 12,374 | 25,759 | 14,412 | 16,406 | 8,389 |
| Number of segments | 4.11 | 4.00 | 4.28 | 4.00 | 3.72 | 3.00 |
| 12m ind.-adj. return | 0.03 | -0.01 | -1.41 | -0.91 | -0.95 | -0.46 |
| 12m industry return | 0.68 | 0.79 | 0.35 | 0.64 | 0.67 | 0.95 |
| ROA | 0.06 | 0.05 | 0.03 | 0.04 | 0.04 | 0.04 |
| Sales growth | 0.07 | 0.05 | 0.05 | 0.02 | 0.03 | 0.03 |
| M/B | 2.01 | 1.61 | 1.80 | 1.51 | 1.97 | 1.59 |
| R&D/assets | 0.02 | 0.00 | 0.03 | 0.01 | 0.03 | 0.01 |
| CAPX/assets | 0.05 | 0.05 | 0.05 | 0.03 | 0.05 | 0.04 |
| Leverage | 0.26 | 0.25 | 0.28 | 0.26 | 0.26 | 0.25 |
| Old CEO age | 61 | 61 | 56 | 56 | 58 | 58 |
| Old CEO tenure | 9.1 | 7.0 | 5.5 | 3.0 | 6.9 | 5.0 |

**Table 6 - continued**

**Panel B: Frequencies of hiring types (by firm characteristic)**

| | Top Quintile | | | Bottom Quintile | | |
|---|---|---|---|---|---|---|
| | Internal promotion | External insider | Outsider | Internal promotion | External insider | Outsider |
| Firm value | 82% | 9% | 10% | 66% | 11% | 23% |
| Book assets | 80% | 8% | 12% | 66% | 8% | 25% |
| Number of segments | 70% | 10% | 19% | 68% | 9% | 23% |
| 12m ind.-adj. return | 80% | 6% | 14% | 56% | 16% | 28% |
| 12m industry return | 73% | 7% | 20% | 71% | 11% | 18% |
| ROA | 77% | 6% | 18% | 62% | 12% | 26% |
| Sales growth | 78% | 7% | 15% | 66% | 11% | 23% |
| M/B | 74% | 7% | 19% | 72% | 8% | 20% |
| R&D/assets | 65% | 11% | 24% | 77% | 7% | 16% |
| CAPX/assets | 76% | 8% | 16% | 74% | 9% | 17% |
| Leverage | 71% | 9% | 20% | 72% | 5% | 23% |
| Old CEO age | 82% | 6% | 13% | 54% | 18% | 28% |
| Old CEO tenure | 83% | 5% | 12% | 57% | 19% | 24% |

**Panel C: Regression analysis of CEO hiring choices: insiders vs. outsiders**

| | **OLS** | **Multinomial Logit** | | |
|---|---|---|---|---|
| | Internal promotion | Internal promotion | External insider | Outsider |
| | (1) | (2) | (3) | (4) |
| Log firm value | 0.0452*** | 0.0468*** | -0.0011 | -0.0457*** |
| | (4.099) | (3.979) | (-0.150) | (-4.241) |
| 12m ind.-adj. return | 0.0866*** | 0.0854*** | -0.0346*** | -0.0507*** |
| | (8.174) | (6.770) | (-4.911) | (-4.954) |
| 12m industry return | 0.0342*** | 0.0299** | -0.0150** | -0.0149 |
| | (2.866) | (2.435) | (-2.283) | (-1.254) |
| ROA | 0.0159* | 0.0078 | -0.0081** | 0.0003 |
| | (1.714) | (0.741) | (-2.557) | (0.034) |
| Sales growth | 0.0173 | 0.0214 | -0.0048 | -0.0166 |
| | (1.489) | (1.165) | (-0.776) | (-0.897) |
| M/B | 0.0010 | 0.0045 | -0.0087 | 0.0042 |
| | (0.059) | (0.256) | (-1.000) | (0.265) |
| R&D/Assets | -0.0400** | -0.0374** | 0.0146* | 0.0228** |
| | (-2.576) | (-2.434) | (1.677) | (2.024) |
| CapEx/Assets | 0.0174 | 0.0210* | -0.0060 | -0.0150* |
| | (1.612) | (1.665) | (-0.736) | (-1.647) |
| Leverage | -0.0132 | -0.0134 | 0.0082 | 0.0052 |
| | (-1.125) | (-1.157) | (1.590) | (0.520) |
| Constant | 0.7323*** | | | |
| | (59.758) | | | |
| $R^2$ | 0.064 | | | |
| Observations | 1,616 | 1,616 | 1,616 | 1,616 |

**Table 7: Firm characteristics and hiring choices – raided executives vs. unattached hires**
This table shows descriptive statistics and regression models of hiring choice for S&P 500 firms hiring outsider CEOs from 1993-2021. Panel A sorts hiring firms by source of outsider CEO. Panel B shows percentages of outsider CEOs hired from different sources for the top and bottom terciles of firm characteristics. Panel C shows marginal effects from a multinomial logit model for the choice between raided CEO, raided other executive, and unattached manager. Definitions of sources of CEO hires are in Table 4. Firm characteristics are defined in Table 6 and are measured at the end of the fiscal year before the CEO hiring. The marginal effects in Panel C are evaluated at the means of the independent variables, which are rescaled to have a standard deviation of one. Standard errors are clustered by 3-digit SIC industry. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

**Panel A: Characteristics of firms hiring outsiders (by source of hire)**

| | Raided CEO | | Raided other executive | | Unattached manager | |
|---|---|---|---|---|---|---|
| | Mean | Median | Mean | Median | Mean | Median |
| Firm value | 35,523 | 20,945 | 23,597 | 12,570 | 19,309 | 11,227 |
| Book assets | 28,152 | 17,082 | 14,058 | 7,454 | 12,011 | 7,143 |
| Number of segments | 4.31 | 4.00 | 3.56 | 3.00 | 3.71 | 3.00 |
| 12m ind.-adj. return | -0.39 | -0.07 | -1.08 | -0.29 | -0.99 | -0.95 |
| 12m industry return | 0.36 | 0.38 | 1.04 | 1.06 | 0.17 | 0.94 |
| ROA | 0.03 | 0.04 | 0.05 | 0.05 | 0.04 | 0.03 |
| Sales growth | 0.01 | 0.02 | 0.03 | 0.03 | 0.06 | 0.03 |
| M/B | 1.70 | 1.54 | 1.98 | 1.58 | 2.17 | 1.59 |
| R&D/assets | 0.02 | 0.00 | 0.04 | 0.01 | 0.03 | 0.01 |
| CAPX/assets | 0.05 | 0.05 | 0.05 | 0.04 | 0.05 | 0.04 |
| Leverage | 0.25 | 0.25 | 0.24 | 0.24 | 0.28 | 0.28 |
| Old CEO age | 57 | 57 | 58 | 58 | 58 | 59 |
| Old CEO tenure | 7.5 | 5.0 | 7.1 | 6.0 | 6.3 | 5.0 |

**Panel B: Frequencies of outsider sources (by firm characteristics)**

| | Top Tercile | | | Bottom Tercile | | |
|---|---|---|---|---|---|---|
| | Raided CEO | Raided other exec | Unattached manager | Raided CEO | Raided other exec | Unattached manager |
| Firm value | 20% | 45% | 34% | 6% | 62% | 32% |
| Book assets | 24% | 46% | 29% | 6% | 65% | 30% |
| Number of segments | 24% | 48% | 28% | 13% | 58% | 29% |
| 12m ind.-adj. return | 16% | 55% | 29% | 8% | 53% | 39% |
| 12m industry return | 9% | 60% | 30% | 18% | 50% | 32% |
| ROA | 12% | 60% | 29% | 16% | 43% | 41% |
| Sales growth | 15% | 56% | 29% | 17% | 45% | 38% |
| M/B | 13% | 57% | 30% | 16% | 43% | 40% |
| R&D/assets | 12% | 63% | 26% | 17% | 50% | 32% |
| CAPX/assets | 17% | 59% | 24% | 13% | 53% | 34% |
| Leverage | 13% | 49% | 38% | 16% | 61% | 23% |
| Old CEO age | 14% | 53% | 32% | 19% | 54% | 27% |
| Old CEO tenure | 14% | 59% | 26% | 16% | 49% | 35% |

**Table 7 – continued**

| **Panel C: Regression analysis of CEO hiring choices: raided executives vs. unattached hires** | | | |
|---|---|---|---|
| | | **Multinomial Logit** | |
| | Raided CEO | Raided other executive | Unattached manager |
| | (1) | (2) | (3) |
| Log firm value | 0.0655*** | -0.0471 | -0.0184 |
| | (2.871) | (-1.488) | (-0.696) |
| 12m ind.-adj. return | 0.0220 | -0.0091 | -0.0128 |
| | (1.365) | (-0.216) | (-0.343) |
| 12m industry return | -0.0073 | 0.0630** | -0.0557** |
| | (-0.508) | (2.462) | (-2.319) |
| ROA | -0.0271 | 0.0725** | -0.0453 |
| | (-0.869) | (2.101) | (-1.610) |
| Sales growth | 0.0192** | -0.0034 | -0.0158 |
| | (2.022) | (-0.125) | (-0.616) |
| M/B | -0.0358 | -0.0225 | 0.0583 |
| | (-1.501) | (-0.593) | (1.621) |
| R&D/Assets | -0.0340 | 0.0656** | -0.0316 |
| | (-1.462) | (2.011) | (-1.237) |
| CapEx/Assets | 0.0240 | 0.0281 | -0.0522 |
| | (1.132) | (0.637) | (-1.138) |
| Leverage | -0.0303 | -0.0284 | 0.0587** |
| | (-1.122) | (-0.843) | (2.025) |
| Observations | 295 | 295 | 295 |

**Table 8: New CEO pay**

This table reports descriptive statistics for new CEO compensation by type of CEO hire in Panel A and by source of outsider hire in Panel B, and regressions of new CEO compensation on types of CEO hires in Panel C. *Total pay* is TDC1 from ExecuComp and includes salary, bonus, the value of option and stock grants, payouts from long-term incentive plans, and all other pay. All compensation numbers are in thousands of 2021 dollars and winsorized at the 5th and the 95th percentile. *Abnormal pay* is the residual from a regression of total CEO pay on the natural logarithm of firm value (book assets minus book value of equity plus market value of equity), year fixed effects, 3-digit SIC industry fixed effects, and interactions of the natural log of firm value with industry fixed effects. *Total pay as a % of firm value* is total pay divided by the value of the firm. *Partial year* is the fiscal year in which the new CEO starts. *First full year* is the subsequent fiscal year. In Panel C, the dependent variable is the natural logarithm of CEO pay in the first full year the new CEO leads the firm, in thousands of 2021 dollars, and winsorized at the 5th and the 95th percentile. Definitions of the independent variables are in Table 6. Firm characteristics are measured at the end of the fiscal year before the CEO hiring. The omitted CEO type is internal promotions, and all independent variables other than the CEO-type indicators are rescaled to have a standard deviation of one. Standard errors are clustered by 3-digit SIC industry. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

**Panel A: Insiders vs. outsiders**

| | Internal promotion | | External insider | | Outsider | |
|---|---|---|---|---|---|---|
| | Mean | Median | Mean | Median | Mean | Median |
| Total pay (partial year) | 10,664 | 7,908 | 14,384 | 11,283 | 16,353 | 13,338 |
| … as a % of firm value | 0.060% | 0.031% | 0.120% | 0.064% | 0.165% | 0.092% |
| Abnormal pay (partial year) | -951 | -1,722 | 1,412 | -389 | 4,075 | 3,780 |
| … as a % of firm value | -0.010% | -0.004% | 0.013% | 0.000% | 0.054% | 0.020% |
| Total pay (first full year) | 10,572 | 8,745 | 12,085 | 10,752 | 11,164 | 9,581 |
| … as a % of firm value | 0.059% | 0.034% | 0.091% | 0.046% | 0.105% | 0.063% |
| Abnormal pay (first full year) | -1,018 | -1,344 | 595 | 1,226 | 263 | -182 |
| … as a % of firm value | -0.013% | -0.005% | 0.003% | 0.002% | 0.005% | 0.000% |

**Panel B: By source of outsider hire**

| | Raided CEO | | Raided other executive | | Unattached manager | |
|---|---|---|---|---|---|---|
| | Mean | Median | Mean | Median | Mean | Median |
| Total pay (partial year) | 12,885 | 9,756 | 18,195 | 15,464 | 15,215 | 11,685 |
| … as a % of firm value | 0.069% | 0.043% | 0.188% | 0.115% | 0.186% | 0.079% |
| Abnormal pay (partial year) | 2,352 | 1,832 | 5,001 | 5,204 | 3,315 | 2,900 |
| … as a % of firm value | 0.021% | 0.007% | 0.072% | 0.034% | 0.042% | 0.011% |
| Total pay (first full year) | 12,270 | 10,634 | 10,644 | 8,998 | 11,525 | 9,713 |
| … as a % of firm value | 0.076% | 0.042% | 0.116% | 0.068% | 0.101% | 0.069% |
| Abnormal pay (first full year) | 430 | 342 | -65 | -508 | 708 | 464 |
| … as a % of firm value | 0.015% | 0.000% | 0.007% | -0.001% | -0.004% | 0.002% |

**Table 8 – continued**

| **Panel C: Regression analysis of new CEO pay** | | | | |
|---|---|---|---|---|
| | Ln(New CEO pay, first full year) | | | |
| | (1) | (2) | (3) | (4) |
| Outsider - raided CEO | 0.28*** | 0.25*** | 0.31*** | 0.29*** |
| | (4.255) | (3.886) | (4.403) | (4.185) |
| Outsider - raided other executive | 0.18*** | 0.20*** | 0.19*** | 0.21*** |
| | (2.763) | (2.665) | (2.869) | (2.729) |
| Outsider - unattached manager | 0.27*** | 0.28*** | 0.31*** | 0.31*** |
| | (3.759) | (3.448) | (4.004) | (3.498) |
| External insider | 0.07 | 0.07 | 0.10 | 0.09 |
| | (1.052) | (0.999) | (1.446) | (1.219) |
| Log firm value | 0.44*** | | 0.43*** | |
| | (17.732) | | (17.317) | |
| 12m ind.-adj. return | | | 0.05*** | 0.06*** |
| | | | (2.811) | (2.639) |
| 12m industry return | | | 0.03 | 0.04 |
| | | | (1.202) | (1.453) |
| ROA | | | -0.00 | -0.01 |
| | | | (-0.198) | (-0.600) |
| Sales growth | | | 0.02 | 0.02 |
| | | | (0.625) | (0.571) |
| M/B | | | 0.00 | 0.00 |
| | | | (0.102) | (0.112) |
| R&D/assets | | | 0.05** | 0.06** |
| | | | (2.386) | (2.331) |
| CapEx/assets | | | 0.04 | 0.06* |
| | | | (1.590) | (1.956) |
| Leverage | | | 0.00 | 0.00 |
| | | | (0.062) | (0.025) |
| Industry (SIC3) F.E. | Yes | Yes | Yes | Yes |
| Year F.E. | Yes | Yes | Yes | Yes |
| Industry (SIC3) F.E. × Log firm value | | Yes | | Yes |
| $R^2$ | 0.486 | 0.538 | 0.495 | 0.551 |
| Observations | 1,493 | 1,493 | 1,424 | 1,424 |

**Table 9: Pay changes for new CEOs**

This table reports descriptive statistics for the change in executive compensation for new CEOs from the last full fiscal year before their hiring to the first full fiscal year after. The year of the CEO hiring is omitted. Panel A shows pay changes by type of CEO hire and Panel B shows pay changes for outsider hires by the source of the hire. *Dollar change* is the change in total pay in thousands of 2021 dollars, measured as TDC1 from ExecuComp which includes salary, bonus, the value of option and stock grants, payouts from long-term incentive plans, and all other pay. *Ratio of new to old pay* is total pay in the first full fiscal year after the hiring divided by total pay in the last full fiscal year before. All compensation numbers are winsorized at the 5th and the 95th percentile.

**Panel A: Insiders vs. outsiders**

| | Internal promotion | | External insider | | Outsider | |
|---|---|---|---|---|---|---|
| | Mean | Median | Mean | Median | Mean | Median |
| Dollar change | 4,783 | 3,974 | 6,107 | 5,175 | 3,604 | 2,465 |
| Ratio of new to old pay | 2.44 | 2.06 | 2.75 | 1.94 | 2.16 | 1.53 |

**Panel B: By source of outsider hire**

| | Raided CEO | | Raided other executive | | Unattached manager | |
|---|---|---|---|---|---|---|
| | Mean | Median | Mean | Median | Mean | Median |
| Dollar change | 3,697 | 3,165 | 4,227 | 3,173 | 1,501 | 1,070 |
| Ratio of new to old pay | 2.30 | 1.72 | 2.27 | 1.72 | 1.70 | 1.21 |

# Appendix

## Appendix A: Alternative candidates to examine CEO-board connections

Using the algorithm of Engelberg, Gao, and Parsons (2013), we are able to find 207 of the 334 outsider hires in our sample in BoardEx. To match these 207 CEO hires to alternative candidates the firm could have hired, we start with all new CEO appointments in our sample (i) within plus or minus two years of the focal CEO's hiring, (ii) at firms within plus or minus 30% of the firm value of the focal firm (where firm value is defined as book assets minus book value of equity plus market value of equity), (iii) in the same 4-digit SIC industry. Of the alternative candidates in this set, we choose the observation closest in firm size.

If the first match is not in BoardEx, we consider the next closest match in terms of firm size. We repeat this until we find a match. If there are no matches that satisfy criteria (i)-(iii), we relax the industry constraint (iii) and look in the same 3-digit, 2-digit, and 1-digit SIC industry, as needed. If there are no matches in the same 1-digit industry, we select the alternative candidate that satisfies (i) and (ii) and is closest in size. In 10 cases there are no alternative candidates that satisfy (i) and (ii), and we drop these CEO hires from the analysis. Finally, in 20 cases the algorithm initially matches the same control CEO to two or more focal CEOs. In such cases, we assign an alternate control CEOs to ensure that no control CEO appears more than once. When reassigning control CEOs, we aim to maximize the overall match quality on industry and size. This procedure yields 197 matched pairs.

**Appendix B: Compensation changes for new CEOs**

We try to compute or approximate the change in executive compensation from the last full year before becoming CEO to the first full year after, omitting the transition year, for all CEO hires in our sample. We use data from ExecuComp and BoardEx. Compensation is measured using ExecuComp's TDC1 variable and includes salary, bonuses, cash incentive-plan payouts, the grant-date fair value of stock and option awards, reportable deferred compensation, and other compensation.[1]

For 1,045 of the 1,287 internal promotions (81%), we use the executive's actual compensation for the year before the appointment. For 169 (13.1%), we approximate by using the pay of the third highest-paid executive who is neither the CEO nor CFO as an upper bound. The missing observations are from firms that are not yet on ExecuComp or BoardEx in the year before the appointment.

For external hires, we exclude executives whose last executive position ended more than one year before the appointment, as their compensation data would be outdated. For the remaining 378 external hires, we use the actual pay at the prior firm for 163 executives (43%), and we use the pay of the third highest-paid executive besides the CEO or CFO at the prior firm for 79 (21%). The missing observations are for executives who came from private firms, foreign firms, or firms without data on ExecuComp and BoardEx.

[1] Other compensation includes perquisites, company retirement-plan contributions, insurance premiums, and tax gross-ups.

Internet Appendix for

# "The Market for CEOs"

September 2026

**Table IA1: Changes in CEO hiring over time**

This table classifies CEO appointments in S&P 500 firms in 1993-99 (Panel A), 2000-06 (Panel B), 2007-13 (Panel C), and 2014-2021 (Panel D). *Internal promotions* are employed by the firm at least one year before the CEO appointment, while *external hires* are not. Among external hires, *former executives* used to work at the firm but do not at the time of the appointment. *Board members* are current or former directors of the firm. *Outsiders* are neither former nor current executives or board members of the hiring firm.

**Panel A: 1993-1999 (427 CEO hires)**

| Internal promotion | External hire | | | |
|---|---|---|---|---|
| **73%** | **27%** | | | |
| | Former executive | Board member | Former executive or board member | Outsider |
| As % of all hires | 4.2% | 6.8% | 7.7% | 19.4% |
| As % of external hires | 15.5% | 25.0% | 28.4% | 71.6% |

**Panel B: 2000-2006 (533 CEO hires)**

| Internal promotion | External hire | | | |
|---|---|---|---|---|
| **69%** | **31%** | | | |
| | Former executive | Board member | Former executive or board member | Outsider |
| As % of all hires | 5.8% | 8.8% | 9.9% | 20.6% |
| As % of external hires | 19.0% | 28.8% | 32.5% | 67.5% |

**Panel C: 2007-2013 (393 CEO hires)**

| Internal promotion | External hire | | | |
|---|---|---|---|---|
| **72%** | **28%** | | | |
| | Former executive | Board member | Former executive or board member | Outsider |
| As % of all hires | 2.3% | 7.9% | 8.4% | 19.3% |
| As % of external hires | 8.3% | 28.4% | 30.3% | 69.7% |

**Panel D: 2014-2021 (421 CEO hires)**

| Internal promotion | External hire | | | |
|---|---|---|---|---|
| **76%** | **24%** | | | |
| | Former executive | Board member | Former executive or board member | Outsider |
| As % of all hires | 2.9% | 7.1% | 8.3% | 15.4% |
| As % of external hires | 12.0% | 30.0% | 35.0% | 65.0% |

**Table IA2: Outsider hires' prior roles and industry experience**

This table tabulates the prior titles, roles, and industry experience of the 334 outsiders hired as CEOs. Panel A shows the most recent job title for the 225 raided hires and the highest prior job title for the 109 unattached hires. When an executive had more than one title (e.g., President & COO), the more senior one is tabulated. Segment Heads include heads of segments, divisions, and subsidiaries. Panel B provides examples of specific roles associated with the titles. Panel C shows whether CEO hires have previously worked in the hiring firm's 2-digit SIC industry as an executive or as a non-executive director.

**Panel A: Most recent (highest prior) title of raided (unattached) hires**

| | Raided hires | | Unattached hires | |
|---|---|---|---|---|
| **Title** | **Number** | **Percent** | **Number** | **Percent** |
| Segment Head | 79 | 35.1 | 9 | 8.3 |
| CEO | 49 | 21.8 | 69 | 63.3 |
| Vice President / EVP / SVP | 35 | 15.6 | 8 | 7.3 |
| President | 22 | 9.8 | 12 | 11.0 |
| COO | 11 | 4.9 | 3 | 2.8 |
| Other | 10 | 4.4 | 3 | 2.8 |
| Executive Vice Chair | 8 | 3.6 | 2 | 1.8 |
| CFO | 5 | 2.2 | 2 | 1.8 |
| Other C-level | 2 | 0.9 | 0 | 0.0 |
| Executive Chair | 3 | 1.3 | 1 | 0.9 |
| Other Segment-level Executive | 1 | 0.5 | 0 | 0.0 |
| Total | 225 | 100 | 109 | 100 |

**Panel B: Examples of roles**

| |
|---|
| *Segment Head*: CEO Brewing Unit, CEO of Asia/Pacific Business, CEO and EVP of Healthcare, Chairman & CEO Global Consumer, Chairman of Consumer and Personal Care Group, President and CEO Wireless Services, President of Consumer and Small Business Banking, President of Global Snacks Division, President of the Online Services Business, President of North American Operations, President and Chief Operating Officer of North America, President & COO of Space and Strategic Missiles Sector, Head of Global Strategic Marketing and Business Development, Head of the Financial Services Practice |
| *Vice President / EVP / SVP*: Executive Vice President of Global Downstream, Executive Vice President Sales and Marketing, Senior Vice President Diagnostic Operations, Senior Vice President and Group Executive Personal Systems Group, Group Vice President |
| *Partner / Principal*: Global Managing Partner, Managing Partner, General Partner, Venture Partner, Partner, Principal |
| *Other Segment-level Executive*: COO Insurance Solutions |

**Panel C: Industry experience**

| | Raided hires | | Unattached hires | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| As executive | 103 | 45.8 | 57 | 52.3 |
| As non-executive director (NED) | 56 | 24.9 | 44 | 40.4 |
| As executive or NED | 121 | 53.8 | 63 | 57.8 |
| Total | 225 | 100 | 109 | 100 |

**Table IA3: The effects of non-compete enforceability and blockholders on hiring choices**
This table shows estimates of regression models of CEO hiring choice similar to those in Table 6 in the paper. Panel A adds the enforceability of non-compete agreements at the state level from Garmaise (2011). The enforceability index can take values from 0 to 12, with higher numbers corresponding to better enforcement. Panel B adds blockholder ownership, defined as the percentage of equity held by shareholders with stakes of at least five percent. Column 1 of each panel shows coefficient estimates from a linear probability model with internal promotion as the dependent variable. Columns 2-4 show marginal effects from a multinomial logit model where the three choices are internal promotion, external insider, and outsider. Descriptions of the independent variables are in Table 6. All independent variables are rescaled to have a standard deviation of one. Firm characteristics are measured at the end of the fiscal year before the CEO hiring. Standard errors are clustered by 3-digit SIC industry. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

**Panel A: Non-compete enforceability**

| | **OLS** | **Multinomial Logit** | | |
|---|---|---|---|---|
| | Internal promotion | Internal promotion | External insider | Outsider |
| | (1) | (2) | (3) | (4) |
| Garmaise index | -0.0034 | -0.0041 | 0.0043 | -0.0002 |
| | (-0.674) | (-0.817) | (1.325) | (-0.040) |
| Log firm value | 0.0433*** | 0.0449*** | 0.0008 | -0.0456*** |
| | (3.920) | (3.822) | (0.108) | (-4.207) |
| 12m ind.-adj. return | 0.0879*** | 0.0864*** | -0.0356*** | -0.0508*** |
| | (8.429) | (7.032) | (-5.417) | (-4.780) |
| 12m industry return | 0.0349*** | 0.0301** | -0.0161** | -0.0140 |
| | (2.944) | (2.461) | (-2.193) | (-1.186) |
| ROA | 0.0158* | 0.0076 | -0.0079** | 0.0002 |
| | (1.725) | (0.751) | (-2.525) | (0.025) |
| Sales growth | 0.0157 | 0.0192 | -0.0036 | -0.0156 |
| | (1.371) | (1.078) | (-0.635) | (-0.858) |
| M/B | 0.0000 | 0.0034 | -0.0081 | 0.0046 |
| | (0.002) | (0.192) | (-0.943) | (0.293) |
| R&D/assets | -0.0437*** | -0.0411*** | 0.0169** | 0.0242** |
| | (-2.778) | (-2.687) | (2.088) | (2.039) |
| CapEx/assets | 0.0178 | 0.0215* | -0.0069 | -0.0146 |
| | (1.648) | (1.709) | (-0.830) | (-1.640) |
| Leverage | -0.0149 | -0.0148 | 0.0069 | 0.0080 |
| | (-1.250) | (-1.286) | (1.307) | (0.824) |
| Constant | 0.7491*** | | | |
| | (30.922) | | | |
| $R^2$ | 0.065 | | | |
| Observations | 1,579 | 1,579 | 1,579 | 1,579 |

**Table IA3 – continued**

| **Panel B: Blockholder ownership (1996-2021)** | | | | |
|---|---|---|---|---|
| | **OLS** | **Multinomial Logit** | | |
| | Internal promotion | Internal promotion | External insider | Outsider |
| | (1) | (2) | (3) | (4) |
| Block ownership (%) | -0.0102 | -0.0092 | -0.0001 | 0.0092 |
| | (-0.960) | (-0.874) | (-0.009) | (1.046) |
| Log firm value | 0.0375*** | 0.0391*** | 0.0004 | -0.0395*** |
| | (2.905) | (2.999) | (0.048) | (-3.564) |
| 12m ind.-adj. return | 0.0838*** | 0.0826*** | -0.0323*** | -0.0503*** |
| | (7.503) | (6.232) | (-4.375) | (-4.933) |
| 12m industry return | 0.0343*** | 0.0301** | -0.0156** | -0.0145 |
| | (2.856) | (2.480) | (-2.077) | (-1.212) |
| ROA | 0.0102 | -0.0003 | -0.0055 | 0.0058 |
| | (1.108) | (-0.033) | (-1.428) | (0.593) |
| Sales growth | 0.0393** | 0.0646** | -0.0163* | -0.0483** |
| | (2.558) | (2.469) | (-1.727) | (-2.217) |
| M/B | 0.0040 | 0.0041 | -0.0095 | 0.0054 |
| | (0.225) | (0.214) | (-0.873) | (0.329) |
| R&D/Assets | -0.0416** | -0.0389** | 0.0171* | 0.0218** |
| | (-2.542) | (-2.499) | (1.668) | (2.098) |
| CapEx/Assets | 0.0234* | 0.0284** | -0.0133 | -0.0151 |
| | (1.971) | (1.961) | (-1.427) | (-1.375) |
| Leverage | -0.0091 | -0.0088 | 0.0058 | 0.0029 |
| | (-0.769) | (-0.736) | (0.967) | (0.284) |
| Constant | 0.7342*** | | | |
| | (55.578) | | | |
| $R^2$ | 0.066 | | | |
| Observations | 1,325 | 1,325 | 1,325 | 1,325 |

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## About ECGI

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