Executive Confidence and New CEO Selection*

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Abstract

Does a senior-executive's confidence-level affect the likelihood of being promoted to CEO? Prior literature suggests CEOs tend to be overconfident and that, in certain situations, overconfidence can enhance firm-performance. Using an option-based overconfidence-measure, we show overconfident-senior-executives are more likely to be promoted. Firms that are candidates for a change in strategy (i.e., mature, low-risk firms) tend to appoint overconfident-executives and benefit in terms of improved corporate value and innovative efficiency. Promotion of overconfident-executives does not significantly affect firm-value, however, when firms are less mature and riskier. Busy boards, and boards that target growth through acquisitions, tend to promote overconfident-executives as well, though significant value-effects are absent.

Keywords: Executive Overconfidence, CEO Turnover, New CEO Selection, Executive Tenure, Internal Appointment

JEL Classifications: G32, G35

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Abstract

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"Whoever succeeds Mr. Ballmer at Microsoft will face the challenge of rebooting its corporate culture, in which charting the safe but profitable course– at least for the short term– too often wins out over innovation."

$\sim$ *A*ug. 25, 2013, Wall St. Journal.

1 Introduction

A personality trait that is routinely associated with corporate CEOs is "overconfidence". CEOs are frequently perceived to have an exaggerated opinion of their own abilities and the prospects of the firms they manage. This begs the question of whether overconfidence is an attribute that firms deliberately seek in their CEOs. The empirical evidence on whether overconfident CEOs are successful is mixed: several recent studies document that overconfidence has both positive and negative aspects. Overconfidence has, for instance, been linked to value-destruction, with CEOs overestimating the returns from projects while underestimating the potential for failure. On the other hand, there is evidence that overconfident CEOs may be more innovative and willing to take risks.

If overconfident CEOs are not necessarily beneficial for firm value, then why do so many CEOs have this trait in common? To better understand the apparent link between overconfidence and corporate leadership, we investigate whether overconfidence is a trait that is favored at the CEO selection stage. Evidence that overconfident individuals are more likely to be chosen would indicate that CEO overconfidence is not a trait that only develops or becomes evident after a person is appointed CEO.

Our analysis of the attributes of potential candidates at the selection stage confirms that, on the whole, firms exhibit a distinct preference for overconfident CEOs. While it is true that the board might not be able to *per se* observe whether the executive is 'overconfident', the board would observe traits, actions, and characteristics that are symptomatic of overconfidence. Using option-based ex-ante (i.e., prior to selection) metrics of overconfidence we find that for internal appointments, senior executives exhibiting high levels of overconfidence are more likely to be promoted to CEO. We propose and test hypotheses for why overconfident individuals tend to be promoted to CEO and the consequences of such selection. The overall picture that emerges is that overconfident CEOs are not necessarily good or bad for shareholders: in certain contexts, when a mature, sluggish-growth firm seeks strategic renewal, overconfident CEOs contribute to value creation. In other contexts, however, the selection of overconfident CEO appears to be

driven by considerations other than value creation.

We propose and test among two hypotheses for why firms might exhibit a propensity to select overconfident individuals as CEOs. The hypotheses are not mutually exclusive and apply to firms in somewhat different contexts.

The first hypothesis, is that boards act in the interests of shareholders and select overconfident CEOs in circumstances where the firm might benefit from having an overconfident individual. This *matching hypothesis* has several implications. Boards of firms that are mature, low-risk and slow-growing could select an overconfident CEO if they, for instance, believe that the polices that an overconfident CEO would implement (e.g., a more aggressive investment policy) would be value creating. Conversely, an innovative firm might select an overconfident CEO in order to continue this strategy of innovation. Under the matching hypothesis, the selection of an overconfident individual should increase, or at least not decrease, firm value.

The *matching* hypothesis draws upon the literature that suggests that, at least in certain circumstances, there are potential benefits of CEO overconfidence. It has been argued that overconfidence can encourage managers to pursue growth, with moderate levels of overconfidence leading to better outcomes (Pikulina et al., 2013).[1] Overconfident managers may also be more willing to take the necessary risks to facilitate innovation (Galasso and Simcoe, 2011; Hirshleifer et al., 2012). We test the hypothesis by examining the attributes of the firms that are more likely to select overconfident CEOs and, further, whether these selections are associated with an increase or decrease in firm value.

Our second hypothesis is based on the notion that factors other than value maximization (e.g., the preferences of an entrenched board or the lack of attention by a board with busy directors) could drive the selection of an overconfident CEO. We refer to this as the *board-failure* hypothesis. Boards may choose to pursue their preferred strategies such as aggressive acquisitions (that do not create shareholder value) and appoint overconfident-CEOs that are more likely to implement such aggressive acquisition strategies (Kolasinski and Li, 2013; Malmendier and Tate, 2008). Board preferences may play a bigger role when the board is entrenched and less concerned about being replaced.

The value implications of these hypotheses are different. For firms seeking to select a com-

[1] Indeed, it is claimed that overconfidence can lead to self-fulfilling prophecy, whereby an overconfident individual pressures herself to meet demanding expectations (Hilary et al., 2013; Johnson and Fowler, 2011; Palmon and Venezia, 2013).

plementary 'matching' CEO, we would expect there to be gains associated with the appointment of a new overconfident-CEO who is willing to push for a more (to maintain an) innovative and aggressive strategy, even if it entails higher risk. With regard to the selection of an overconfident CEO when there is board-failure, the value implications are negative (or non-positive).

For our empirical tests we start with a sample of 3188 CEO-turnover events between 1994 and 2011, in which an internal candidate (someone who has been with the company for at least one year) is hired. Among these turnovers, we pay particular attention to the sub-sample of 1907 CEO-turnover events. This sub-sample allows us to examine the factors that companies weigh in choosing among internal candidates. We focus on internal selection since it is infeasible to directly account for the confidence levels of all potential external candidates. We obtain executive and turnover data from Execucomp, and obtain corporate data from CRSP/Compustat. For our measures of overconfidence, we compute option-based measures of overconfidence, similar to those in Malmendier and Tate (2005, 2008) for each executive in the sample.[2]

The results are consistent with overconfident individuals being favored for promotion to CEO. We first test whether the confidence of the firm's executives influences whether there is an internal or external hire. The test is based on the notion that a firm with highly confident senior executives would be less likely to hire a CEO from the outside. We find that, consistent with a preference for overconfident CEOs, a company with executives that are more overconfident is more likely to hire internally.

Next, we use conditional logit models to assess whether, conditional on an internal hire, the more confident candidates in a firm tend to be promoted to CEO. The benefit of this methodology is that it accounts for the grouping of executives within a firm, and allows us to examine the executive-specific (rather than firm-specific) factors, such as overconfidence, that influence whether an executive is promoted at a given firm. We control for various executive level variables such as tenure, current position and compensation level. We find that among a firm's senior executives, the overconfident ones are more likely to be promoted to CEO when the firm hires internally.

Our tests indicate that certain types of firms are more likely to favor the selection of overconfident executives. Consistent with our matching hypothesis, we find that slow-growing, less

[2]We focus on option-based measures of overconfidence, as opposed to news-based measures of overconfidence (see e.g., Hirshleifer et al., 2012), as the news-based measures are premised on being able to identify news-reports pertaining to a particular individual. It is not necessarily realistic to expect non-C-suite executives to appear regularly in news articles.

innovative and lower-risk companies are more likely to select overconfident CEOs. This may reflect a corporate decision to hire a confident executive in order to facilitate innovation and a switch to more aggressive growth, at which confident executives might be more skilled. However, in keeping with the board-failure hypothesis, we find that matching may not be the only motivation for appointing overconfident CEOs. There is evidence that entrenched boards and those with busier directors are more likely to select overconfident CEOs. Further, firms that have been active in acquisitions in the past are also more likely to promote overconfident individuals. This is consistent with these boards acting to increase the odds of the acquisition policy being maintained, since overconfident CEOs tend to be more likely to pursue acquisitions (Kolasinski and Li, 2013; Malmendier and Tate, 2008).

Next, we investigate how firms fare after the appointment of overconfident CEOs. We measure firm performance in terms of the firm's Tobin's Q following the appointment. Our results suggest that, on average, overconfident executives are not significantly more or less likely to increase value than are other executives following a turnover event. Hence, there is no strong evidence that managerial ability is per se correlated with overconfidence. There is, however, support for the view that overconfident managers can contribute to a strategic shift and enhance value in some companies: those that are larger and lower-risk firms experience a significant performance improvement from hiring an overconfident executive. Overconfident executives that are appointed CEO are associated with a more rapid growth in assets, PP&E and patents than other executives promoted to CEO. The increase in investment appears to be a value-creating strategy for large, low-risk firms, as evidenced by their value gain from the appointment of an overconfident CEO. However, we do not find indicators of 'board-failure' (i.e., board entrenchment, prior acquisitiveness and busyness) to be associated with a significant drop (or gain) in value or performance when an overconfident-CEO is appointed,

Our paper is related to various strands within the literature. First, our paper is related to the literature on the value consequences of overconfident CEOs. Several papers suggest that CEO overconfidence tends to be associated with value-destruction. For instance, overconfident CEOs tend to be more acquisitive (Kolasinski and Li, 2013), and tend to destroy more value on average (Malmendier and Tate, 2005, 2008). Some prior literature also suggests that overconfident CEOs can distort dividend payout (Deshmukh et al., 2013). This value-destruction, in the wake of the overconfident CEO's preceding optimistic forecasts can subsequently induce financial

misreporting in an attempt to mitigate the appearance of under-performance (Schrand and Zechman, 2012). Campbell et al. (2011) suggest that such value-destroying practices cause highly overconfident CEOs to face an increased risk of dismissal. At the same time, there are papers that suggest that there could be potential benefits of CEO overconfidence (Goel and Thakor, 2008). Overconfident managers tend to set more ambitious targets and push themselves to achieve them, potentially improving corporate value (Hilary et al., 2013; Johnson and Fowler, 2011; Palmon and Venezia, 2013). Further, overconfident managers tend to be associated with higher levels of innovation (Galasso and Simcoe, 2011; Hirshleifer et al., 2012). We show that certain types of companies might appoint overconfident CEOs to encourage innovative activity and risk-taking and to set the stage for strategic change. These appointments appear to beneficial, with firm value increasing following the appointment of overconfident CEOs.

The results are further related to the specific sub-set of literature related to overconfidence and CEO turnover. Campbell et al. (2011) argue that highly overconfident CEOs will be more likely to be dismissed, largely due to their value-destroying tendencies (though moderately over-confident CEOs may off-set this through innovative risk-taking). Choi et al. (2013) reach similar conclusions using an international sample. Naturally, this begs the question about how, and why, such overconfident individuals come to be CEOs in the first place. Thus, our paper complements these findings by looking at the other-side of the CEO life-cycle: corporate hiring decisions.

Our paper is also related to the takeover literature since overconfident CEOs tend to be more acquisitive (Kolasinski and Li, 2013). Consistent with this, our results suggest that overconfident executives are more likely to be promoted in acquisitive companies. This provides an additional way of interpreting the prior overconfidence/acquisition results, suggesting that there might be a two-sided matching between acquisitive companies (that favor a strategy of acquisitions) and overconfident CEOs (who are more prone to do such acquisitions).

The paper has connections to the governance literature as well. An entrenched company is one that features high levels of protection for its directors. This protection can come from anti-takeover provisions (Bebchuk et al., 2009; Gompers et al., 2003), or the presence of other protective mechanisms such as a classified board (Bebchuk and Cohen, 2005). An entrenched board may be more likely to promote an overconfident executive for at least two reasons. First, to the extent that an overconfident executive may increase risk and destroy value, entrenched boards are less exposed to disciplinary action following this value-destruction. Second, entrenched

boards are less affected by short term share-price fluctuations that can arise when a firm pursues an innovative strategy; and thus, tend to be less myopic and may be more likely to innovate (Becker-Blease, 2011). Thus, to the extent that overconfident executives are more prone to innovate, an entrenched board may be more willing to promote an overconfident executive. Our empirical findings are supportive of this prediction.

The remainder of this paper proceeds as follows. Section 2 discusses the prior literature and contains the empirical predictions. Section 3 describes the data. Section 4 contains models that analyze the impact of executive confidence on the choice between hiring internally versus externally. Section 5 presents tests to analyze the impact of executive confidence on the likelihood that an individual executive is promoted to CEO. Section 6 examines in which companies executive overconfidence most increases the likelihood of promotion. Section 7 analyzes the impact of the newly appointed CEO's confidence level on post-turnover performance (including in different types of companies), and on post-turnover investment, R&D, and patenting. Section 8 contains additional robustness tests. Section 9 concludes.

2 Hypotheses

As noted above, it is not unusual for CEOs to be overconfident individuals with an inflated sense of their own abilities and the prospects of firms they manage. However, overconfidence can be associated with poor decision-making: for instance, a tendency to overinvest or to engage in value reducing acquisitions. This raises several questions: the first is whether the overconfidence (or at least the consequences thereof) of CEOs is a trait that is observed and favored by (at least some) boards at the time of CEO selection. Evidence of overconfidence at the selection stage would suggest that attributes (and success or failure of past activities) of overconfident individuals influence selection – and that overconfidence is not a trait that only develops or becomes evident after a person becomes a CEO. A second question is whether the selection of an overconfident individual to be CEO is intended to achieve certain policy or strategic objectives – since overconfident CEOs could be expected to, for instance, increase investment and risk. Finally, there is the question of whether selecting overconfident individuals tends to achieve such policy objectives and enhance firm value, or whether, more negatively, it reflects board failure and results in value loss.

Our first hypothesis is that boards have a propensity to select overconfident individuals to

be CEOs. A testable implication of this hypothesis is that, conditional on an internal hire, the confidence level of senior executives at the selection stage enhances their odds of being selected. We focus on internal selection since, as noted, it is infeasible to directly account for the confidence levels of all potential external candidates. A second implication is that if a firm has senior executives that demonstrate a high level of confidence, the firm is less likely to hire a CEO from the outside. We state:

Prediction 1. *If boards have a propensity to select overconfident individuals as CEO, we expect that, at the time of CEO selection:*

1. *Conditional on an internal hire, a firm's overconfident senior executives will be more likely to be promoted to CEO.*
2. *Firms with more overconfident executives will be less likely to hire an external CEO.*

We next develop hypotheses as to why firms might exhibit a propensity to select overconfident individuals as CEOs. We propose two hypotheses to account for such a propensity. The hypotheses are not mutually exclusive and apply to firms in somewhat different contexts.

The first hypothesis, which we call the *matching* hypothesis, is that boards, on the whole, act in the interests of shareholders and aim to select CEOs whose attributes 'match' with the company's strategic needs. In the context of CEO selection, the *matching* hypothesis draws upon prior literature, which has argued that overconfidence can be beneficial, at least in moderation (Goel and Thakor, 2008). For instance, overconfident managers may set more ambitious targets and push themselves to achieve those targets, potentially improving corporate value (Hilary et al., 2013; Johnson and Fowler, 2011; Palmon and Venezia, 2013).

There are several situations in which an overconfident CEO might be appropriate, giving rise to evidence in support of matching. Boards of firms that are mature, low-risk and slow-growing might select an overconfident CEO if they, for instance, believe that there would be benefits to adopting a more aggressive investment policy. Similarly, boards of firms that are already higher risk and growing rapidly could act in the interests of shareholders and select overconfident CEOs to maintain the firm's current policies. Here, firms would be basing their selection-decision on the idea that an overconfident CEO might aggressively pursue innovation and risk-taking. This is premised on the idea that overconfident CEOs might be more capable innovators (Galasso and Simcoe, 2011; Hirshleifer et al., 2012). In this case, we would expect the selection of an

overconfident CEO to lead to a change toward (or at least maintenance of) policies and to be associated with an increase (or at least not a decrease) in firm value.

The converse hypothesis, which we call the *board failure* hypothesis, is premised on the idea that considerations other than shareholder wealth maximization might influence the board's CEO-selection decisions. In this context, the selection of an overconfident CEO would not create shareholder wealth.

There are potentially several reasons for such failure: First, the selection of an overconfident CEO could be the result of inattention and/or difficulty the board faces in terms of distinguishing between managerial luck and ability. It is possible, for instance, that in firms that are larger and more complex or have busier directors and more entrenched boards, overconfident executives are more likely to attract attention and be promoted. This is because, by definition, overconfident individuals are more willing to take risks (Hirshleifer et al., 2012). Hence, if successful, they will generate large payoffs and be seen as having greater ability. It is plausible that distinguishing luck from skill is more difficult in larger, complex firms. Hence, in these firms, an overconfident manager who is lucky, though not necessarily of high ability, may more likely be appointed CEO.

However, *board failure* and the selection of overconfident CEOs could also be the result of the board's preferences that stem from biased beliefs or distorted incentives. A key example of this is the tendency to do acquisitions. An acquisition requires board-approval, suggesting that acquisitive companies tend to have directors that, at least in the past, have been supportive of acquisitions. When such firms select a new CEO, the board's propensity to support acquisition activity could lead them to select overconfident individuals. As the literature suggests, overconfident CEOs tend to be more inclined toward acquisitions, albeit often to the detriment of shareholders (Kolasinski and Li, 2013; Malmendier and Tate, 2008). Thus, the board could promote an overconfident executive due to the coherence between the board's preferences and the executive's preferences.

Based on the above discussion, we state for the *matching* hypothesis:

Prediction 2. *The matching hypothesis predicts that boards, acting in the interests of shareholders, choose overconfident CEOs because policies associated with overconfidence are appropriate for the company. This has several sub-implications:*

1. *Firms that are low risk, growing slowly and less innovative are more likely to select overconfident managers in order to pursue a 'strategic break'*

2. *Firms that are already higher risk, growing more rapidly and more innovative, and that seek to maintain these policies, are more likely to select overconfident managers*
3. *The selection of overconfident CEOs by these firms will be associated with an increase (or non-decrease) in firm value*

Conversely, for the *board-failure* hypothesis:

Prediction 3. *The board-failure hypothesis predicts:*

1. *Firms that are large and complex are more likely to promote overconfident executives to CEO.*
2. *Overconfident executives are more likely to be promoted in companies that have boards that are busier and more entrenched.*
3. *Overconfident executives are more likely to be promoted in companies that have done more acquisitions.*
4. *The selection of overconfident CEOs by these firms will be associated with a decrease (or non-increase) in firm value*

3 Data

3.1 Sample construction

This study utilizes several standard data-sets. We use the Execucomp Database for data on executive and CEO compensation and to construct a cross-sectional sample of all turnover events involving firms in the Execucomp universe (mostly S&P 1500 companies) between 1994 and 2011. We obtain 3188 turnover events along with firm-level data from Compustat for each event. A company can be involved in more than one turnover event. For each observation we identify whether the firm hires an internal or an external candidate, where an internal candidate is defined to be an executive who has been with the company for at least a year.[3] From the Execucomp database we also obtain other governance variables that might influence corporate

[3]The objective is to not mis-identify as internal hires, the cases in which an individual joins the firm with the understanding that she is soon to be elevated to CEO.

performance, including tenure and age, the ratio of bonus-compensation to fixed-salary, and the executive's percentage ownership.

We construct an executive-level sample for internal-CEO hires. The details of the sample-construction process are in Appendix 1. This sample allows us to look at whether corporations tend to select more confident executives, conditional on an internal hire. We also construct a firm-level sample in which we examine the firm's performance after the appointment of an internal candidate. The performance measures are described in Section *7.1*.

3.2 Overconfidence measures

We define managerial overconfidence similarly to in Malmendier and Tate (2005, 2008). Malmendier and Tate (2005, 2008) construct option-based measures of CEO-overconfidence, but their approach applies equally well to executive-overconfidence. The logic behind their measures is that an executive's human capital is undiversified and is concentrated in her company. Thus, a rational, risk-averse executive will want to cash-out her well in-the-money options early in order to reduce her risk exposure – while an overconfident executive might not.[4]

We collect the number and value of unexercised, but vested, options that an executive has in year t (both from the Execucomp database). We then construct the value-per-option by dividing the value of the executive's vested-but-unexercised option holdings by the number of such options held. The 'Confidence' measure is then constructed as a measure of how in-the-money the options are, which we obtain by dividing the value-per-option by the share price at the end of the fiscal year. For the most part we use a continuous variable, rather than an indicator-measure (such as 'Holder67'), since it enables us to rank various executives in terms of their confidence-level, and also coheres with the idea that there could be a continuum of confidence-levels (per Ben-David et al., 2013). We also take the natural logarithm of one plus the level of confidence in order to account for potential non-linearities in the confidence/promotion relationship. In additional tests, we examine the ranking of the executive's level of confidence relative to her peers at the firm, and examine the effect of the quadratic of the confidence term to allow for non-monotonicity (e.g., the possibility that, beyond some level, the likelihood of an executive being promoted might not be increasing monotonically in confidence). In robustness

[4] An alternative explanation for the failure to exercise/cash-out options could be that the executive has private information suggesting that the company will perform above-market-expectations. However, Malmendier and Tate (2008) find that overconfident CEOs tend to lose money on their trades, implying that such option-based measures of overconfidence do not merely reflect the presence of positive private information.

tests, we also find that the results are qualitatively similar if we use the Holder67 measure of overconfidence (see Section 8).

While our measures of overconfidence are similar to those used in Malmendier and Tate (2005, 2008), there are some differences: First, they rely on indicator variables that equal one if their option-based measures are above a particular threshold. For example, *Holder67* requires that the person have held their options for at least five years, while the stock price has appreciated by at least 67% over that time. As noted, we use a continuous measure of overconfidence, however, since the continuum of overconfidence-levels allows us to rank among executives. Second, their measures require several years of data (e.g., *Holder67* requires five years of data). Such a time-span of data is often not available for non-CEO executives. Thus, to capture the situations where the executive has not been in the firm for more than five years, we use a yearly measure of confidence. However, since our measure is based on the value of vested-but-unexercised options (and vesting periods are usually multiple years), our measure is only a slight relaxation of the five-year requirement in Malmendier and Tate (2005, 2008).

There are other overconfidence-measures in the literature that we do not use for our analysis. First, we do not use a press-based measure of overconfidence (see e.g., Hirshleifer et al., 2012). This is because individual executives do not usually present themselves in media-reports. Thus, press-based measures are more apt to describe the overconfidence of the CEO or that of the overall management team. Second, we do not use trading-behavior measures (see e.g., Kolasinski and Li, 2013). Such measures tend to classify a manager as overconfident if he/she purchases shares and loses money on that purchase. Consequently, overconfident CEOs that increase corporate value could be classified as non-overconfident under trading-behavior measures. In the specific context of our study, this is a problem because we would like to test the hypothesis that, at least in certain situations, the promotion of an overconfident executive is value enhancing.

3.3 Summary statistics and sample description

The summary statistics are in Tables 1 and 2. Table 1 provides data on the number of CEO turnovers and internal candidates for the CEO position by year. Internal candidates are senior executives from Execucomp that have been with the firm for at least a year at the time of the turnover. As indicated, we have 3188 CEO turnovers in the dataset, with 1906 cases in which an internal candidate was selected as the new CEO. On average there were roughly 4 executive

candidates (for which we have the necessary data) for any internal promotion. The median level of confidence of executives appointed internally was 0.151.

The CEO and firm characteristics of the executives present when a CEO is internally promoted are in Table 2. The definitions of the variables are in Appendix 2. The median executive receives about 51% of her compensation in the form of incentive pay and has a shareholding of 3.6% of the company. The vast majority of the executives are male (94.5%) and have been with the firm for at least two years (89.5%). Executives have additional titles, such as COO (10.5%) and President (16.2%), that are expected to be related to the likelihood of being selected CEO and that we control for in our analysis. Among other attributes, the median values of firm assets is \$2.1billion, R&D/Assets is 3.5% and about 13.7% of the firms are associated with M&A activity.

4 Does executives' confidence influence the decision to make an internal hire?

The first issue we test is whether the confidence of the company's existing team of executives influences the appointment of an internal candidate. The argument, as noted above, is that if firms, on average, are prone to seek overconfident CEOs then a firm with overconfident senior executives will be more likely to appoint internally.

We examine the role of CEO confidence on the internal/external hiring-decision by constructing a logit model to predict the likelihood that the company hires internally. When undertaking this analysis, we examine whether the average level of executive-confidence, and/or the confidence of the most confident executive influences the likelihood of hiring internally. The model is of the following form:

$$h_i = \alpha + \mathbf{e}_i\beta + \mathbf{x}_i\theta + \lambda_t + \varepsilon_j, \tag{1}$$

where, h_i is an indicator that equals one if the company hires internally in turnover event i, $\mathbf{e}_i$ is a vector of executive-level characteristics associated with the turnover event, $\mathbf{x}_i$ is a vector of firm-specific characteristics and λ_t is a set of year dummies to mitigate documented time-effects in outside succession (on which, see e.g., Huson et al., 2001). The results are reported in Table 3 and indicate that firms with more confident executives are more likely to hire internally,

consistent with Prediction 1. Both the highest (columns 1 and 2) and average (columns 3 and 4) level of confidence among the firm's executives significantly increases the likelihood of an internal-hire. These results are economically significant. The marginal effect associated with *Confidence* in Column 1 is 0.198. This implies that a one standard deviation in *Confidence* increases the likelihood that the firm hires internally by 5.28 percentage points.[5] This, in turn, means that increasing internal-executive confidence by one standard deviation increases the likelihood of an internal hire by 8.88%.[6]

Other corporate characteristics influence the internal-external choice as well. As indicated, the mean and highest level of shareholding and compensation among a firm's executives increase the likelihood of an internal hire. The findings are consistent with the idea that a firm will hire internally if it has invested significant resources in one or more executives, indicative of the value it places on these executives. The characteristics of the departing CEO appear to have an impact as well: Internal hires are more likely when the departing CEO is older, has been at the firm for a longer time (e.g., *Departing CEO's Tenure > 2 Years*)[7], or was chairperson of the board. This suggests that an internal hire is more likely if the departing CEO was more powerful, consistent with the idea that powerful CEOs can shape the board's policy in relation to hiring (and subsequent replacement), increasing the likelihood of an internal hire (Cannella and Lubatkin, 1993).

Firm-level characteristics do not generally influence the likelihood of an internal hire. Better performance, as indicated by firm's market adjusted stock return, is significantly associated with an increased likelihood of an internal hire. Qualitatively similar results obtain (untabulated) if the firm's stock performance is not adjusted for the market. Board independence increases the likelihood of an external hire (as per Borokhovich et al., 1996). In unreported results, institutional ownership (see Parrino, 2003) and industry market-share-homogeneity (see Parrino, 1997) are found to be insignificantly related to internal-external choice.

[5]We obtain this figure by multiplying the marginal effect (0.198) by the standard deviation of the confidence variable (0.266).

[6]We obtain this as follows: the likelihod of an internal hire is 59.47%. A one standard deviation increase in executive confidence increases this likelihood to 59.47% + σ(Confidence) $\times$ *Marginal effect (Confidene)* = 59.47 %+ 5.25%. So, the percentage increase is ((59.27% + 5.28%) - 59.47%)/(59.47%).

[7]We use an indicator for whether the CEO's tenure was at least two years (as opposed to a continuous measure of CEO-tenure) because it is not always possible to identify the CEO's precise start-date: use of the indicator-variable reduces the number of observations omitted due to missing data.

5 Are confident executives more likely to become the CEO?

We next analyze the impact of executive confidence on the likelihood that the executive becomes the CEO. The econometric approach we take is dictated by the fact that it is impossible to observe all possible external hires for a position. We can, however, observe the set of internal candidates and their attributes. This allows us to investigate the factors that drive the decision to hire one internal candidate over the others, conditional on an internal promotion. Our focus here is primarily on executive-level attributes that drive the decision to hire a particular candidate, rather than the characteristics of the companies. Thus, we need to use an econometric technique, the conditional logit model (McFadden, 1973), that appropriately accounts for the 'grouping' of observations (i.e., the attributes of the candidates in each internal hiring decision).

For our analysis, we construct a cross-sectional sample of turnover events, limit the sample to situations where there is an internal hire. We include both forced and unforced turnovers. The conditional logit we use has the following basic form:

$$h_{i,j} = \alpha + \mathbf{c}_j\beta + \mathbf{x}_j\theta + \varepsilon. \tag{2}$$

Here, $h_{i,j}$ is an indicator for whether executive j is hired in turnover event i, $\mathbf{c}$ is a vector of confidence characteristics, and $\mathbf{x}_j$ is a vector of other executive-specific characteristics. For the most part we only include one confidence variable (the executive's level of confidence). Firm-specific factors are not included since the conditional logic eliminates any factors that do not vary across executives in an individual turnover event. Similarly, the models do not include firm, year, or industry fixed effects.

One concern in conditional logit models is the independence of irrelevant alternatives (IIA) assumption. The IIA assumption asserts that the relative preference between alternatives A, B, and C is not influenced by the availability of, say, alternative D. For example, IIA asserts that the decision-maker (i.e., the company/board) ranks all alternatives (i.e., the executives) and that the relative rank order between executives remains the same if one of the executives is removed from the sample. From an empirical stand-point, this means that the the coefficient on *Confidence* should be the same if we exclude any one executive from the company's choice set. Thus, we test the IIA assumption by running equality-of-coefficient tests. We do this by iteratively removing a random executive from each company's choice set and testing whether

the coefficient is the same in the full sample as in the reduced sample. In unreported results, we find that there is no significant difference in coefficients, suggesting that the IIA assumption is met in our sample.

The baseline results are in Columns 1 and 2 of Table 4. In this table we report the regression coefficients (as opposed to marginal effects) The main finding is that executives with greater confidence are more likely to be appointed as CEO (at 1% significance). This result is economically significant. The marginal effect associated with the *Confidence* variable is 0.187. Thus, an increase in *Confidence* by one standard deviation (0.248) is associated with a 4.6 percentage point increase in the likelihood of being selected as CEO. Given that there are approximately four candidates for selection (see Table 1), the unconditional likelihood of selection would be 25%. Thus, a one standard deviation increase in *Confidence* results in the likelihood of selection of that candidate increasing to nearly 30%, representing a 20% (=5%/25%) increase in the likelihood of selection.

The results in relation to the control variables present some interesting results. Executives that own more shares are also more likely to become CEO. The higher share ownership could, in part, be the result of higher stock grants to a more valued executive. Similarly, executives receiving higher total compensation are more likely to become CEO, consistent with these executive being regarded as more important; and hence, more likely to be promoted. The executive's position also influences the likelihood that he/she will become CEO. While the CFO is less likely to become CEO, the COO, Chair, and President are all more likely to become CEO. These results suggest that executives that either have operational experience (i.e., as COO) or have existing influence (i.e., as Chair) are more likely to be appointed CEO.

The results are robust to splitting the sample by the amount of time the executive has been with the firm (which could reflect executive loyalty and relationships with the board) and to excluding mid-tier executives. Columns 3-6 of Table 4 contain models that restrict attention to the top three (Columns 3 and 4) and top five (Columns 5 and 6) highest paid executives (thereby restricting the analysis to the most important executives). Columns 7 and 8 require the executive to have been with the firm for at least three years, while columns 9 and 10 require an employment period of at least 4 years (thereby ensuring that the results do not merely reflect the characteristics of executives who are 'parachuted' in to become CEO). The positive relationship between confidence and the likelihood of appointment holds in all sub-samples.

The coefficients on the other control variables are largely as expected. Executive age reduces the likelihood of becoming CEO, indicating that executives that are closer to retirement age are less likely to be promoted. The coefficient on the missing-age dummy might be the result of older executives being less likely to have their age recorded in the database, possibly as a result of having entered the database earlier, prior to the recording of all executive age data. The executive's tenure does not significantly influence the likelihood of an appointment in our models.[8]

We further analyze whether it is the most confident executive who is promoted. Table 5 contains models that examine the importance of the executive's confidence rank (i.e., the confidence of the executive as compared to other executives in the company). The key results are in Column 1, which indicates that the executive with the highest confidence level is more likely to be appointed CEO. Column 2 indicates that being one of the three most confident executives significantly increases the likelihood of being promoted. Column 4 suggests that being more confident than the average team-member increases the likelihood of promotion. Nonetheless, Column 3, which includes the quadratic of confidence term, suggests likelihood of promotion is not necessarily monotonic in confidence: in fact, at very high levels, confidence could reduce the likelihood of promotion. This is potentially consistent with the idea that highly overconfident CEOs may destroy value (see e.g., Malmendier and Tate, 2008), which would logically reduce the likelihood such executives being promoted.

6 In which companies is confidence more important?

We next examine the attributes of firms that are more prone to hire confident CEOs. This allows us to test between alternative hypotheses about why some firms are more inclined to hire confident CEOs.

As discussed in the hypothesis section, the *matching* hypothesis suggests that firms will select overconfident CEOs in circumstances that match the company's current objectives. Overconfident CEOs are expected to take risks and pursue innovation (Galasso and Simcoe, 2011; Hirshleifer et al., 2012) and to help the firm enter new markets or technologies. This could

[8] This may reflect the relative difficulty identifying the executive's exact tenure with the firm: specifically, while it is possible to identify if the executive has been with the firm as an executive for at least n years (in our case, at least two years), the precise start-date is often omitted from Execucomp, making the precise tenure unclear. Despite this, we obtain similar results vis-'a-vis executive overconfidence if we include the executive's tenure (where available) and omit the observations for which it is not available.

benefit large, more stagnant, firms by allowing them to push into new territories and pursue a more aggressive growth strategy. Overconfidence could also benefit innovative firms due to the tendency of overconfident CEOs to innovate. Conversely, the *board-failure* hypothesis would predict that overconfident CEOs will tend to be selected by firms with busy and entrenched boards that pursue their own preferences instead of shareholder welfare. Firm size and complexity could increase the odds of board failure.

6.1 Firm size and organizational complexity

We examine the role of corporate size by splitting the sample into sub-samples based upon whether the firm's size, as proxied by its assets, sales, or number of employees is above or below the median of all firms in the sample. We also split the sample by whether the firm's market share is in the top 50% or bottom 50% of all firms. Note that because we split the sample based on firm-characteristics and firms differ in the number of senior executives, the number of observations in each sub-sample is not equal. Larger firms would be expected to favor overconfident CEOs by both the matching (to the extent they were more mature, slower-growing and lower-risk) and board-failure (e.g., it could be more difficult to separate luck from skill) hypotheses.

The results are presented in Table 6 and support the idea that larger firms are more prone to hiring overconfident executives as CEO. Specifically, for firms with an above median level of assets, sales, or number of employees, an executive's confidence significantly increases the likelihood that he/she is hired as CEO. By contrast, for firms that are below median in assets, sales or employees, executive confidence does not significantly affect the likelihood of promotion to CEO. Similarly, firms with a larger market share, that might be in a stronger position from which to be able to take risks, are more likely to promote an overconfident executive. These results indicate that confidence is more important in larger companies, though size evidence does not per se exclude any of the hypotheses.

In order to get an idea for the degree to which the coefficients vary across sub-samples, we follow the approach in Morrison et al. (2013) and graph the confidence intervals of the *Confidence* coefficient in Figure 1. The figure suggests large differences between the coefficients for the subsamples, with limited overlap in confidence intervals for the *Confidence* coefficient across subsamples or large and small companies.

6.2 Corporate risk

The next issue we consider is whether corporate risk influences the likelihood of promoting a more confident executive. Overconfident CEOs typically increase corporate expenditure and risk (Malmendier and Tate, 2005, 2008). Hence, if a relatively low-risk firm wishes to increase risk, it might promote a more confident executive. We analyze this by computing each firm's total risk (as proxied by the standard deviation of stock returns over the prior year), and the idiosyncratic risk over the past year, as obtained from a three-factor or four-factor model. We then split the sample into above and below-median risk firms. The results are in Table 7. The main finding is that confidence has a larger effect on the likelihood of promotion in low-risk firms than in ones that are high-risk. This evidence is consistent with low-risk firms selecting confident executives in order to encourage strategic change and an increase risk-taking (in Section 7 we further examine the value-implications of appointing overconfident CEOs in these circumstances). The plot in Figure 2 shows that the confidence intervals for the *Confidence* coefficient differ markedly across the risk sub-samples.

6.3 Innovativeness

The matching hypotheses would suggest a relationship between corporate innovativeness and the propensity to promote an overconfident executive. Innovative firms might prefer confident executives, as confident CEOs appear to create the most value in innovative companies (Hirshleifer et al., 2012). Conversely, less-innovative companies might target confident executives as such executives might be more likely to encourage innovation and promote strategic change.

In Table 8, we split the sample into firms whose R&D expenditure or patent-grants are above and below median. The results indicate that confident executives are significantly more likely to be promoted in firms with below-median levels of R&D and patenting. These results are consistent with less innovative firms hiring confident managers and supportive of a change, rather than continuity, in firm strategy. Figure 3 contains the confidence for the coefficients across sub-samples and indicates significant differences in the role of *Confidence*: low R&D firms tend to be more likely to promote confident executives.

6.4 Acquisitiveness

If a firm has decided to pursue a strategy of growing through acquisitions, it may choose a more confident executive to be its CEO in order to maintain that strategy. The finding in the literature, as we have noted, is that overconfident CEOs tend to be more inclined toward acquisitions, albeit often to the detriment of shareholders (Kolasinski and Li, 2013; Malmendier and Tate, 2008). Our hypothesis is that it would consistent with board failure for a firm that has already been pursuing an acquisition oriented strategy to appoint a new overconfident CEO. The rationale is that it is likely that the board favors the acquisition strategy – despite the loss in shareholder value – and selects an overconfident CEO to persist with such a policy.

We capture the company's acquisitiveness by collecting data on each company's acquisition track-record. We collect data on the number of successful deals and value those deals where the deal must be for at least USD $1m, must be completed, and for which the acquirer obtains at least 90% of the target's shares. We exclude self-tender offers. We obtain the number of deals that each company completed in each year, and the value of those deals. We then split the sample based upon whether the firm did at least one deal, and whether the number (or value) of those deals is above or below the median number (or value) for all firms that do acquisitions in our sample. We further compute the cumulative abnormal return (CAR) that the acquirer earns in each deal over the windows (-2,2) and (-5,28) around the takeover announcement, where the CAR is based on an OLS estimation of the market model over the period 11-days to 210-days before the acquisition announcement (as in Masulis et al., 2007).

The results are in Table 9. The main finding is that firms that do more deals, or spend more on acquisitions, are more prone to promote an overconfident executive. Further, firms whose acquisitions have performed worse tend to be more likely to promote an overconfident CEO. Hence, whatever their motivation, boards that have approved a pattern of value-destroying deals in the past are more likely to promote an executive who will continue this strategy. We can only speculate about the board's motivation: there could, for instance, be private benefits the board derives from being associated with a larger firm. In any event, these boards appear less sensitive to the potential for (continued) value-destruction in acquisitions by overconfident CEOs. Figure 4 contains the confidence intervals for the *Confidence* coefficient across sub-samples. The graph highlights that there are significant differences in confidence intervals for acquisitive firms compared with non-acquisitive firms. This indicates that companies that are

more acquisitive are demonstrably more likely to promote a confident executive.

6.5 Board busyness & Governance

We now examine whether the selection of confident CEOs is affected by board failure as indicated by measures of busyness and weak governance.

6.5.1 Board busyness

We examine whether a busier board is more likely to promote an overconfident executive. A busy board has limited time to evaluate its internal candidates. Thus, a busy board might be more likely to mistake luck (from risk-taking) with skill, leading the board to promote those lucky, overconfident executives whose risk-taking has succeeded.

We employ board busyness measures based on the number of directorships board members hold. If the board member holds multiple directorships, then he/she must split his/her time across multiple companies, potentially leaving one (or more) of those companies neglected (see e.g., Masulis and Mobbs, 2014). For our measures we start by collecting the number of additional directorships that the firm's directors hold. We then determine the average number of directorships for that company. We also count how many of those directors hold at least three, four, or five directorships. We then split the sample based on whether the firm is above-median or below-median in terms of these metrics.

The results are in Table 10 and indicate that overconfident executives are more likely to be promoted in companies with busier boards. This holds across various definitions of board-busyness. Interestingly, Columns 2-8 suggest that the gap between busy and non-busy boards increases with the degree of busyness. That is, a board with more directors serving on 5+ boards is even more likely than is one with directors serving on 3+ boards to promote an overconfident executive. Figure 5 reinforces these findings, highlighting that at higher levels of busyness there are significant differences in the likelihood of an overconfident executive being promoted. In a subsequent section we examine whether this board busyness has significant value implications or is largely innocuous in terms of firm value.

6.5.2 Governance

We next examine whether firms with greater levels of entrenchment are more likely to hire overconfident executives as CEO. Entrenchment, through factors such as anti-takeover provisions, and classified boards, hinders the removal of the board of directors. We have hypothesized that an entrenched board is less likely to be sensitive to the value impact of actions by a CEO. Hence, the board may select an overconfident CEO to implement policies that it prefers, despite their potential negative impact on firm value (Kolasinski and Li, 2013; Malmendier and Tate, 2005, 2008). An entrenched board might not necessarily be destructive of value: such a board may also be more willing to take the risk of appointing an overconfident CEO to change firm policy by, for instance, pursuing riskier, innovative strategies. We will subsequently examine the value effect of overconfident CEOs being selected by entrenched boards to assess which of these possibilities is supported by the data.

We examine several external governance factors that relate to the market for corporate control. Entrenchment can come from anti-takeover provisions (ATPs), which insulate directors and managers from disciplinary takeovers (Bebchuk et al., 2009; Gompers et al., 2003; Harford et al., 2012; Masulis et al., 2007). We capture the impact of ATPs by examining the role of executive confidence in firms whose G-index (Gompers et al., 2003) index of 24 anti-takeover provisions is at least 10 (as per Harford et al., 2012), or whose Bebchuk et al. (2009) index of six provisions is at least three. Entrenchment can also involve insulation, through the presence of a classified board, of the directors from removal (Bebchuk and Cohen, 2005; Cohen and Wang, Forthcoming).[9] We report these models in columns 1-6 of Table 11. The results indicate that firms with a higher Bebchuk et al. (2009) index or Gompers et al. (2003) index are more likely to install an overconfident executive as their CEO. Similarly, firms that have a classified board are more likely to install an overconfident executive. These results are consistent with the idea that boards that are less susceptible to value-destruction by overconfident CEOs are more willing to install such a CEO.

We also examine the role of board size and board independence. The results are in Columns 7-10 of Table 11, with Figure 6 plotting the regression coefficients. The results suggest that classi-

[9] In all cases, we us the level of ATPs from five years prior as it is plausible that potential turnovers could lead to changes in the level of ATPs. Thus, when examining turnovers in 1994, we use the Gompers et al. (2003) index from 1990. Given that IRRC/Risk Metrics does not report data for all years, in years where there is missing data, we back-fill from the most recent prior year.

fied boards, and boards with lower levels of independence are more prone to install overconfident executives as the firm's CEO. The relatively weak relationship between board independence and CEO-selection could reflect the mixed impact of independent directors: while independent directors can increase independent scrutiny, they can also be more passive and less knowledgable about the internal workings of the company (see e.g., Gutierrez and Saez, 2013; Le Mire and Gilligan, 2013; Ringe, 2013).

Finally, the overall picture that emerges from the results in this section is somewhat mixed in terms of our hypotheses. There is support for the hypothesis that the selection of overconfident CEOs is, at least in part, motivated by the desire for a strategic break: firms are more likely to appoint overconfident CEOs when they are lower risk and less innovative. There is, however, evidence consistent with the board failure hypothesis as well: overconfident CEOs are more likely to be appointed when boards are more busy and entrenched and when the firm has been active in acquisitions. In the section below we investigate the value impact of these CEO appointments to provide further tests of our hypotheses.

7 Executive overconfidence and post-turnover outcomes

This section analyzes the post-turnover impact of the confidence-level of the appointed CEO. We first examine the performance-implications of the executive's confidence level. We then analyze the impact of executive confidence on investment, R&D and patenting.

7.1 How do these new CEOs perform?

The first set of results analyze the impact of the newly appointed CEO's confidence-level on performance. In the reported cross-sectional models, the measure of performance is the firm's Tobin's Q in the two or three years after the turnover event. We focus on Tobin's Q (as opposed to operating performance) in order to avoid concerns over 'big bath' accounting,[10] which might create an inaccurate perception of improvements in performance – and the possibility that CEOs engage in value-creating restructuring, which could improve firm-value but not result in an immediate improvement in operating earnings. We control for various corporate factors that

[10]Big Bath accounting refers to the situation where the incoming CEO manages down earnings in that year in order to make their subsequent performance appear to be stronger (see e.g., Brickley et al., 1999; Dechow and Sloan, 1991; Pourciau, 1993). The prevalence of big bath accounting appears to depend on the confidence-level of the incoming CEO (Burg et al., 2014).

could influence performance. We also control for the predicted level of confidence based on the firm's characteristics in year $t-1$ (i.e., before the turnover event) in order to control for the impact of the market's expectations vis-à-vis CEO confidence, which could be impounded into market-prices (as per Desyllas and Huges, 2010).

We report the baseline results in Table 12. The main finding is that the executive's confidence is insignificantly related to subsequent corporate performance. This is an interesting result given that overconfident CEOs are often associated with poor performance (see e.g., Malmendier and Tate, 2005, 2008). Most other executives characteristics do not significantly influence post-turnover performance. However, longer-tenured executives tend to perform better following the turnover event (see e.g., the positive significant coefficient on *Executive Tenure > 2 years*). This reflects both the idea that longer-tenured executives are more knowledgeable about the company (so may better contribute to value-creation) and because longer tenure could connote a higher quality executive. However, the impact of an overconfident-CEO could well depend on firm attributes, as we examine next.

We analyze the performance-implications of executive confidence in different types of firms. As the results in section 6 indicate, larger, less-risky companies are more likely to promote overconfident executives, consistent with the matching hypothesis. The matching hypothesis suggests that overconfident executives will improve corporate performance after being appointed in such companies. Conversely, under the board-failure hypothesis, in larger, complex firms there may be greater competition for senior positions and difficulty in separating ability from luck. In such an environment, (lucky) overconfident executives, more willing to take on risk, could be promoted even if they have relatively lower ability. In such a scenario, we would expect overconfident executives to reduce (or at least not improve) performance in larger companies.

The first set of sub-sample tests examine the role of firm size. We do this by splitting the sample into sub-samples based on whether the firm is above (or below) the median in terms of its assets, sales, CAPEX, or number of employees. Table 13 contains models that analyze the performance (proxied by Tobin's Q) in year $t+2$ (Panel A) and year $t+3$ (Panel B) following the turnover event. We focus on sub-sample regressions because they allow the coefficients on the control variables to differ between sub-samples, though qualitatively similar results are obtained by estimating full-sample regressions with interaction terms. The main finding is that, in the 'large size' groups, *Confidence* is significantly and positively associated with Q in years $t+2$ and

$t+3$ across all large size sub-samples. The coefficient on *Confidence* is statistically insignificant in all the small size sub-samples. This suggests that there could be a performance-benefit to hiring more confident managers in larger firms.

We next analyze the relationship between firm-risk, performance, and the confidence of the newly appointed CEO. We split the sample into sub-samples based on whether the firm's total risk (i.e., volatility of daily stock returns) or idiosyncratic risk (computed using a one factor or four factor model) is above or below median. We calculate the firm's risk in the year before the turnover. The results are in Table 14. The results are consistent with expectations: *Confidence* is significantly and positively related to performance only in the low risk sub-samples. This implies that low risk firms may benefit from hiring a more confident CEO who will then be willing to increase corporate risk-taking.

The final set of performance-results focus on the impact of governance and acquisitiveness. The board failure hypothesis would suggest that *Confidence* would be associated with worse performance in poorly governed companies and/or in companies where the board lacks sufficient time to properly appraise itself of the executive's characteristics. We capture this by splitting the sample into whether the firm has many anti-takeover provisions (as proxied by a Bebchuk et al. (2009) index of at least 3) and by whether the board is busier than the norm (as proxied by an above-median number of directors with three or more directorships). We report these results in Table 15. However, we find no significant difference in the impact of *Confidence* between the entrenched and non-entrenched sub-samples or between the busy and less busy sub-samples. Further, we find little evidence that prior acquisitiveness influences the impact of the new CEO's confidence on performance.

The performance-results overall promote the idea that overconfidence can improve performance if the the promotion of overconfident executives is prompted by the desire to change firm policies toward greater innovation and risk-taking. However, if there is no such strategic rationale for the promotion, then the overconfident executive tends to have no immediate impact on performance.

7.2 Is there any evidence of confidence-led changes in corporate policy?

The next issue is whether there is any evidence of a confidence-led policy change. We test this by examining CAPEX, PP&E, R&D, assets up until year $t+4$, where year t is the year of the

turnover. We do this within an OLS regression framework that includes year dummies, industry dummies and the same controls as in Table 12. The regressions are 'levels' regressions that also control for the lagged $t-1$ value of the dependent variable. The results are robust to omitting the lagged value. We also obtain similar results if we replace the dependent variables with the change in the variable between year $t-1$ and year $t+j$ for $j \in 2, 3, 4$.

Newly appointed overconfident CEOs are associated with significantly higher CAPEX, assets and PP&E (after controlling for the pre-turnover level of such variables). By itself, this would be consistent with the idea that overconfident CEOs tend to over-invest (see e.g., Malmendier and Tate, 2005, 2008). However, when coupled with the evidence that newly-appointed overconfident CEOs can increase corporate value, the results are more consistent with these CEOs investing in value-increasing asset growth and strategic re-positioning.

The confidence of the newly appointed CEO is also positively associated with patenting, but not with R&D. The finding that they increase innovation outputs without spending significantly more on innovation expenses (i.e., R&D) is most consistent with the idea that overconfident CEOs can increase the firm's innovative-efficiency (as in Hirshleifer et al., 2012).

8 Additional robustness tests

We undertake additional robustness tests in relation to the measure of overconfidence, the time-period under analysis and the modeling technique.

8.1 Additional measures of overconfidence

The results are robust to examining different measures of CEO overconfidence. Most of the reported models use a continuous measure of overconfidence. The results are qualitatively similar if we construct a *Holder67* measure, per Malmendier and Tate (2005, 2008). Malmendier and Tate (2005, 2008) use proprietary data to construct their *Holder67* measure. We construct *Holder67* by using publicly available data (as in Campbell et al., 2011; Hirshleifer et al., 2012; Malmendier et al., 2011). This method operates as follows. First, we construct a continuous confidence measure as follows:

$$\text{Confidence}_{i,t} = \frac{\text{Value Per Vested Option}}{\text{Average Strike Price}}, \tag{3}$$

where, the 'Value Per Vested Option' is the total value of the executives vested but unexercised options scaled by the number of those options. The 'Average Strike Price' is equal to the firm's price less the 'Value Per Vested Option'. The logic is that a reasonably accurate proxy for the strike price is: *Price - Value Per Vested Option = Price - (Price - Strike Price) = Strike Price*. *Holder67* is an indicator that equals one from the first time that *Confidence* is at least 0.67, if *Confidence* equals at least 0.67 on at least two occasions. Prior literature has used this as a way to construct *Holder67* from publicly available data (Campbell et al., 2011; Hirshleifer et al., 2012; Malmendier et al., 2011). For robustness, we also construct *Holder30*, *Holde50*, *Holder80*, and *Holder100* measures of overconfidence.

The results for the *Holder* measures are in Table 17. For brevity, we only report our baseline results. The main finding is that all *Holder* measures are positively and significantly related to the likelihood of the executive being appointed as CEO. These results support our baseline results using our prior continuous measures of overconfidence.

The results are robust to using other alternative measures of overconfidence. In panel A, Table 18 we show that our results hold for four alternative proxies for executives' confidence level and likelihood of a senior internal candidate being selected as the new CEO. These alternatives are described in Appendix 2. We consider the log of the raw number of in-the-money exercisable options held by the executives (Alt 1) as well as the log of raw number of vested but un-exercised options held by the executives (Alt 2). The other measures (Alt 3 & Alt 4) normalize the first two alternative measures by the total number of vested options (exercised and un-exercised). In unreported tests we also find qualitatively similar results if we use the total value of the executives vested-but-unexercised options scaled by his/her total compensation (i.e., `tdc1` in Execucomp), or scaling the value-per-vested-option by the average strike price for those options (constructed as the price less the value-per-vested-option[11]).

[11]This measure works on the idea that the value-per-vested-option is approximately $S_t - X$, where S_t is the stock price at time t and X is the strike price for the option. Thus, $S_t - (S_t - X) = X$.

8.2 Time periods

We take steps to mitigate concerns about time-period effects. Panel B of Table 18 splits the sample into periods before and after SOX, and includes models that omit the financial crisis years. The main finding is that more confident executives have a greater likelihood of being appointed in all years, suggesting that the results do not merely reflect the effect of particular time-periods.

8.3 Addressing alternative explanations

8.3.1 Age and the opportunity to hold options

One possible concern pertains to the relationship between CEO age and option holding. Older executives would have had more 'opportunity' to hold highly in the money options. This could cause the coefficient on our confidence measures to merely reflect the impact of executive age. Additionally, if a company were to appoint an executive who was older than the former CEO (at his/her time of departure), then it might signal that the appointment is a 'placeholder' appointment and that the executive's other characteristics (i.e., confidence) might have had little relevance. To see this, if the average age of a CEO at appointment is x and the average tenure is n years, then the average CEO would be $x + n$ years old on departure. However, if the firm appoints a new CEO who is at least $x + n$ years old and is nearing retirement, then that appointment might only be intended to be temporary. While our conditional logit models control for both the executives age and his/her tenure (see e.g., Table 4), in Columns 1 and 2 of Table 19, we further ensure the selection-results are robust to this issue by ensuring they hold if we drop any observation where the incoming CEO's age exceeds that of the old CEO.

8.3.2 Family firms

Family firms often have succession plans that often involve family members. Those family members are often assigned significant amounts of stock and options, and are foreseeably less likely to exercise those options for reasons other than overconfidence. We address this by using data from GMI ratings to identify which of our firms are family firms.[12] In Columns 3 and 4 of Table 19, we show that the results are robust to excluding family firms from our sample.

[12]GMI ratings defines a family firm as "[a] company where family ties, most often going back a generation or two to the founder, play a key role in both ownership and board membership. Family members may not have full control of the shareholder vote (greater than 50%), but will generally hold at least 20%."

8.3.3 Executives pretending to be overconfident or "fake it 'till you make it"

One argument is that executives might seek to appear 'enthusiastic' or 'committed' by retaining their options, thereby appearing to be overconfident: the "fake it 'till you make it" possibility. Thus, the concern is that the results reflect executives who are not truly overconfident trying to act overconfident. We consider this possibility by analyzing the change in the confidence measure following the executive's appointment. This 'fake it' story would imply that the confidence measure would fall significantly following the appointment.

We start by analyzing the univariate change in confidence-level around the turnover. We find that after being appointed, the median change in confidence is almost zero. After being appointed as CEO, the average change in confidence, from the year of the turnover, is a reduction of 0.012 in one year, 0.027 in two years, and 0.038 in three years. However, the non-promoted executives see similar reductions in confidence: The non-promoted executives see reductions of 0.015, 0.022, and 0.036 in the one, two, and three years after the turnover. Additionally, the change in confidence-level (between appointed and non-appointed executives) is qualitatively similar if we restrict to the set of highly confident executives (as defined by Holder67 equaling one prior to the turnover).

The fact that both promoted and non-promoted exhibit similar post-turnover confidence-change is consistent with two explanations, both of which would indicate that 'faking it' is unlikely to explain our results. (1) One explanation is that (on average) no one fakes being over-confident, hence why all exhibit a similar pattern in confidence-levels following the appointment. (2) An alternative explanation is that everyone (both appointed and non-appointed) fake being more confident than they really are. In this case, the preponderance towards faking it simply shifts the 'average' level of perceived confidence not the ranking between exectives (i.e., the ones who are genuinely overconfident would still exhibit a higher level of confidence than the ones who are less overconfident). Thus, companies would look at the relative ranking of confidence-levels between executives, which would lead the most confident executive to be appointed. In either case, this suggests that the results are unlikely to merely be a function of executives acting as overconfident in order to be selected as CEO.

We next dig deeper into the changes in confidence-level around the turnover event. To do this, we regress the change in confidence on other corporate and executive characteristics (from immediately prior to the turnover). This allows us to control for the potential impact of the firm's

performance on confidence-levels. We report these results in Table 20. The sample includes all executives who were at the company at the time of the turnover and remain with the company for one, two, or three years after the turnover, as necessary to compute the dependent variable. The executive is in the database whether or not he/she becomes CEO. Panel A reports regression results for models that include all the control variables (though we only report coefficients on the 'main' regressors and the constant). Panel B contains models that only control for the firm's market-to-book and market adjusted stock return in the year prior to the turnover. Panel C reports models that control for the firm's market adjusted stock return over the period from one year prior to the turnover to one, two, or three years after the turnover (as indicated in the variable name).

The regression analysis yields several interesting results. First, the constant term is positive and statistically significant. This suggests that after controlling for other corporate characteristics, executive-confidence appears to increase post-appointment. This is inconsistent with executives reversing apparent confidence-levels after the turnover (i.e., is inconsistent with the "faking it 'till you make it" story). Second, the executive who is appointed as CEO does not appear to feature a significantly different change in confidence from other executives. Third, there is some evidence that declines in confidence are associated with stronger stock returns. We conjecture that this is because as the stock price increases, the strike price of the 'new' options also increases, causing the average strike price of the executive's options to increase (and thus, the average in-the-moneyness of those options to decline). This results in the apparent negative relationship between returns and confidence in these regressions. Overall, these regression results indicate that it is unlikely that executives simply increase the appearance of confidence prior to the turnover in order to be appointed.

8.4 Modeling technique

The reported executive-level models use a conditional logit model. As discussed, the conditional logit is appropriate for the structure of the data. However, in unreported tests we also find that that the results are also robust to using an ordinary logit model or a probit model. These models include relevant firm-level controls, industry fixed effects, and year fixed effects.

8.5 Performance models

The baseline performance models analyze the level of performance in the one, two, or three years after the turnover event. As indicated above, the results are robust to analyzing the change in Tobin's Q between year $t-1$ (or year t) and one, two, or three years after the turnover. The results in relation to executive-confidence are qualitatively similar whether or not the models include lagged performance or replace lagged confidence with the industry mean or median confidence in either year t or year $t-1$ (with industry being defined at two, three, or four digit SIC level). The implications of the results vis-à-vis overconfidence are also qualitatively similar if we estimate 'interaction' models using the full sample instead of sub-sample regressions.

8.6 Option Backdating issues

A possible concern is that the overconfidence-measures, which are based on CEO option-exercise behavior, might be susceptible to issues with option backdating. Such backdating could give the appearance of the executive holding highly in the money options. While we argue that it would still be irrational to hold highly in the money options (even if their value reflect option-backdating), in unreported tests we find that the results are qualitatively similar if we omit any firm with any indication of option-backdating in GMI Ratings.[13]

9 Conclusion

This paper examines whether and when overconfident executives are more likely to be promoted to CEO, and the impact of such promotions on corporate value. It is not unusual for CEOs to be overconfident, with an exaggerated opinion of their own abilities and the prospects of firms they manage. We investigate whether the overconfidence of CEOs is a trait that is observed and favored by boards at the time of CEO selection. Evidence of overconfidence at the selection stage would suggest that attributes (and success or failure of past activities) of overconfident individuals influence selection – and that overconfidence is not a trait that only develops or becomes evident after a person becomes a CEO. Our empirical tests indicate that boards do have a propensity to select overconfident individuals to be CEOs. We find that firms with executives that are relatively more confident tend to hire internally. Further, when firms hire

[13]Specifically GMI Ratings provides a backdating flag and backdating information. In these unreported tests, we exclude any firm that at any time exhibited any backdating.

internally, they are more likely to pick a more confident candidate.

We propose two hypotheses for why and when firms might be predisposed to promoting overconfident executives to CEO: matching and board-failure.

The matching hypothesis proposes the idea that firms select overconfident CEOs because overconfidence is associated with policies, such as innovation and risk-taking, that they believe will enhance firm value in the firm's context. It is premised on the idea that a degree of overconfidence could be beneficial. Overconfident CEOs can push themselves to achieve their aggressive expectations. Further, prior literature suggests that overconfident CEOs might be better innovators. Thus in large, stagnant companies this would be to shift the firm to a more aggressive and innovative growth path. Additionally, in innovative companies, the board might select an overconfident CEO in order to continue that strategy of innovation. The hypothesis implies that such appointments should increase firm value.

The board-failure hypothesis, on the other hand, is based on the notion that the appointment of overconfident CEOs could be driven by factors other than value maximization. These include the preferences of an entrenched board or the lack of attention by a board with busy directors. The board failure hypothesis would also indicate that boards of acquisitive companies might select overconfident CEOs notwithstanding the prior evidence that overconfident CEOs' acquisitions tend not to create value.

Overall, we find support for the matching hypothesis: firms that are more likely to appoint overconfident CEOs are those that are lower risk and less innovative. Further, these types of firms experience policy changes and greater performance improvements if they promote (to CEO) an executive who is more confident. This supports the notion that firms select overconfident CEOs to promote policies associated with increased risk-taking and innovation.

There is, however, evidence that overconfident CEOs are more likely to be appointed when boards are more busy and entrenched and when the firm has been active in acquisitions. While this is suggestive of board failure, there is no significant evidence of performance loss from the appointment of overconfident CEOs. Hence, it does not appear that these boards tend to select overconfident individuals of low ability i.e., those who may have gained attention by being lucky in the risky projects they have taken on.

This paper contributes to the literature on CEO-hiring and on overconfidence by highlighting the importance of executive-overconfidence in influencing hiring-decisions. Prior literature

has examined the performance-implications and investment-implications of CEO overconfidence. However, there is a dearth of evidence on how such overconfident people come to be CEOs in the first place; and why and when firms tend to select and benefit from the selection of overconfident individuals as CEO. We fill this gap in the literature by highlighting the potential role of firms seeking to promote innovation and risk-taking in selecting overconfident individuals and assessing the performance implications of such selections.

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Appendix 1: Sample Formation Procedure

This appendix explains how to arrive at the potential seasoned internal CEO candidates in companies which will experience CEO turnovers and select new CEOs from these seasoned candidates in year t+1. In one company experiencing CEO turnover, there should be at least two seasoned executives with valid confidence level information to be selected in year t. An intermediate sample consists of 12,952 seasoned executives in firms experiencing both internal and external CEO appointments, which is associated with 3,206 CEO turnovers – in Table 3, the number of CEO turnovers within this sample is reduced to 3,188, when some industry dummies predict success or failure perfectly in logit models (corresponding number of executives is reduced to 12,870). We then drop executives in firms experiencing external CEO appointments, in firms where no internal executive survive until this step (for example, new CEO is selected from executives with tenures less than two years), or in firms where only one valid executive remains in the sample. We reach a final sample of 8,016 potential seasoned internal candidates between 1994-2011 used in our main analysis – Table 4. This final sample is associated with 1,906 internal CEO appointments as indicated in Table 1.

Operation	Sample Size	Info Source
Total # of executives between year 1992-2012 (with only 479 in 2012)	**219,873**	*ExecuComp*
- Less missing values of in-the-money un-exercised exercisable options in year t	31,926	*ExecuComp*
	187,947	
- Less with missing values of fiscal year-end stock price in year t	2,121	*Compustat*
	185,826	
- Less with no PERMNO number	2,220	*Compustat*
	183,606	
- Less with no CEO turnover happening in year t+1	164,519	*ExecuComp*
	19,087	
- Less if executives are the departing CEOs in year t	3,384	*ExecuComp*
	15,703	
- Less no NCUSIP number, departing CEO's confidence, shares outstanding, volatility of daily return in year t	26	*ExecuComp/CRSP*
	15,677	
- Less executives in 1992 and 1993 for year t to make the "executive tenure greater than 2 years" dummy valid	628	*ExecuComp*
	15,049	
- Less executives with tenure less than two years	2,097	*ExecuComp*
Number of executives in firms experiencing both internal and external CEO appointments.	**12,952**	
- Less executives in firms experiencing external CEO appointments in year t+1	2,982	*ExecuComp*
	9,970	
- Less if no executive from the final sample is selected as CEO or only one executive remains in the sample	1,954	*ExecuComp*
Final sample of potential seasoned internal candidates in year t between 1994-2011.	**8,016**	

Appendix 2: Detailed Data Definitions

This appendix presents the detailed definitions of the variables.

CEO Selection Description		
CEO Turnover	When CEO in year t is replaced by a successor in year t+1, this change will be counted as a CEO turnover.	*ExecuComp*
Reason for CEO Turnover	CEO turnover is defined as forced if the reason of this replacement is stated as resigned in year t+1.	*ExecuComp*
Potential Seasoned Internal Candidates	These are executives with valid confidence measurements, and at least two year $t$enures in year t to be selected as new CEOs in year t+1.	*ExecuComp & Compustat*
Executive Confidence Measures		
Executive Confidence	= (Estimated Value of In-the-Money Unexercised Exercisable Options / Fiscal Year-End Stock Price) / Unexercised Exercisable Options for an executive in year t	*ExecuComp & CRSP/Compustat*
Executive Confidence Alt 1	= ln [(Estimated Value of In-the-Money Unexercised Exercisable Options / Fiscal Year-End Stock Price) + 1] for an executive in year t	*ExecuComp & CRSP/Compustat*
Executive Confidence Alt 2	= ln (Unexercised Exercisable Options + 1) for an executive in year t	*ExecuComp*
Executive Confidence Alt 3	= (Estimated Value of In-the-Money Unexercised Exercisable Options / Fiscal Year-End Stock Price) / (Unexercised Exercisable Options + Number of Shares Acquired on Option Exercise) for an executive in year t	*ExecuComp & CRSP/Compustat*
Executive Confidence Alt 4	= (Unexercised Exercisable Options) / (Unexercised Exercisable Options + Number of Shares Acquired on Option Exercise) for an executive in year t	*ExecuComp*
Executive Team's Confidence	Average value of confidence measure among all other executives within the same company in year t.	*ExecuComp*
HolderX	A Holder-type confidence measure constructed using publicly available data (as in Campbell et al., 2011; Hirshleifer et al., 2012; Malmendier et al., 2011). First, we construct a confidence measure as *Confidence = Value Per Vested Option/ Average Strike Price*. The *Value Per Vested Option* is the total value of vested options scaled by the number of options. The *Average Strike Price* is the price at the end of the fiscal year less the *Value Per Vested Option*. The variable *HolderX* is then an indicator that equals one from the first time that the confidence measure exceeds X if the confidence measure exceeds X on at least two occasions.	*Execucomp & CRSP/Compustat*
Executive Control Variable		
Executive Incentive Compensation	= 1 - [(Salary + Bonus) / Total Compensation] for an executive in year t	*ExecuComp*
Executive Shareholding	= (Number of Shares Owned Excluding Options / Number of Shares Outstanding in Thousands) * 10,000 for an executive in year t	*ExecuComp & CRSP*
Executive Gender	This dummy indicator is equal to one if an executive is male.	*ExecuComp*
Executive Tenure Greater than 2 years	This dummy indicator is equal to one if an executive has tenure greater than two years in year t.	*ExecuComp*
Executive Age	Age of an executive in year t.	*ExecuComp*
Executive Missing Age	This dummy indicator is equal to one if an executive's age information is missing.	*ExecuComp*
Executive's Position: CFO	This dummy indicator is equal to one if an executive holds a management role of CFO in year t.	*ExecuComp*
Executive's Position: COO	This dummy indicator is equal to one if an executive holds a management role of COO in year t.	*ExecuComp*
Executive's Position: President	This dummy indicator is equal to one if an executive holds a management role of president in year t.	*ExecuComp*
Executive's Position: Chairman	This dummy indicator is equal to one if an executive holds a management role of chairman in year t.	*ExecuComp*

Departing CEO Control Variable		
Departing CEO's Confidence	Measure of confidence for departing CEO in year t.	*ExecuComp & Compustat*
Departing CEO's Incentive Compensation	Measure of incentive compensation for departing CEO in year t.	*ExecuComp*
Departing CEO's Shareholding	Measure of shareholding for departing CEO in year t.	*ExecuComp & CRSP*
Departing CEO's Gender	This dummy indicator is equal to one if departing CEO is male.	*ExecuComp*
Departing CEO-Chairman	This dummy indicator is equal to one if departing CEO holds a management role of chairman in year t.	*ExecuComp*
Departing CEO's Age	Age of departing CEO in year t.	*ExecuComp*
Departing CEO's Missing-Age	This dummy indicator is equal to one if departing CEO's age information is missing.	*ExecuComp*
Firm Control Variable		
Total Assets	Total Assets in millions in year t.	*Compustat*
Market Capitalization	= Common Shares Outstanding * Fiscal Year-End Stock Price (in millions) in year t.	*Compustat*
Return on Assets	= Income Before Extraordinary Items / Total Assets in year t.	*Compustat*
Market to Book	= Market Capitalization / Total Common Equity in year t.	*Compustat*
Leverage	= (Long-Term Debt + Debt in Current Liabilities) / Total Common Equity in year t.	*Compustat*
R&D Expenses	= Research and Development Expense / Total Assets in year t. Missing R&D values are replaced with zero.	*Compustat*
Cash Holding	= Cash and Short-Term Investments / Total Assets in year t.	*Compustat*
Volatility of Stock Return - Total Risk	Standard deviation of daily stock return in year t.	*CRSP*
S&P 500 Inclusion Dummy	This dummy indicator is equal to one if company is included in S&P 500 index in year t.	*Compustat*
Additional Sub-Sample Variables		
Sales	Sales in millions in year t.	*Compustat*
Number of Employees	Number of Employees in thousands in year t.	*Compustat*
Business Segments	Number of business segments in year t. Sub-sample analysis is based on whether there are multiple business segments, or single segment.	*Compustat*
Geographic Segments	Number of geographic segments in year t. Sub-sample analysis is based on whether there are multiple geographic segments, or single segment.	*Compustat*
Growth in PP&E	= (Property, Plant & Equipment in year t - Property, Plant & Equipment in year t-1) / Property, Plant & Equipment in year t.	*Compustat*
Growth in Total Assets	= (Total Assets in year t - Total Assets in year t-1) / Total Assets in year t.	*Compustat*
Growth in Capital Expenditures	= (Capital Expenditures in year t - Capital Expenditures in year t-1) / Capital Expenditures in year t.	*Compustat*
Growth in Dollar Sales	= (Sales in year t - Sales in year t-1) / Sales in year t.	*Compustat*
Idiosyncratic Risk	Idiosyncratic risk estimated based on one-factor or three-factor model using daily stock return in year t.	*CRSP*
Systematic Risk	Systematic Risk estimated as the difference between total risk and idiosyncratic risk in year t.	*CRSP*
Industry Concentration	Herfindahl index based on market share of sales for companies incorporated in two-digit SIC industry in year t.	*Compustat*
Firm's Market Share	Proportion of market share of sales in two-digit SIC industry in year t.	*Compustat*
Total Patents	Cumulative number of patents held by the company in year t.	*NBER Patent & Citation*

Total Citations	Cumulative number of citations of the patents held by the company in year t.	*NBER Patent & Citation*
Firms Engaging in M&A	This dummy indicator is equal to one if company is engaged as acquirer in at least one M&A transaction in year t.	*SDC Platinum*
Number of M&A Deals	Number of M&A transactions for acquirer company in year t.	*SDC Platinum*
Value of M&A Deals	Total value of M&A transactions for acquirer company scaled by total assets in year t.	*SDC Platinum*
Average CAR (-2,2) day Window	Average value of cumulative abnormal returns in a [-2,+2] window around M&A announcement date for acquirer company in year t.	*SDC Platinum & CRSP*
Average CAR (-5,28) day Window	Average value of cumulative abnormal returns in a [-5,+28] window around M&A announcement date for acquirer company in year t.	*SDC Platinum & CRSP*
GIM Governance Index	Governance index of Gompers, Ishii, & Metrick (2003) based on 24 anti-takeover provisions in year t.	*RiskMetrics*
BCF Entrenchment Index	Governance index of Bebchuk, Cohen, & Ferrell (2009) based on 6 anti-takeover provisions in year t.	*RiskMetrics*
Classified Board	This dummy indicator is equal to one if board is a classified board in year t.	*RiskMetrics*
Board Size	Number of board of directors in year t.	*RiskMetrics*
Board Independence	Proportion of independent board of directors in year t.	*RiskMetrics*
Board Directorship	Average number of directorship positions held by directors in year t.	*RiskMetrics*
Board Connectedness	Proportion of board of directors who hold at least 3 directorship positions in year t.	*RiskMetrics*

Table 1: Distributions of CEO Turnover, Internal Appointment, Seasoned Candidates & Executive Confidence Level

This table contains temporal distributions of CEO turnover, potential seasoned candidate – top executives of the firm who are with the firm for at least two years, and candidates per CEO job vacancy regarding each turnover (C/T) in columns 2 – 4, which represent the sample in Table 3. The corresponding distributions within internal appointment sample for internal appointment, seasoned candidate, and candidates per internal appointment are shown in columns 5 – 7, representing the sample in Table 4. In the latter columns, the distributions of of executive confidence level within internal appointment sample are presented. The Appendix 2 contains more extensive variable definitions.

	Turnover			Internal Appointment			Exe-Confidence Level in Internal Sample				
Year	Turnover	Candidate	C/T	Internal	Candidate	C/I	Mean	Stdev	Q1	Median	Q3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1994	173	710	4.104	111	474	4.270	0.205	0.226	0.000	0.136	0.365
1995	157	622	3.962	98	400	4.082	0.267	0.224	0.052	0.252	0.426
1996	166	677	4.078	98	416	4.245	0.270	0.261	0.000	0.230	0.477
1997	191	779	4.079	116	489	4.216	0.336	0.266	0.063	0.356	0.534
1998	188	756	4.021	123	523	4.252	0.315	0.282	0.004	0.279	0.545
1999	233	963	4.133	151	644	4.265	0.241	0.291	0.000	0.106	0.461
2000	245	1019	4.159	152	650	4.276	0.244	0.278	0.000	0.144	0.412
2001	175	719	4.109	100	426	4.260	0.250	0.236	0.012	0.203	0.410
2002	190	802	4.221	120	532	4.433	0.136	0.185	0.000	0.042	0.216
2003	175	737	4.211	102	444	4.353	0.243	0.231	0.043	0.186	0.403
2004	204	825	4.044	124	528	4.258	0.280	0.235	0.074	0.250	0.441
2005	180	752	4.178	106	459	4.330	0.246	0.240	0.003	0.202	0.424
2006	197	711	3.609	107	408	3.813	0.242	0.224	0.020	0.191	0.389
2007	200	803	4.015	111	472	4.252	0.204	0.223	0.000	0.129	0.355
2008	188	763	4.059	107	444	4.150	0.102	0.185	0.000	0.000	0.130
2009	149	566	3.799	81	326	4.025	0.141	0.217	0.000	0.016	0.204
2010	165	619	3.752	94	363	3.862	0.148	0.195	0.000	0.063	0.234
2011	12	47	3.917	5	18	3.600	0.273	0.166	0.194	0.256	0.397
All	3,188	12,870	4.037	1,906	8,016	4.206	0.231	0.248	0.000	0.151	0.399

Table 2: Distribution of Key Executive & Departing CEOs' Characteristics

This table documents key characteristics like confidence, compensation, shareholding and gender of all potential internal candidates (top executives of the firm) and that of the departing CEOs. The appendix contains more extensive variable definitions.

Variable	Firm-Year Observations	Mean	Stdev	Quartile 1	Median	Quartile 3
Executive Confidence	8,016	0.231	0.248	0.000	0.151	0.399
Executive Incentive Compensation	8,016	0.486	0.268	0.290	0.510	0.707
Executive Shareholding	8,016	0.248	0.840	0.007	0.036	0.124
Executive Gender	8,016	0.945	0.227	1.000	1.000	1.000
Executive's Position: CFO	8,016	0.051	0.219	0.000	0.000	0.000
Executive's Position: COO	8,016	0.105	0.306	0.000	0.000	0.000
Executive's Position: President	8,016	0.162	0.368	0.000	0.000	0.000
Executive's Position: Chairman	8,016	0.032	0.175	0.000	0.000	0.000
Executive Tenure Greater than 2 years	8,016	0.895	0.307	1.000	1.000	1.000
Executive Raw Age	4,368	51.961	7.455	47.000	52.000	57.000
Log Value of Total Assets	8,016	7.823	1.780	6.516	7.660	9.018
Total Assets (in millions)	8,016	13280	37663	676	2122	8250
Sales (in millions)	8,011	6073	16414	570	1647	4984
Employees (in thousands)	7,893	24.152	68.038	2.244	7.000	20.600
PP&E Growth	8,016	0.282	0.237	0.085	0.217	0.435
Assets Growth	8,007	0.115	0.570	-0.021	0.055	0.159
CAPEX Growth	8,007	0.059	0.070	0.019	0.041	0.074
Sales Growth	7,999	0.095	0.318	-0.018	0.068	0.170
Total Risk	8,016	0.028	0.016	0.017	0.024	0.034
Idiosyncratic Risk (1 Factor)	8,016	0.025	0.015	0.015	0.021	0.030
Idiosyncratic Risk (4 Factor)	8,016	0.024	0.014	0.014	0.020	0.029
Industry Concentration	8,016	0.060	0.060	0.030	0.041	0.068
Market Share	8,016	0.023	0.056	0.001	0.005	0.019
R&D	3,285	0.057	0.059	0.015	0.035	0.081
Patents	6,393	187.479	981.587	0.000	0.000	7.000
GIM Index	6,328	9.366	2.618	8.000	9.000	11.000
BCF Index	6,532	1.896	1.279	1.000	2.000	3.000
Classified Board	6,532	0.590	0.492	0.000	1.000	1.000
Board Size	5,635	10.049	2.809	8.000	10.000	12.000
Board Independence	5,635	0.674	0.165	0.571	0.700	0.800
Did M&A Last Year	8,016	0.137	0.344	0.000	0.000	0.000
Num M&A Deals	1,102	1.271	0.594	1.000	1.000	1.000
Val M&A Deals	1,102	0.146	0.275	0.029	0.069	0.155
Ave CAR (-2,2)	1,102	-0.004	0.066	-0.024	0.001	0.030
Ave CAR (-5,28)	1,102	-0.017	0.165	-0.106	-0.010	0.069
Executive Age Modified	8,016	51.254	6.304	48.000	51.000	55.000
Exec Age Missing	8,016	0.242	0.428	0.000	0.000	0.000

Table 3: Executive Confidence, Internal vs. External Candidate, & New CEO Selection

This table contains regression models that examine the relationship between executive with maximum confidence and likelihood of this executive getting selected as the new CEO of the firm (CEO selection). We also consider the relationship between average executive confidence level and likelihood an internal candidate getting selected as the new CEO of the firm. We run logistic regressions with in which the dependent variable is an indicator that equals one if the firm appoints an insider as its CEO. The appendix contains more extensive variable definitions. The models include year dummies and industry dummies. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

Dependent Variable	Insider appointed as CEO			
	[1]	[2]	[3]	[4]
Max Executive Confidence	0.819***	1.020***		
	[0.000]	[0.000]		
Max Executive Compensation	0.913***	0.880***		
	[0.000]	[0.000]		
Max Executive Shareholding	0.213***	0.209***		
	[0.000]	[0.000]		
Max Executive Tenure > 2 Years	0.482*	0.362		
	[0.099]	[0.271]		
Max Executive Age	0.022***	0.023***		
	[0.004]	[0.003]		
Max Executive Missing-Age	-0.302***	-0.323***		
	[0.003]	[0.002]		
Mean Executive Confidence			1.130***	1.504***
			[0.000]	[0.000]
Mean Executive Compensation			0.870***	0.829***
			[0.001]	[0.002]
Mean Executive Shareholding			0.631***	0.686***
			[0.000]	[0.000]
Mean Executive Tenure > 2 Years			0.549***	0.423*
			[0.008]	[0.051]
Mean Executive Age			-0.007	-0.010
			[0.578]	[0.459]
Mean Executive Missing-Age			-1.412***	-1.454***
			[0.000]	[0.000]
Departing CEO's Compensation	-0.367**	-0.382**	-0.383**	-0.394**
	[0.034]	[0.030]	[0.037]	[0.037]
Departing CEO's Shareholding	0.009	0.007	0.008	0.006
	[0.354]	[0.466]	[0.377]	[0.542]
Departing CEO's Gender	0.531	0.550	0.680*	0.704*
	[0.132]	[0.118]	[0.079]	[0.071]
Departing CEO-Chairman	0.513***	0.489***	0.449***	0.427***
	[0.000]	[0.000]	[0.000]	[0.000]
Departing CEO's Tenure > 2 Years	0.461***	0.508***	0.401***	0.441***
	[0.000]	[0.000]	[0.000]	[0.000]
Departing CEO's Age	0.018***	0.019***	0.018***	0.019***
	[0.002]	[0.002]	[0.002]	[0.002]
Departing CEO's Missing-Age	-0.635	-0.526	-0.619	-0.530
	[0.154]	[0.249]	[0.146]	[0.234]
Ln[Total Assets]	0.036	0.065	0.043	0.076*
	[0.401]	[0.151]	[0.331]	[0.096]
ROA	0.547	0.407	0.544	0.351
	[0.130]	[0.274]	[0.141]	[0.346]
Leverage	-0.010	-0.019	-0.001	-0.008
	[0.688]	[0.481]	[0.962]	[0.752]
Market-to-Book	0.020	0.018	0.006	0.008
	[0.240]	[0.333]	[0.728]	[0.650]
R&D Expenses	-1.254	-1.366	-1.040	-1.096
	[0.261]	[0.231]	[0.363]	[0.343]
Cash Holding	-0.467	-0.415	-0.417	-0.379
	[0.181]	[0.243]	[0.236]	[0.287]
Volatility of Stock Return	-17.370***	-15.598***	-18.045***	-16.568***
	[0.000]	[0.000]	[0.000]	[0.000]
S&P 500 Inclusion Dummy	0.104	0.061	0.145	0.089
	[0.423]	[0.646]	[0.269]	[0.508]
Mkt Adj Return	0.275**	0.255*	0.240**	0.196
	[0.024]	[0.052]	[0.042]	[0.110]
Mkt Adj Return (t-1)		-0.036		-0.053
		[0.663]		[0.498]

Mkt Adj Return (t-2)		-0.052		-0.087
		[0.388]		[0.148]
Observations	3,188	3,097	3,188	3,097
Pseudo R-squared	0.1350	0.1363	0.1484	0.1515

Table 4: Executive's Salary Rank, Tenure, Confidence & New CEO Selection

This table contains conditional logit models that examine the relationship between the executive's confidence (or log thereof) and the likelihood of being selected as CEO. We split the sample based on whether the executive is in the top 3 or 5 executives in terms of compensation or has been at the firm for at least 3 or 4 years (as opposed to 1 year in the baseline model) . We run conditional logistic regressions in which the dependent variable is an indicator that equals one if the executive is selected as CEO. The appendix contains more extensive variable definitions. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

Sample	All		Top 3 Highest Paid Executives		Top 5 Highest Paid Executives		Exec Tenure ≥ 3 years		Exec tenure ≥t 4 years	
Column	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Exec Confidence	0.880***		0.701*		0.798**		1.137***		1.266**	
	[0.007]		[0.057]		[0.014]		[0.002]		[0.015]	
log[Exec Confidence]		1.226***		0.980**		1.110***		1.564***		1.719**
		[0.004]		[0.041]		[0.008]		[0.001]		[0.011]
Exec Compensation	1.949***	1.947***	1.918***	1.919***	1.826***	1.824***	1.808***	1.804***	1.781***	1.774***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Shareholding	0.272***	0.273***	0.282***	0.282***	0.273***	0.274***	0.260***	0.261***	0.375***	0.377***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Male	0.753***	0.755***	0.777***	0.779***	0.756***	0.758***	0.682***	0.684***	0.559*	0.559*
	[0.001]	[0.001]	[0.002]	[0.002]	[0.001]	[0.001]	[0.005]	[0.004]	[0.079]	[0.079]
Exec Position: CFO	-0.799***	-0.800***	-0.843***	-0.843***	-0.761***	-0.762***	-0.966***	-0.966***	-1.223***	-1.224***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: COO	0.651***	0.649***	0.599***	0.597***	0.687***	0.685***	0.529***	0.526***	0.633***	0.630***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]	[0.001]
Exec Position: President	2.663***	2.664***	2.453***	2.454***	2.633***	2.634***	2.611***	2.613***	2.378***	2.380***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: Chair	2.537***	2.539***	2.637***	2.638***	2.473***	2.475***	2.386***	2.388***	2.206***	2.207***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Tenure greater than 2 years	-0.051	-0.054	-0.051	-0.052	-0.054	-0.057				
	[0.743]	[0.727]	[0.789]	[0.783]	[0.728]	[0.715]				
Exec Age	-0.045***	-0.045***	-0.047***	-0.047***	-0.044***	-0.044***	-0.043***	-0.043***	-0.059***	-0.059***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Age Missing	-3.954***	-3.956***	-3.760***	-3.762***	-3.924***	-3.925***	-3.998***	-3.999***	-3.515***	-3.513***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	8,016	8,016	5,133	5,133	7,692	7,692	6,714	6,714	3,136	3,136
Pseudo R-squared	0.6000	0.6002	0.5916	0.5918	0.5975	0.5976	0.5976	0.5979	0.5824	0.5827

Table 5: Executive Confidence Rank, Team Confidence & New CEO Selection

This table contains conditional logit models that examine the relationship executive's rank in terms of confidence and likelihood of one of these ranked executives getting selected as the new CEO of the firm, conditional on a CEO turnover. We consider all CEO turnover events between the years 1993 and 2011. We consider several measures of executive confidence. We run conditional logistic regressions in which the dependent variable is an indicator that equals one if the executive is selected as the firm's CEO. The appendix contains more extensive variable definitions. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

	[1]	[2]	[3]	[4]
Exec has highest level of confidence	0.230**			
	[0.044]			
Exec has highest second level of confidence	0.123			
	[0.294]			
Exec has highest third level of confidence	0.175			
	[0.160]			
Exec confidence in top 3		0.177*		
		[0.062]		
Exec Confidence			2.754***	
			[0.002]	
Exec Confidence Squared			-2.862**	
			[0.021]	
Exec Confidence less Co's average exec confidence				0.664**
				[0.011]
Exec Compensation	1.961***	1.963***	1.939***	1.947***
	[0.000]	[0.000]	[0.000]	[0.000]
Exec Shareholding	0.268***	0.269***	0.274***	0.271***
	[0.000]	[0.000]	[0.000]	[0.000]
Exec Male	0.737***	0.740***	0.766***	0.753***
	[0.001]	[0.001]	[0.001]	[0.001]
Exec Position: CFO	-0.796***	-0.799***	-0.804***	-0.796***
	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: COO	0.651***	0.653***	0.640***	0.650***
	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: President	2.670***	2.669***	2.675***	2.665***
	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: Chair	2.558***	2.560***	2.562***	2.540***
	[0.000]	[0.000]	[0.000]	[0.000]
Tenure greater than 2 years	-0.029	-0.030	-0.048	-0.048
	[0.849]	[0.847]	[0.759]	[0.758]
Exec Age	-0.045***	-0.045***	-0.045***	-0.044***
	[0.000]	[0.000]	[0.000]	[0.000]
Exec Age Missing	-3.960***	-3.964***	-3.976***	-3.956***
	[0.000]	[0.000]	[0.000]	[0.000]
Observations	8,016	8,016	8,016	8,016
Pseudo R-squared	0.5994	0.5993	0.6010	0.5998

Table 6: Operational Scale, Organizational Complexities, Executive Confidence & New CEO Selection

This table presents the relationship between firm's scale of operation, complexity of organizational structures, executive confidence level and likelihood of a seasoned internal candidate getting selected as the new CEO of the firm (CEO selection). We consider four proxies for scale of operations: Size of total assets, size of total dollar sales, total number of employees, and the firm's market share. We split the sample by whether the executive's firm's size-metric is in the top 50% or bottom 50% of the firms in the sample. The models are conditional logit models and the dependent variable is an indicator that equals one if the executive is selected to become CEO. For detailed variable definition, please refer to Appendix 1 above. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

	Assets		Sales		Employees		Market Share	
	Top 50%	Bottom 50%	Top 50%	Bottom 50%	Top 50%	Bottom 50%	High	Low
Exec Confidence	1.303***	0.573	1.528***	0.517	1.596***	0.505	1.377***	0.329
	[0.008]	[0.186]	[0.003]	[0.229]	[0.002]	[0.245]	[0.002]	[0.483]
Exec Compensation	2.166***	1.809***	2.434***	1.546***	2.225***	1.819***	2.160***	1.689***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Shareholding	0.269***	0.271***	0.237***	0.292***	0.196**	0.323***	0.214***	0.331***
	[0.001]	[0.000]	[0.002]	[0.000]	[0.012]	[0.000]	[0.002]	[0.000]
Exec Male	0.888***	0.632*	0.705**	0.913***	0.520*	1.014***	0.434	1.282***
	[0.003]	[0.067]	[0.018]	[0.008]	[0.083]	[0.003]	[0.126]	[0.001]
Exec Position: CFO	-0.904***	-0.629**	-0.850***	-0.765***	-1.041***	-0.593**	-1.099***	-0.531**
	[0.000]	[0.042]	[0.001]	[0.007]	[0.000]	[0.018]	[0.000]	[0.039]
Exec Position: COO	0.685***	0.566***	0.751***	0.507**	0.639***	0.689***	0.565***	0.764***
	[0.000]	[0.006]	[0.000]	[0.012]	[0.001]	[0.000]	[0.002]	[0.000]
Exec Position: President	2.661***	2.683***	2.614***	2.742***	2.682***	2.606***	2.607***	2.785***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: Chair	2.570***	2.425***	2.502***	2.550***	2.825***	2.311***	2.600***	2.497***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Tenure greater than 2 years	-0.042	-0.078	-0.145	0.050	-0.390*	0.279	-0.084	0.058
	[0.843]	[0.735]	[0.497]	[0.826]	[0.065]	[0.228]	[0.697]	[0.800]
Exec Age	-0.057***	-0.031***	-0.056***	-0.033***	-0.041***	-0.043***	-0.050***	-0.038***
	[0.000]	[0.002]	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Age Missing	-4.065***	-3.861***	-3.787***	-4.240***	-5.244***	-3.497***	-4.068***	-3.802***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	4,431	3,585	4,438	3,573	4,317	3,576	4,337	3,679
Pseudo R-squared	0.5889	0.6165	0.6015	0.6029	0.6260	0.5763	0.5970	0.6094

Table 7: Total, Systematic, and Idiosyncratic Risk Exposure, Executive Confidence & New CEO Appointment

This table contains regression models that examine the relationship between firm's risk exposure, executive confidence, and the likelihood of one of the seasoned internal executives getting selected as the new CEO of the firm (CEO Selection). We consider all CEO turnover events between the years 1993 and 2012. We split the sample based on whether the firm's total risk (i.e. stock return variance) or idiosyncratic risk (mean squared error) from a one-factor of four-factor model is in the top 50% or bottom 50% of the sample. We run conditional logit regressions in which the dependent variable is an indicator that equals one if the executive is selected to become CEO. The appendix contains more extensive variable definitions. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

	Total Risk		Idiosyncratic Risk (1 Factor)		Idiosyncratic Risk (4 Factor)	
	High	Low	High	Low	High	Low
Exec Confidence	0.415	1.330***	0.403	1.326***	0.525	1.223***
	[0.365]	[0.003]	[0.380]	[0.004]	[0.260]	[0.007]
Exec Compensation	1.461***	2.714***	1.734***	2.321***	1.689***	2.320***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Shareholding	0.262***	0.298***	0.277***	0.262***	0.295***	0.233***
	[0.000]	[0.000]	[0.000]	[0.001]	[0.000]	[0.003]
Exec Male	0.585*	0.932***	0.896**	0.674**	0.922***	0.647**
	[0.067]	[0.003]	[0.011]	[0.021]	[0.009]	[0.026]
Exec Position: CFO	-0.657**	-0.937***	-0.598**	-0.943***	-0.570*	-0.961***
	[0.011]	[0.001]	[0.040]	[0.000]	[0.052]	[0.000]
Exec Position: COO	0.570***	0.706***	0.583***	0.692***	0.487**	0.765***
	[0.004]	[0.000]	[0.004]	[0.000]	[0.020]	[0.000]
Exec Position: President	2.607***	2.735***	2.573***	2.740***	2.626***	2.702***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: Chair	2.326***	2.713***	2.376***	2.669***	2.407***	2.654***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Tenure greater than 2 years	0.068	-0.202	0.034	-0.139	0.021	-0.127
	[0.755]	[0.360]	[0.877]	[0.522]	[0.927]	[0.553]
Exec Age	-0.037***	-0.052***	-0.036***	-0.052***	-0.036***	-0.053***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Age Missing	-3.734***	-4.183***	-3.628***	-4.390***	-3.788***	-4.128***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	3,529	4,487	3,463	4,553	3,442	4,574
Pseudo R-squared	0.5743	0.6237	0.5820	0.6161	0.5873	0.6124

Table 8: Firm's Innovativeness, Executive's Confidence Level & New CEO Appointment

This table contains conditional logit models that examine the relationship between corproate innovativeness, executive-confidence, and the likelihood of being selected as CEO. The models are conditional logit models and the dependent variable is an indicator that equals one if the executive is selected as CEO. We consider all CEO turnover events between the years 1993 and 2012. We split the sample by whether the firm's R&D or prior-patents-granted is in the top 50% or bottom 50% of the sample. The appendix contains more extensive variable definitions. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

	R&D		Patents	
	High	Low	High	Low
Exec Confidence	-0.786	1.297*	1.694	0.729*
	[0.266]	[0.083]	[0.186]	[0.064]
Exec Compensation	2.204***	2.792***	3.280***	1.480***
	[0.001]	[0.000]	[0.000]	[0.000]
Exec Shareholding	0.214	0.315***	0.123	0.226***
	[0.118]	[0.005]	[0.523]	[0.000]
Exec Male	1.387**	0.716	0.210	0.764**
	[0.042]	[0.174]	[0.767]	[0.014]
Exec Position: CFO	-0.643	-1.633***	1.273	-0.271
	[0.156]	[0.004]	[0.263]	[0.584]
Exec Position: COO	0.682**	1.045***	0.691*	0.515***
	[0.031]	[0.002]	[0.061]	[0.004]
Exec Position: President	2.619***	2.828***	2.861***	2.605***
	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: Chair	4.075***	2.296***	4.390***	2.194***
	[0.000]	[0.000]	[0.000]	[0.000]
Tenure greater than 2 years	0.077	0.128	-0.490	-0.407*
	[0.829]	[0.736]	[0.337]	[0.068]
Exec Age	-0.060***	-0.046***	-0.077***	-0.036***
	[0.001]	[0.004]	[0.000]	[0.000]
Exec Age Missing	-3.814***	-4.197***	-4.577***	-4.321***
	[0.000]	[0.000]	[0.000]	[0.000]
Observations	1,448	1,837	1,639	4,754
Pseudo R-squared	0.6575	0.6628	0.7411	0.6130

Table 9: Firm's Acquisition History, Executive Confidence & New CEO Appointment

This table contains conditional logit models that examine the relationship the firm's prior acquisitiveness, executive confidence, and the likelihood that the executive is selected as the CEO. We have several measures of prior eacquisitiveness, including whether the firm did an acquisition in the year prior to the turnover, whether it is above or below median in terms of the number or value of M&As, and whether the CARs earned on those deals are above or below median. We consider all CEO turnover events between the years 1993 and 2012. The models are conditional logit models in which the dependent variable is an indicator that equals one if the executive is selected as CEO. The appendix contains more extensive variable definitions. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

	Did M&A Last Year		Num M&A Deals		Val M&A Deals		Ave CAR (-2,2)		Ave CAR (-5,28)	
	Yes	No	High	Low	High	Low	High	Low	High	Low
Exec Confidence	2.005**	0.697**	9.657***	1.570	5.928***	0.748	1.398	2.738**	0.857	2.749**
	[0.023]	[0.048]	[0.004]	[0.114]	[0.002]	[0.566]	[0.265]	[0.031]	[0.490]	[0.027]
Exec Compensation	0.436	2.131***	-1.919	0.736	0.241	0.993	1.563	0.250	1.422	-0.169
	[0.551]	[0.000]	[0.278]	[0.408]	[0.802]	[0.386]	[0.149]	[0.814]	[0.214]	[0.870]
Exec Shareholding	-0.080	0.317***	0.744**	-0.224	0.052	-0.149	0.294	-0.417**	-0.031	-0.116
	[0.565]	[0.000]	[0.025]	[0.171]	[0.820]	[0.435]	[0.173]	[0.037]	[0.892]	[0.533]
Exec Male	2.226*	0.686***	18.469	2.099*	16.723	2.101	1.960	15.236	1.507	16.203
	[0.060]	[0.003]	[0.995]	[0.086]	[0.994]	[0.151]	[0.196]	[0.989]	[0.280]	[0.990]
Exec Position: CFO	-1.967**	-0.693***	-17.774	-1.786**	-16.789	-1.529	-1.736	-1.967*	-1.512	-2.474**
	[0.014]	[0.000]	[0.995]	[0.034]	[0.992]	[0.117]	[0.106]	[0.086]	[0.150]	[0.032]
Exec Position: COO	1.053***	0.567***	2.359***	1.031**	1.382***	0.955*	1.077*	1.170***	1.948***	0.350
	[0.002]	[0.000]	[0.005]	[0.013]	[0.006]	[0.078]	[0.068]	[0.009]	[0.001]	[0.454]
Exec Position: President	2.414***	2.739***	2.385***	2.496***	1.409***	3.000***	2.863***	2.186***	2.555***	2.648***
	[0.000]	[0.000]	[0.002]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: Chair	3.333***	2.551***	2.872*	3.524***	3.393***	3.623***	2.984***	3.877***	3.214***	3.433***
	[0.000]	[0.000]	[0.095]	[0.000]	[0.002]	[0.000]	[0.001]	[0.000]	[0.000]	[0.001]
Tenure greater than 2 years	-0.291	-0.001	-2.881**	0.045	-0.859	-0.169	-0.024	-0.642	0.489	-0.991*
	[0.496]	[0.997]	[0.016]	[0.928]	[0.194]	[0.800]	[0.977]	[0.222]	[0.479]	[0.090]
Exec Age	-0.088***	-0.041***	-0.105*	-0.084***	-0.063**	-0.120***	-0.124***	-0.058**	-0.059*	-0.110***
	[0.000]	[0.000]	[0.079]	[0.000]	[0.024]	[0.000]	[0.000]	[0.041]	[0.055]	[0.000]
Exec Age Missing	-3.078***	-4.206***	-2.083*	-3.698***	-3.189***	-3.191***	-3.139**	-2.943***	-17.746	-2.506***
	[0.000]	[0.000]	[0.068]	[0.001]	[0.002]	[0.007]	[0.011]	[0.004]	[0.992]	[0.002]
Observations	1,102	6,914	230	872	493	609	546	556	586	516
Pseudo R-squared	0.6057	0.6051	0.6533	0.6217	0.6053	0.6511	0.6692	0.5775	0.6827	0.5656

Table 10: Board Busyness and New CEO Selection

This table contains conditional logit models that examine the role of board busyness in the selection of overconfident executives. The dependent variable is an indicator that equals one if the executive is promoted to CEO. The sample is split based on whether the board is 'high' or 'low' in terms of various measures of board-busyness. Columns 1 and 2 define the degree of busyness to be the number of additional directorships that each director holds. Thus, the columsn split the sample based on whether the firm's directors hold an above-median (high) or below-median (low) number of other directorships, on average. Columns 3-8 split the sample based on whether the firm has an above median or below median number of directors with 3+, 4+, or 5+ directorships, as indicated in the Column header. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

	Director Busyness		Directors with 3+ Directorships		Directors with 4+ Directorships		Directors with 5+ Directorships	
Sample	High	Low	High	Low	High	Low	High	Low
Exec Confidence	1.763***	1.103**	2.100***	0.912*	1.931***	0.953**	3.177***	1.033**
	[0.008]	[0.020]	[0.002]	[0.050]	[0.003]	[0.046]	[0.004]	[0.013]
Exec Compensation	2.774***	1.274***	2.190***	1.581***	1.665***	1.927***	1.656**	1.902***
	[0.000]	[0.002]	[0.000]	[0.000]	[0.001]	[0.000]	[0.032]	[0.000]
Exec Shareholding	0.165	0.295***	0.237**	0.271***	0.233**	0.282***	0.127	0.295***
	[0.121]	[0.000]	[0.027]	[0.000]	[0.019]	[0.000]	[0.340]	[0.000]
Exec Male	0.594*	0.718**	0.576	0.737**	0.631*	0.731**	0.589	0.700**
	[0.097]	[0.030]	[0.119]	[0.024]	[0.079]	[0.029]	[0.210]	[0.014]
Exec Position: CFO	-1.090***	-0.648**	-1.137***	-0.653**	-0.848***	-0.883***	-1.206**	-0.808***
	[0.000]	[0.038]	[0.000]	[0.034]	[0.009]	[0.003]	[0.028]	[0.001]
Exec Position: COO	0.530**	0.715***	0.589**	0.667***	0.480*	0.744***	-0.007	0.843***
	[0.029]	[0.001]	[0.017]	[0.001]	[0.051]	[0.000]	[0.985]	[0.000]
Exec Position: President	3.011***	2.315***	3.049***	2.288***	2.871***	2.433***	2.939***	2.562***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: Chair	2.633***	2.376***	2.802***	2.223***	2.518***	2.443***	2.679***	2.388***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Tenure greater than 2 years	-0.008	-0.136	-0.118	-0.034	0.102	-0.180	0.155	-0.088
	[0.975]	[0.589]	[0.643]	[0.894]	[0.698]	[0.468]	[0.676]	[0.671]
Exec Age	-0.055***	-0.043***	-0.058***	-0.039***	-0.051***	-0.043***	-0.058***	-0.044***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]	[0.000]
Exec Age Missing	-3.963***	-3.603***	-4.041***	-3.556***	-3.545***	-3.968***	-3.517***	-3.877***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	2,810	2,825	2,853	2,782	2,782	2,853	1,502	4,133
Pseudo R-squared	0.6214	0.5604	0.6321	0.5474	0.5992	0.5766	0.5966	0.5866

Table 11: Governance Mechanisms, Firm Size, Executive Confidence & New CEO Selection

This table presents the relationship between established firm-level governance mechanisms, executive confidence level and likelihood of a confident candidate getting selected as the new CEO of the firm (CEO selection). We consider several types of quality of governance measures: Gompers, Ishii and Metrick (GIM) index of corporate governance and the Bebchuk, Cohen and Ferrell (BCF) index of managerial entrenchment, an indicator for whether the firm has a classified board, and by whether the firm has an above or below median proportion of independent directors or board size. The models are conditional logit models and the dependent variable is an indicator that equals one if the executive is selected as the firm's CEO. For detailed variable definition, please refer to Appendix 1 above. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

	GIM Index		BCF Index		Classified Board		Board Size		Board Independence	
	≥ 10	< 10	≥ 3	< 3	Yes	No	High	Low	High	Low
Exec Confidence	2.102***	0.320	2.666***	0.245	1.554***	0.307	1.842***	1.122**	1.305*	1.285***
	[0.001]	[0.545]	[0.000]	[0.606]	[0.003]	[0.591]	[0.006]	[0.019]	[0.070]	[0.006]
Exec Compensation	1.583***	2.398***	1.677***	2.168***	2.407***	1.583***	2.504***	1.353***	1.507**	1.896***
	[0.004]	[0.000]	[0.010]	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]	[0.021]	[0.000]
Exec Shareholding	0.285**	0.196***	0.371***	0.220***	0.277***	0.236***	0.225**	0.290***	0.446**	0.227***
	[0.022]	[0.004]	[0.003]	[0.001]	[0.001]	[0.004]	[0.032]	[0.000]	[0.022]	[0.000]
Exec Male	0.708*	0.637*	0.967**	0.556*	0.948***	0.449	0.561	0.842**	0.668*	0.770**
	[0.053]	[0.060]	[0.016]	[0.056]	[0.005]	[0.173]	[0.102]	[0.018]	[0.059]	[0.030]
Exec Position: CFO	-1.070***	-1.046***	-0.818***	-1.003***	-0.606**	-1.207***	-1.243***	-0.574**	-0.778***	-1.194***
	[0.002]	[0.000]	[0.004]	[0.001]	[0.030]	[0.000]	[0.000]	[0.045]	[0.004]	[0.007]
Exec Position: COO	0.585***	0.865***	0.490*	0.860***	0.684***	0.734***	0.695***	0.590***	1.073***	0.370*
	[0.010]	[0.000]	[0.055]	[0.000]	[0.000]	[0.001]	[0.004]	[0.005]	[0.000]	[0.065]
Exec Position: President	2.631***	2.549***	2.514***	2.641***	2.649***	2.576***	2.716***	2.534***	3.060***	2.389***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: Chair	2.482***	2.557***	2.462***	2.477***	2.278***	2.768***	2.649***	2.167***	2.875***	2.153***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Tenure greater than 2 years	-0.097	0.175	-0.073	0.128	-0.146	0.305	-0.157	-0.010	0.136	-0.233
	[0.712]	[0.474]	[0.782]	[0.570]	[0.525]	[0.235]	[0.540]	[0.967]	[0.625]	[0.330]
Exec Age	-0.053***	-0.042***	-0.049***	-0.050***	-0.042***	-0.055***	-0.058***	-0.038***	-0.070***	-0.034***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]	[0.000]	[0.000]
Exec Age Missing	-4.182***	-4.251***	-3.303***	-4.309***	-3.698***	-4.607***	-4.426***	-3.355***	-3.815***	-3.718***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	3,021	3,307	1,921	4,611	3,851	2,681	3,028	2,607	2,477	3,158
Pseudo R-squared	0.6237	0.5828	0.5398	0.6207	0.6147	0.5683	0.6214	0.5519	0.6444	0.5516

Table 12: New CEO's confidence-level and performance

This table contains regression models that examine the relationship between firm's strategy to hire an overconfident executive as the new CEO and subsequent changes in firm performance. We run cross-sectional OLS regression with Tobin's Q in year $t+2$ and $t+3$ as dependent variables. We consider all CEO turnovers in year t and use executive's confidence (and other control variables) calculated in the year $t-1$. The appendix contains more extensive variable definitions. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

Dependent Variable	Tobin's Q (t+2)	Tobin's Q (t+3)
	[1]	[2]
Executive Confidence (t-1)	0.080	0.109
	[0.417]	[0.254]
Tobin's Q (t-1)	0.192***	0.161***
	[0.002]	[0.005]
Executive Compensation (t-1)	-0.105	0.004
	[0.270]	[0.967]
Executive Share Ownership (t-1)	0.005	-0.001
	[0.764]	[0.970]
Executive Gender	-0.019	-0.206
	[0.878]	[0.195]
Position: CFO	0.015	0.130
	[0.895]	[0.234]
Position: COO	-0.070	-0.052
	[0.103]	[0.256]
Position: President	0.067*	0.037
	[0.099]	[0.385]
Position: Chairman	-0.113*	-0.076
	[0.090]	[0.257]
Executive Tenure > 2 years	0.073	0.162***
	[0.282]	[0.006]
Executive Age	0.000	0.002
	[0.931]	[0.508]
Executive Missing Age	0.658	0.316
	[0.105]	[0.152]
Departing CEO's Compensation (t-1)	0.031	0.010
	[0.718]	[0.916]
Departing CEO's Shareholdings (t-1)	-0.003	-0.001
	[0.521]	[0.866]
Departing CEO's Gender	0.055	0.352
	[0.653]	[0.144]
Departing CEO's Compensation	0.022	0.046
	[0.657]	[0.374]
Departing CEO's Tenure > 2 years	0.042	0.109*
	[0.495]	[0.062]
Departing CEO's Age	0.003	0.003
	[0.350]	[0.422]
Departing CEO's Missing-Age	0.387	0.460
	[0.176]	[0.147]
Ln[Total Assets (t-1)]	-0.129***	-0.106***
	[0.000]	[0.000]
Leverage (t-1)	0.008	-0.009
	[0.392]	[0.362]
R&D Expenses (t-1)	5.946***	4.209***
	[0.000]	[0.000]
Cash Holdings (t-1)	-0.414*	-0.134
	[0.076]	[0.603]
Stdev of Return (t-1)	-6.102***	-5.414**
	[0.002]	[0.014]
S&P 500 Dummy	0.430***	0.337***
	[0.000]	[0.000]
Predicted Confidence Score	2.726***	2.019***
	[0.000]	[0.000]
Observations	1,711	1,565
Adj R-squared	0.5359	0.4587

Table 13: Firm size, executive confidence, and the performance of new CEOs

This table contains regression models that examine the relationship between firm size, the confidence of the newly appointed CEO, and firm performance. The dependent variable is the firm's Tobin's Q in either year $t+2$ or year $t+3$, as indicated in the panel header, where year $t+1$ is the year of the turnover. Executive confidence is measured in year t. The models include all controls from Table 12, year fixed effects, and industry fixed effects. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Sample	Assets		Sales		Employees		CAPEX	
	Top 50%	Bottom 50%	Top 50%	Bottom 50%	Top 50%	Bottom 50%	Top 50%	Bottom 50%
Dependent Variable	Tobin's Q (t+2)							
Confidence	0.193*	-0.023	0.320**	-0.162	0.271**	-0.109	0.367**	-0.161
	[0.099]	[0.881]	[0.010]	[0.289]	[0.035]	[0.483]	[0.013]	[0.228]
Q(t-1)	0.089	0.246***	0.106	0.247***	0.144	0.222***	0.141	0.224***
	[0.365]	[0.000]	[0.311]	[0.000]	[0.203]	[0.000]	[0.121]	[0.000]
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	859	852	857	854	861	826	868	843
Adj R-squared	0.6170	0.4894	0.5746	0.5114	0.5173	0.5355	0.6104	0.4884
Dependent Variable	Tobin's Q (t+3)							
Confidence	0.171	0.002	0.275**	-0.092	0.220*	-0.058	0.435***	-0.173
	[0.149]	[0.987]	[0.031]	[0.529]	[0.088]	[0.702]	[0.003]	[0.168]
Q(t-1)	0.078	0.196***	0.092	0.206***	0.126	0.188***	0.123	0.177***
	[0.345]	[0.000]	[0.305]	[0.000]	[0.190]	[0.001]	[0.131]	[0.000]
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	781	784	774	791	789	754	795	770
Adj R-squared	0.5326	0.4226	0.5017	0.4351	0.4586	0.4495	0.5223	0.4450

Table 14: Corporate risk, executive confidence, and the performance of new CEOs

This table contains regression models that examine the relationship between firm risk, the confidence of the newly appointed CEO, and firm performance. The dependent variable is the firm's Tobin's Q in either year $t+2$ or year $t+3$, as indicated in the panel header, where year $t+1$ is the year of the turnover. Executive confidence is measured in year t. The models include all controls from Table 12, year fixed effects, and industry fixed effects. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Sample	Total Risk		Idiosyncratic Risk (1 Factor)		Idiosyncratic Risk (4 Factor)	
	Low	High	Low	High	Low	High
Dependent Variable	Tobin's Q (t+2)					
Confidence	0.313***	0.077	0.283**	0.170	0.260**	0.167
	[0.005]	[0.614]	[0.012]	[0.254]	[0.020]	[0.263]
Q(t-1)	0.370***	0.165***	0.403***	0.148**	0.389***	0.152**
	[0.000]	[0.010]	[0.000]	[0.015]	[0.000]	[0.012]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	845	866	832	879	832	879
Adj R-squared	0.6919	0.4552	0.7213	0.4319	0.7220	0.4356
Dependent Variable	Tobin's Q (t+3)					
Confidence	0.340***	0.026	0.328***	0.089	0.303**	0.103
	[0.009]	[0.858]	[0.009]	[0.544]	[0.017]	[0.483]
Q(t-1)	0.284***	0.138**	0.314***	0.126**	0.293***	0.130**
	[0.000]	[0.015]	[0.000]	[0.022]	[0.000]	[0.017]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	793	772	774	791	777	788
Adj R-squared	0.5960	0.3974	0.6240	0.3682	0.6302	0.3624

Table 15: Governance, takeovers confidence, and the performance of new CEOs

This table contains regression models that examine the relationship between firm governance, the confidence of the newly appointed CEO, and firm performance. We measure firm governance by using the board busyness (as proxied by the number of directors who hold at least three directorships), the EINDEX, and whether the firm did a takeover in the prior year. The dependent variable is the firm's Tobin's Q in either year $t+2$ or year $t+3$, as indicated in the panel header, where year $t+1$ is the year of the turnover. Executive confidence is measured in year t. The models include all controls from Table 12, year fixed effects, and industry fixed effects. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Sample	Board Busyness		Did M&A Last Year		EINDEX ≥ 3	
	Above Median	Below Median	Yes	No	Yes	No
Dependent Variable			Tobin's Q (t+2)			
Confidence	0.221	-0.133	-0.096	0.128	0.236	0.076
	[0.150]	[0.459]	[0.685]	[0.245]	[0.189]	[0.587]
Q(t-1)	0.267***	0.225***	0.128*	0.220**	0.386***	0.278***
	[0.002]	[0.000]	[0.053]	[0.016]	[0.000]	[0.000]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	568	625	403	1,308	410	978
Adj R-squared	0.6166	0.5608	0.4749	0.5531	0.5789	0.6042
Dependent Variable			Tobin's Q (t+3)			
Confidence	0.077	-0.015	-0.013	0.137	0.255	0.091
	[0.615]	[0.933]	[0.954]	[0.216]	[0.248]	[0.524]
Q(t-1)	0.209**	0.217***	0.063	0.199**	0.193	0.254***
	[0.011]	[0.000]	[0.366]	[0.017]	[0.210]	[0.000]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	517	576	373	1,192	346	918
Adj R-squared	0.4576	0.5543	0.4223	0.4652	0.3760	0.5299

Table 16: Post CEO Selection CAPEX,PP&E, Assets, R&D, and Patents

This table contains OLS regression models that examine CAPEX, PP&E, R&D, assets, and patents in year $t+2$, $t+3$, and $t+4$, where, year t is the year of the turnover. We report only the confidence measure. The column title indicates the window over which the change is computed. The panel-header indicates the variable in which the change is examined. The models include controls from Table 12, lagged dependent variables, year fixed effects, and SIC two-digit industry fixed effects. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Year	t+2	t+3	t+4
CAPEX			
Executive Confidence (t-1)	0.012***	0.007**	0.005
	[0.000]	[0.024]	[0.127]
Controls	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Observations	1,652	1,512	1,333
Adjusted R^2	0.6147	0.5789	0.5535
PP&E			
Executive Confidence (t-1)	0.014**	0.019***	0.024***
	[0.015]	[0.010]	[0.004]
Controls	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Observations	1,677	1,538	1,358
Adjusted R^2	0.9393	0.9147	0.9033
Assets			
Executive Confidence (t-1)	0.284***	0.348***	0.405***
	[0.000]	[0.000]	[0.000]
Controls	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Observations	1,728	1,581	1,389
Adjusted R^2	0.9700	0.9505	0.9323
R&D			
Executive Confidence (t-1)	0.004*	0.003	0.004
	[0.083]	[0.338]	[0.269]
Controls	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Observations	1,728	1,581	1,389
Adjusted R^2	0.8740	0.8179	0.7713
Patents			
Executive Confidence (t-1)	0.074	0.167**	0.259***
	[0.120]	[0.014]	[0.003]
Controls	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Observations	1,097	951	784
Adjusted R^2	0.9819	0.9690	0.9591

Table 17: Robustness to *Holder* measures of overconfidence

This table contains regression models that use *Holder* measures of overconfidence. The dependent variable is an indicator that equals one if the executive is selected as CEO. We run conditional logistic regressions with CEO appointment in the year t as the dependent variable. The appendix contains more extensive variable definitions. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

Dependent Variable	CEO Selection				
	[1]	[2]	[3]	[4]	[5]
Holder100	0.605***				
	[0.000]				
Holder80		0.498***			
		[0.000]			
Holder67			0.477***		
			[0.000]		
Holder50				0.411***	
				[0.002]	
Holder30					0.542***
					[0.000]
Exec Compensation	2.074***	2.090***	2.092***	2.104***	2.114***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Shareholding	0.275***	0.279***	0.275***	0.276***	0.279***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Male	0.790***	0.794***	0.785***	0.758***	0.761***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Exec Position: CFO	-0.770***	-0.778***	-0.785***	-0.772***	-0.784***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: COO	0.663***	0.684***	0.675***	0.675***	0.683***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: President	2.632***	2.630***	2.632***	2.628***	2.626***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: Chair	2.566***	2.573***	2.592***	2.610***	2.589***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Tenure greater than 2 years	-0.351**	-0.322*	-0.299*	-0.267	-0.292*
	[0.047]	[0.068]	[0.089]	[0.129]	[0.098]
Exec Age	-0.048***	-0.048***	-0.048***	-0.047***	-0.046***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec Age Missing	-3.992***	-3.996***	-3.981***	-3.993***	-3.977***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	7,123	7,123	7,123	7,123	7,123
Pseudo R-squared	0.6134	0.6117	0.6112	0.6104	0.6111

Table 18: Alternative Measures of Executive Confidence, Temporal Subsamples & New CEO Selection

This table contains regression models that examine the robustness of the relationship between executive's confidence level and new CEO selection. In panel A, we consider four alternative proxies for executives' confidence level and likelihood of one seasoned internal candidate getting selected as the new CEO of the firm (CEO Selection). We consider log of raw number of in-the-money exercisable options held by the executives (Alt_1). Next, we consider log of raw number of vested but un-exercised options held by the executives (Alt_2). Other two alternative measures normalizes the first two alternative measures (Alt_3 & Alt_4) by the total number of vested options (exercised and un-exercised). In panel B, we consider few different sample periods: First, we consider only turnovers occurring on or after 2001/2002. Next, we consider only turnovers occurring on or before 2002/2003. Finally, we drop three different combinations of years that can be attributed to recent financial crisis. In both the panels we consider all CEO turnover events between the years 1993 and 2012 and we run conditional logistic regressions with CEO appointment in the year t as the dependent variable. The appendix contains more extensive variable definitions. The significance levels at the 1%, 5%, and 10% are denoted by ***, ** and *, respectively.

Panel A								
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Executive Confidence_Alt_1	0.472***				0.288***			
	[0.000]				[0.000]			
Executive Confidence_Alt_2		0.576***				0.306***		
		[0.000]				[0.000]		
Executive Confidence_Alt_3			1.307***				1.346***	
			[0.000]				[0.000]	
Executive Confidence_Alt_4				1.344***				1.665***
				[0.000]				[0.000]
Executive-Characteristic Related Controls	No	No	No	No	Yes	Yes	Yes	Yes
Observations	8,016	8,016	7,025	7,025	8,016	8,016	7,025	7,025
Pseudo R-squared	0.0688	0.0946	0.0085	0.0169	0.6102	0.6135	0.6168	0.6238
Panel B								
Sample Period	$\geqslant$ 2002	$\leqslant$ 2001	$\geqslant$ 2003	$\leqslant$ 2002	Year 2006 & 2007 Not Included	Year 2007 & 2008 Not Included	Year 2006, 2007 & 2008 Not Included	
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Executive Confidence	0.817*	0.938*	0.924**	0.820*	0.683**	0.801**	0.727**	-
	[0.060]	[0.063]	[0.042]	[0.082]	[0.048]	[0.020]	[0.042]	
Executive-Characteristic Related Controls	No	No	No	No	Yes	Yes	Yes	-
Observations	3,994	4,022	3,462	4,554	7,136	7,100	6,692	
Pseudo R-squared	0.5336	0.6751	0.5199	0.6662	0.6061	0.6137	0.6176	

Table 19: Selection (conditional logit) models excluding the appointment of relatively "old" age executives and family firms

This table contains conditional logit models that examine the likelihood that a given executive is selected in a turnover event. Columns 1 and 2 exclude situations where the CEO who is eventually appointed is older than the former CEO. Columns 3 and 4 exclude family firms, as identified in GMI ratings. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Sample	New CEO younger than former CEO		Non-Family Firms	
	[1]	[2]	[3]	[4]
Exec Confidence	0.798**		0.903***	
	[0.046]		[0.009]	
log[Exec Confidence]		1.078**		1.260***
		[0.037]		[0.005]
Exec Compensation	2.447***	2.445***	2.040***	2.038***
	[0.000]	[0.000]	[0.000]	[0.000]
Exec Shareholding	0.335***	0.335***	0.337***	0.339***
	[0.000]	[0.000]	[0.000]	[0.000]
Exec Male	0.677***	0.678***	0.920***	0.922***
	[0.009]	[0.009]	[0.000]	[0.000]
Exec Position: CFO	-0.708***	-0.710***	-0.759***	-0.761***
	[0.001]	[0.001]	[0.000]	[0.000]
Exec Position: COO	0.833***	0.831***	0.679***	0.677***
	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: President	2.827***	2.828***	2.669***	2.670***
	[0.000]	[0.000]	[0.000]	[0.000]
Exec Position: Chair	3.065***	3.067***	2.473***	2.474***
	[0.000]	[0.000]	[0.000]	[0.000]
Tenure greater than 2 years	0.016	0.015	-0.065	-0.067
	[0.931]	[0.937]	[0.689]	[0.679]
Exec Age	-0.048***	-0.048***	-0.043***	-0.043***
	[0.000]	[0.000]	[0.000]	[0.000]
Exec Age Missing	-3.948***	-3.949***	-3.986***	-3.987***
	[0.000]	[0.000]	[0.000]	[0.000]
Observations	6,322	6,322	7,297	7,297
Pseudo R-squared	0.6449	0.6450	0.6077	0.6080

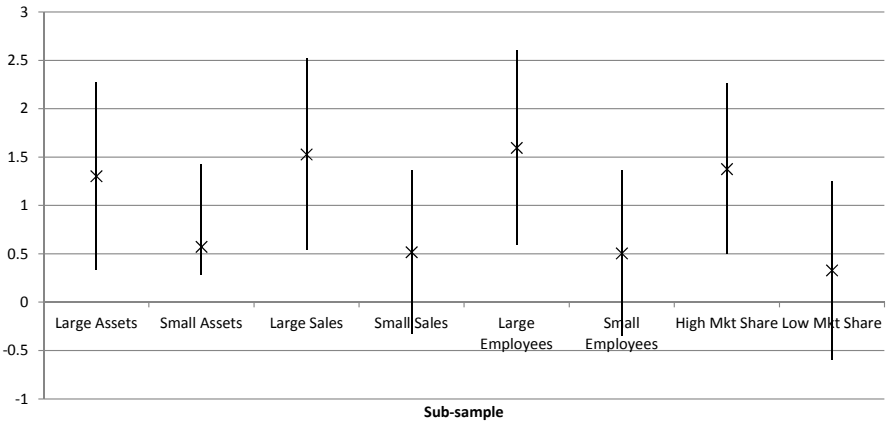
Table 20: Change in executive confidence around turnovers

This table contains OLS regression models that examine the change in executive confidence-level following the turnover event. The sample includes all executives who were at the company at the time of the turnover and remain with the company for one, two, or three years after the turnover, as necessary to compute the dependent variable. The executive is in the database whether or not he/she becomes CEO. We restrict the sample to the set of executives who stay with the company (either as CEO or as a non-CEO executive) and for whom we have data both before and after the turnover. Panel A includes the full set of control variables (suppressed); Panel B controls only for prior market adjusted stock return from year $t-1$ (i.e. one year before the turnover if the turnover is in year t); Panel C controls for the stock return from year $t-1$ (one year before a turnover) to years $t+1$, $t+2$, $t+3$, as indicated in the model. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	ΔConfidence			ΔConfidence		
	$(t-1,t+1)$	$(t-1,t+2)$	$(t-1,t+3)$	$(t-1,t+1)$	$(t-1,t+2)$	$(t-1,t+3)$
Panel A: Full set of controls						
Constant	0.200***	0.297**	0.553**	1.156***	1.602***	1.522**
	[0.003]	[0.025]	[0.028]	[0.000]	[0.003]	[0.049]
Exec becomes CEO	-0.000	-0.003	-0.007	-0.010	-0.009	-0.019
	[0.962]	[0.732]	[0.512]	[0.645]	[0.755]	[0.590]
Market-to-Book	-0.007***	-0.011***	-0.016***	-0.016***	-0.016***	-0.029***
	[0.000]	[0.000]	[0.000]	[0.001]	[0.006]	[0.000]
Mkt Adj Return	-0.042***	-0.070***	-0.098***	-0.052**	-0.068**	-0.113***
	[0.000]	[0.000]	[0.000]	[0.038]	[0.019]	[0.000]
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,435	4,895	3,775	4,742	3,672	2,868
Adj R-squared	0.1040	0.1715	0.2131	0.1079	0.1250	0.1194
Panel B: Limited Controls						
Constant	0.007	0.021***	0.024**	0.727***	0.745***	0.743***
	[0.167]	[0.008]	[0.017]	[0.000]	[0.000]	[0.000]
Exec becomes CEO	0.004	-0.005	0.001	0.011	-0.003	-0.009
	[0.328]	[0.362]	[0.917]	[0.408]	[0.845]	[0.652]
Market-to-Book	-0.007***	-0.013***	-0.018***	-0.016***	-0.025***	-0.029***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Mkt Adj Return	-0.041***	-0.070***	-0.085***	-0.044**	-0.077***	-0.074***
	[0.000]	[0.000]	[0.000]	[0.017]	[0.001]	[0.002]
Other Controls	No	No	No	No	No	No
Observations	6,435	4,895	3,775	4,742	3,672	2,868
Adj R-squared	0.0311	0.0648	0.0906	0.0107	0.0220	0.0238
Panel C: Controlling for return over the turnover period						
Constant	0.014**	0.034***	0.055***	0.728***	0.750***	0.798***
	[0.014]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Exec becomes CEO	0.002	-0.007	0.000	0.003	-0.002	-0.007
	[0.563]	[0.215]	[0.987]	[0.825]	[0.915]	[0.751]
Market-to-Book	-0.009***	-0.016***	-0.025***	-0.017***	-0.027***	-0.037***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Mkt Adj Return $(t-1,t+1)$	-0.012**			-0.000		
	[0.013]			[0.980]		
Mkt Adj Return $(t-1,t+2)$		-0.039***			-0.061***	
		[0.000]			[0.000]	
Mkt Adj Return $(t-1,t+3)$			-0.036***			-0.053***
			[0.000]			[0.000]
Other Controls	No	No	No	No	No	No
Observations	5,620	3,745	2,728	4,186	2,912	2,140
Adj R-squared	0.0241	0.0750	0.1037	0.0083	0.0307	0.0379

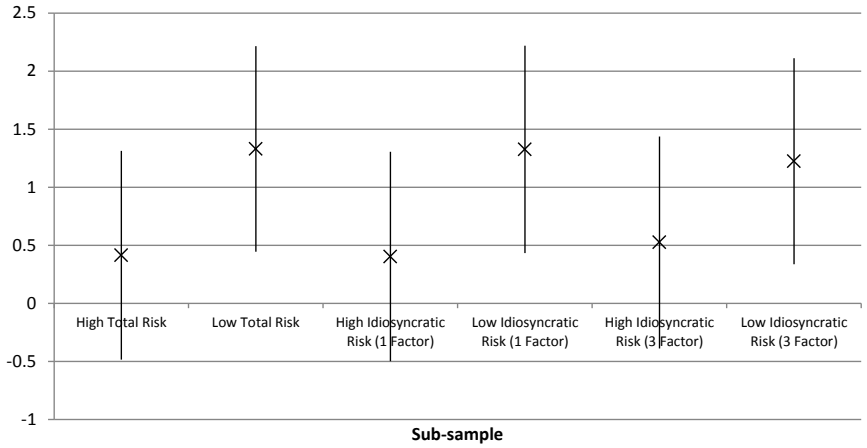
Figures

Figure 1



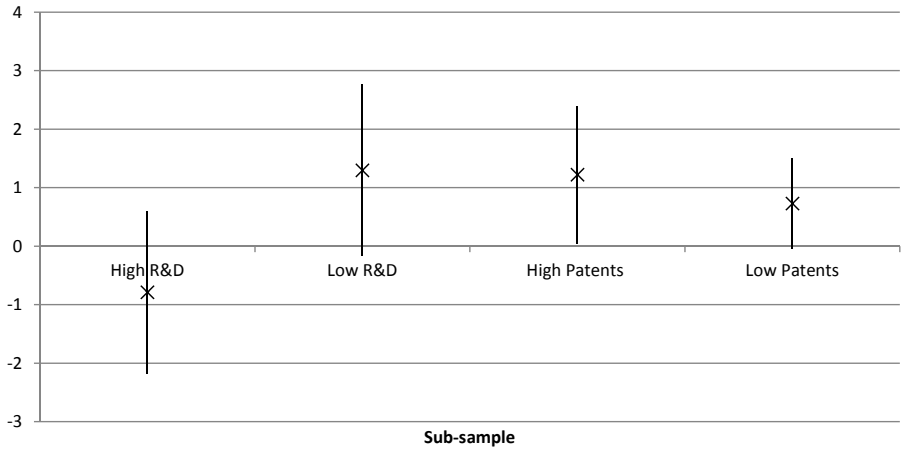
95% confidence intervals for *Confidence* coefficients in Table 6

Figure 2



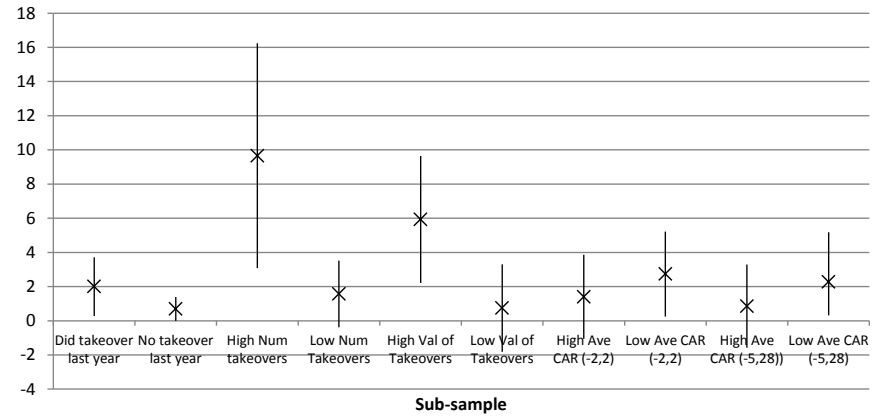
95% confidence intervals for *Confidence* coefficients in Table 7

Figure 3



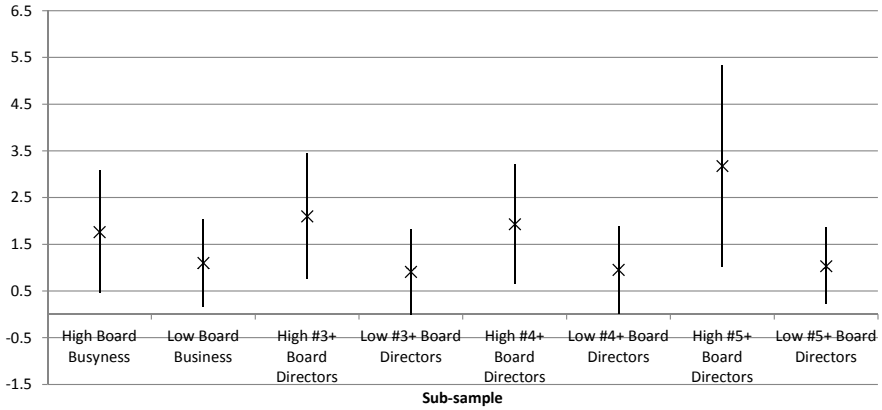
95% confidence intervals for *Confidence* coefficients in Table 8

Figure 4



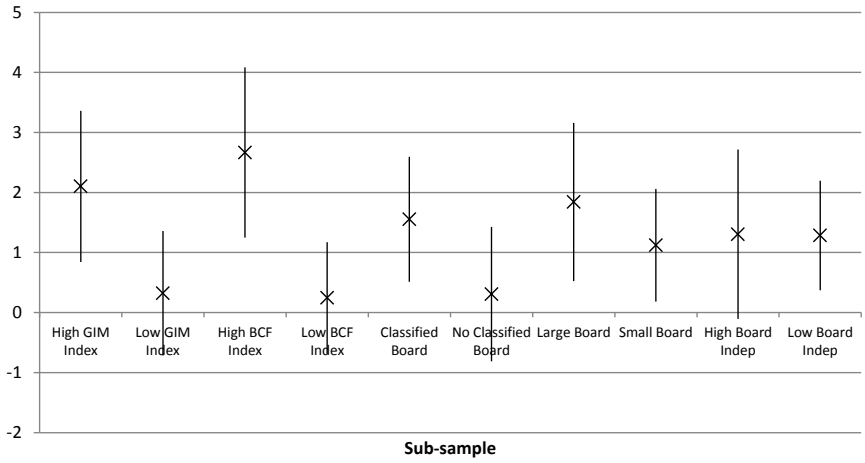
95% confidence intervals for *Confidence* coefficients in Table 9

Figure 5



95% confidence intervals for *Confidence* coefficients in Table 10

Figure 6



95% confidence intervals for *Confidence* coefficients in Table 11