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Overconfident CEOs in Dire Straits: How Incumbent and Successor CEOs' Overconfidence Affects Firm Turnaround Performance

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ABSTRACT As a well-studied executive bias, CEO overconfidence usually has negative connotations – although empirical evidence of its performance effects remains inconclusive. By theorizing on CEO overconfidence in a turnaround situation, we propose that CEO overconfidence can either help or hinder turnaround performance, depending on whether the overconfident CEO is the incumbent who steered the firm into dire straits, or a successor hired during decline. Our empirical findings suggest that overconfidence in an incumbent CEO damages turnaround performance; replacing overconfident incumbents improves turnaround performance and overconfident successors hired during decline enhance turnaround performance. Exploratory post-hoc analyses further suggest that these effects are driven by the divergent ways in which overconfidence biases incumbent and successor CEOs' assessment of organizational decline. Comprehensive implications for research and practice on CEO overconfidence are discussed.

Keywords: CEO overconfidence, turnaround performance, CEO succession, CEO-chair duality

INTRODUCTION

As the 'chief cognizer and decision maker' of their firms, CEOs have persistently been shown to have substantial influence on organizational trajectories (Finkelstein et al., 2009; Nadkarni and Herrmann, 2010, p. 1050; Quigley and Hambrick, 2015). As such, organizational outcomes often entail a major behavioural component as CEOs' personal

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dispositions shape how they perceive and interpret task environments and make strategic decisions (Cyert and March, 1963; Hambrick and Mason, 1984; March and Simon, 1958). Yet across the vast array of personal attributes that have been scrutinized to affect organizational outcomes (Hambrick, 2007), researchers have come to consider CEO overconfidence – defined as the systematic overestimation of personal abilities and the underestimation of uncertain, negative outcomes (Kahneman and Tversky, 2004) – as 'the mother of all biases' (Bazerman and Moore, 2013, p. 14) and demonstrated its impact on a host of firms' strategic choices.[1]

However, there is a puzzling mismatch in the theory and research into CEO overconfidence, acknowledging that many firms place overconfident CEOs at their helm (Hiller and Hambrick, 2005) while documenting the various adverse effects of CEO overconfidence on firms. For example, CEO overconfidence has been linked to investment distortion (Malmendier and Tate, 2005), inflated acquisition premiums (Hayward and Hambrick, 1997), and exaggerated earnings forecasts (Hribar and Yang, 2016). CEO overconfidence has also been linked to risky investments in innovative endeavours, although such rather positive accounts are rare (e.g., Galasso and Simcoe, 2011; Tang et al., 2015a). Increasing this discord, the effects of CEO overconfidence on firm performance remain largely unclear despite considerable scholarly attention to its implications for strategic choice (e.g., Li and Tang, 2010). Consequently, the question of whether CEO overconfidence is ultimately harmful or potentially beneficial, as sometimes argued by scholars (e.g., Hirshleifer et al., 2012; Picone et al., 2014) and implied by its prevalence in the real business world, continues to await an answer.

In fact, this intellectual void elicits inferences from anecdotal evidence, which could be misleading and thus fatal especially in contexts that place great demands on a CEO's proficiency. One such instance arises when firms encounter turnaround situations, defined as a substantial crisis of 'established firms that once performed satisfactorily, specifically in terms of profitability, but no longer do' (Chen and Hambrick, 2012, p. 225).[2] Indeed, the inherent complexity of CEO overconfidence impedes direct and intuitive presumptions about performance in turnaround situations. Unlike their non-overconfident counterparts, for example, overconfident CEOs might help turnaround performance by formulating bold visions for organizational recovery that reassure stakeholders and invigorate employees in a context that rewards vigorous decision-making (see, Gervais et al., 2011; Tang et al., 2015a). However, overconfident CEOs might also hurt turnaround performance by ignoring opposition to their current strategic orientation (Chen et al., 2015) or by attempting to ride out organizational decline.

To reconcile these opposing viewpoints, this study goes beyond asking *whether* CEO overconfidence is harmful or beneficial but instead theorizes *when* and *why* CEO overconfidence should affect turnaround performance positively or negatively. Specifically, drawing on the concepts of cognitive consonance and dissonance[3] we theorize on overconfidence and how it distorts CEOs' perception and interpretation of organizational demise to postulate that severe organizational decline will oppose the heightened performance expectations of overconfident *incumbent CEOs* and evoke dormant misinterpretations of decline that will hurt turnaround performance – especially when the overconfident incumbent CEO also has discretion as the board chair. Correspondingly, we predict that it should be beneficial to replace overconfident incumbent CEOs,

especially when they also chair the board. By contrast, given the departure of the incumbent CEO, we argue that overconfident *successors* should be *free from cognitive dissonance* but experience consonance upon their appointment as corporate saviours, allowing them to capitalize on the underappreciated benefits of their cognitive bias to improve turnaround performance. Our predictions are supported by analyses of a panel dataset of 240 turnaround cases of S&P 1500 firms during 1992–2016 with alternative measures of CEO overconfidence. Exploratory post-hoc analyses further suggest that these effects are driven by the divergent way in which overconfidence biases incumbent and successor CEOs' assessment of organizational decline.

As well as offering meaningful practical guidance and methodological implications, this study contributes to the relevant literature in the following aspects. First, it contributes to CEO overconfidence research. The existing research on CEO overconfidence has well documented the impact of overconfident CEOs on various strategic decisions (see Finkelstein et al. (2009) for a review) whereas its performance implications remained largely unclear. Theorizing how 'the mother of all biases' (Bazerman and Moore, 2013, p. 14) shapes CEOs' construed reality, strategic choice, and turnaround performance, this study therefore provides a theoretical framework explaining the conditions under which CEO overconfidence can evoke *both positive and negative performance consequences* in one and the same business setting. By incorporating both a 'bright side' and a 'dark side' of CEO overconfidence in a single analytical framework, it thus reconciles both the disadvantages and the advantages of this prominent managerial bias, contributing to the burgeoning debate on the ultimate repercussions of overconfident CEOs in theory and, likewise, facilitating a better understanding of why overconfident leaders are prevalent in practice.

Second, this research also contributes to the broad literature on CEO turnover (Finkelstein et al., 2009; Zhang and Qu, 2016). Prior research has come to consider CEO replacement as a means to align CEO attributes with extant organizational demands (Chen and Hambrick, 2012), allowing firms to replace obsolete attributes of incumbent CEOs with more suitable attributes of a successor (Henderson et al., 2006). This study contributes to this debate by highlighting that CEO replacement can *also* shape the way one and the same CEO attribute plays out. As such, a 'traditional' focus on specific CEO attributes – detached from the impact of the CEOs' installation itself – can be insufficient to determine their effectiveness.

Moreover, on a more general level, this study advances the conventional understanding of the concept of overconfidence beyond a person's overestimation of their own abilities and excessive trust in their own predictions (e.g., Hribar and Yang, 2016). This research proposes an 'auto-referential' aspect of overconfidence (i.e., (elevated) initial expectations that underlay one's prior decisions regulate how overconfidence affects contemporary behaviour). This is relevant particularly when an overconfident CEO's prior (and subjectively superior) decisions subsequently led to detrimental outcomes that have to be dealt with. In such circumstances, auto-referentiality further distorts overconfident CEOs' perception and interpretation of administrative settings. In this vein, the auto-referentiality of CEO overconfidence highlights that the effect of a particular CEO attribute (Hambrick and Mason, 1984) may be configurational not only because of its interplay with other CEO attributes (e.g., Gupta et al., 2019)

or contextual characteristics (e.g., Li and Tang, 2010), but also because the attribute itself may entail an inherently 'auto-referential' aspect regulating its subsequent manifestations divergently.

THEORY AND HYPOTHESES

Turnaround Situations

Globally, most firms will face a turnaround situation of severe performance decline at one point or another in their history (Pearce and Robbins, 1993; Trahms et al., 2013). Decline usually deteriorates business resources (Cameron et al., 1987) and imposes significant challenges to managing turnaround processes successfully (Boyne and Meier, 2009). In such situations, outstanding leadership is essential, as reversing a firm's performance trajectory and taking it out of the 'abyss' requires a series of sound decisions (Trahms et al., 2013). Prior research into organizational decline and turnaround has emphasized that a successful turnaround particularly hinges on the CEO correctly attributing decline and conceiving its severity (e.g., Morrow et al., 2007). Nevertheless, limited research has clarified which types of CEO benefit or harm troubled firms (e.g., Chen and Hambrick, 2012).[4]

CEO Overconfidence

Individuals often (subconsciously) rely on heuristics to facilitate decision-making, allowing them to make sound decisions despite only considering a subset of all the available information (Kahneman and Tversky, 1972; Simon, 1947). In some cases, however, these shortcuts amount to cognitive biases significantly influencing decisions by distorting subjective interpretation processes (Tversky and Kahneman, 1974). As such, overconfidence has been found to not only induce significant distortions into individuals' cognitive processes (Kahneman et al., 1982) but is also particularly prevalent among corporate leaders (Hiller and Hambrick, 2005). High degrees of (over)confidence – which we will refer to as 'overconfidence' to ease illustration – denote a person's tendency to overestimate their own abilities, knowledge, and standing relative to others (Kahneman and Tversky, 2004; Russo and Schoemaker, 1992; Skala, 2008) or, in statistical terms, to overestimate the mean of uncertain outcomes (Hribar and Yang, 2016). Overconfidence is further associated with an inclination to place exaggerated trust in one's own prediction of the outcome of an uncertain event (Fischhoff and Slovic, 1980; Kahneman and Tversky, 1979) or, in other words, to underestimate its variance (Hribar and Yang, 2016). As such, overconfidence has been considered a relatively stable psychological orientation (e.g., de Meza and Southey, 1996; Hayward et al., 2006; Hmieleski and Baron, 2009) that differs marginally within an individual, but substantially between individuals (Hribar and Yang, 2016; Picone et al., 2014).[5]

Although biases, i.e., systematic deviations from rational norms, may not only influence behaviour negatively but also in productive ways (e.g., Bingham and Eisenhardt, 2011; Gigerenzer and Todd, 1999), prior studies have predominantly

focused on the negative effects of CEO overconfidence on firms' strategic actions (e.g., Roll, 1986), such as higher acquisition premiums (Hayward and Hambrick, 1997), weakened standards for bank lending (Ho et al., 2016), positively distorted beliefs about their investment decisions (Goel and Thakor, 2008; Malmendier and Tate, 2005), inflated stock price crash risks (Kim et al., 2016), and value-destroying mergers (Malmendier and Tate, 2008). Hribar and Yang (2016) found that overconfident CEOs issue more optimistic management forecasts, while Chen et al. (2015) showed that such CEOs tend to resist corrective feedback concerning their incorrect prior forecasts. Li and Tang (2010) show that CEO overconfidence leads to firm risk-taking, which is consistent with the finding that CEO overconfidence leads to riskier product introductions (Simon and Houghton, 2003) and higher return volatility from innovation projects (Hirshleifer et al., 2012). In addition, overconfident CEOs tend to do less CSR (Tang et al., 2015b, 2018) that may limit firms' exposure to stakeholder-related risks. However, there is also some evidence that an overconfident CEO may actually benefit firms under certain conditions (Navis and Ozbek, 2016; Picone et al., 2014) – for example by increasing firm innovation (Galasso and Simcoe, 2011; Tang et al., 2015a) – and work that highlights the prevalence of CEO overconfidence in practice (Hiller and Hambrick, 2005).

We depart from prior literature by theorizing on the under-explored link between CEO overconfidence and firm performance. Specifically, we draw on the concepts of cognitive consonance and dissonance and argue that overconfidence can have both positive and negative performance implications as CEOs perceive and interpret organizational decline.

Incumbent CEO Overconfidence and Firm Performance in Turnaround Situations

As laid out by Hambrick and Mason (1984), CEOs' personal characteristics and biases affect their firms' outcomes through the way executives perceive and interpret situational stimuli to make sense of organizational reality and conceive their strategic choices. In theorizing how overconfidence will distort CEOs' crisis perception and interpretation in turnaround situations and thus gets reflected in their firms' turnaround performance (Morrow et al., 2007), we therefore consider how overconfidence should affect CEOs' cognitive processes that are integral to their effect on firms' turnaround performance. We propose that such an influence is divergent for overconfident incumbents who steered their firm into dire straits, as opposed to overconfident successors hired to reverse organizational decline. As such, we go beyond prior work on the unilateral effects of CEO overconfidence to argue that, with respect to their firms' turnaround performance, the advantage or disadvantage of this bias may depend on whether one is dealing with an overconfident incumbent CEO or an overconfident successor.

It is therefore important to first consider the effect of overconfidence on CEOs' perception and interpretation of satisfactory performance before decline. Specifically, CEOs generally tend to attribute corporate success (justifiably or not) to their own strategies and thus inflate their egos (Miller, 1994; Staw and Fox, 1977; Staw and

Ross, 1987). Yet overconfidence should facilitate this inclination for self-attribution bias (Campbell and Sedikides, 1999; Chen et al., 2015), i.e., the propensity to attribute beneficial results to oneself, but detrimental ones to random influences (Kahneman and Tversky, 2000), for at least two reasons. On the one hand, overconfidence leads CEOs to overestimate their personal abilities, increases their self-esteem, and, thereby, leads them to anticipate success (Shrauger, 1975). On the other hand, overconfident CEOs tend to underestimate the variance of the outcomes of strategic choices and to be highly certain of their own predictions, rendering these CEOs particularly inclined to disregard scenarios with negative performance consequences (Shipman and Mumford, 2011). These heightened and unreasonably certain expectations set a standard for what should be the outcome of one's subjectively superior leadership, as these outcomes serve as an 'auto-reference,' i.e., a testimony that vindicates one's prior decisions as the driver of contemporary outcomes. As such, they facilitate ego-enhancing internal attributions of satisfactory performance to their own abilities, as the human mind strives for cognitive consistency between expectation and experience (Miller and Ross, 1975).

A turnaround situation of severe organizational decline, however, constitutes a harsh contradiction to the exaggerated performance expectations of overconfident incumbent CEOs (Klayman and Ha, 1987; Lord et al., 1979). Disconfirming their fundamental convictions about the virtue of their leadership, decline – a particularly negative outcome under their lead – should threaten their highly inflated egos and thus evoke cognitive dissonance, an uncomfortable state resulting from inconsistent cognitive elements – i.e., positive expectations in contradiction to negative experiences (Elliot and Devine, 1994; Festinger, 1957). Driven by the fundamental desire to re-establish consonance, individuals – usually unconsciously (Hodgkinson and Healey, 2011) – resort to two interrelated coping mechanisms regulating the way they perceive and interpret such contradictions: *explaining away failure* and *optimistic reinterpretations* (Armor and Taylor, 2002) – both of which should further distort overconfident CEOs' perception and interpretation of decline.

Firstly, to *explain away failure*, overconfident CEOs should be more likely to attribute the cause of organizational decline to 'bad luck' or unforeseeable, temporary conditions (Miller and Ross, 1975; Staw et al., 1981), thus attempting to restore consonance and defend the previously successful strategies on which their egos rest (Brockner, 1988; D'Aveni, 1990). Overconfidence should thus lead CEOs to provide themselves with an excuse to initiate only minor levels of strategic reorientation and remain largely committed to the status quo. However, such erroneous attributions disregard the fact that a turnaround situation constitutes a profound crisis and requires fundamental changes to ensure recovery (Lawrence and Lorsch, 1967; Pennings, 1992).

Secondly, by *optimistically reinterpreting* the perceived severity of organizational decline, overconfident CEOs can enhance consonance between their exaggerated belief in their abilities and contradictory negative performance (Koriat et al., 1980). Given their strong, unfailing faith in their ability to formulate and implement superior strategies (Russo and Schoemaker, 1992), overconfident CEOs should be unlikely to view a downturn as anything more than a nuisance on their path to success. Indeed, overconfident CEOs suffer from subjective information asymmetry and underestimate the potential of further information to enrich their current, subjectively broad, picture of the situation (Li and

Tang, 2010). This delusion is found to be associated with an internal locus of control (Hiller and Hambrick, 2005; March and Shapira, 1987). Correspondingly, a CEO's internal locus of control reduces the CEO's perception of the severity of the decline in turnaround situations (Musteen et al., 2011).

For two interrelated reasons, we thus argue that the auto-referential aspect by which overconfident CEOs evaluate outcomes disconfirming their subjectively superior leadership should prevent such incumbent CEOs from adequately perceiving, interpreting, and thus responding to organizational decline. First, dissonance-reducing reinterpretations and their strong internal locus of control should lead overconfident CEOs to overestimate their current strategy's potential to overcome the decline. Second, overconfidence should evoke consonance-enhancing, erroneous attributions of the reason for the decline. Both forces will render overconfident CEOs a misfit in turnaround situations, preventing them from adequately considering the adjustments necessary to manage the turnaround successfully (Sudarsanam and Lai, 2001). In fact, such '*Captain Sunshine*' types of CEOs may simply be convinced that under their leadership, the firm is on the right track and no change of course is required.

By contrast, non-overconfident incumbent CEOs should be less likely to experience *cognitive dissonance*. As they are less inclined to overestimate their personal abilities (Camerer and Lovallo, 1999) and evaluate more rationally the auto-references generated by their prior behaviour to regulate their contemporary behaviour, organizational decline would appear to be less inconsistent with their prior expectations and would thus be less likely *explained away* or *reinterpreted optimistically* (Armor and Taylor, 2002). Instead, non-overconfident incumbent CEOs should perceive (the reasons for) decline more adequately and thus should be better able to concentrate their (unbiased) cognitive efforts on the fundamental actions necessary to achieve performance turnaround successfully (Morrow et al., 2004; Schmitt and Raisch, 2013). Thus:

Hypothesis 1: Incumbent CEO overconfidence is negatively associated with a firm's subsequent turnaround performance.

CEO Duality as a Moderator of Incumbent CEO Overconfidence

The impact of executives' characteristics (and thus their biases) on organizational trajectories depends on their latitude to overcome organizational inertia to ultimately exert influence on firms (Hambrick and Finkelstein, 1987) and CEO duality has been considered a central force of managerial discretion (Krause et al., 2014) because serving simultaneously as the board chairperson ('duality') extends a CEO's power base (Hambrick and Finkelstein, 1987). Correspondingly, we argue that duality should amplify the misfit imposed by incumbent CEO overconfidence in turnaround situations because, enjoying unity of leadership and control, the overconfident incumbent's misguided crisis perception, interpretation, and response can unfold with limited board opposition.

Specifically, as duality empowers CEOs to 'dominate both the agenda and content of board meetings' (Finkelstein and D'Aveni, 1994, p. 1082), overconfident *and* powerful incumbent CEOs may be better able to convince board members that there is wisdom in

the current strategy and thus cloud the board's perception of the actual severity of decline, especially as CEO-chair duality typically creates an 'illusion of strong leadership' and stability (Finkelstein and D'Aveni, 1994, p. 1100; Salancik and Meindl, 1984). For instance, CEO-chairs could divert directors' attention by controlling information flows, setting unnecessarily detailed meeting agendas, or inducing ulterior stimuli by setting unusual meeting locations (Tuggle et al., 2010), especially when organizational performance is poor (Russell and Ward, 1982). As such, diverting directors' bounded attention away from monitoring (Ocasio, 1997) can be an overarching concern for CEOs in turnaround situations to prevent harmful disciplinary consequences (Fredrickson et al., 1988; Mallette and Fowler, 1992).

Duality should thus enhance the overconfident incumbent CEO's discretion (i.e., latitude of action) (Hambrick and Finkelstein, 1987) by limiting board opposition (Boyd, 1995; Hayward and Hambrick, 1997) and enable them to proceed explaining away failure or reinterpreting it optimistically. Correspondingly, duality should amplify the negative performance effects of overconfident incumbents since they can then act with limited restrictions on their misguided beliefs about the prospect of achieving recovery. By contrast, less powerful overconfident incumbents are more limited in their abilities to divert monitoring capacity (Finkelstein and D'Aveni, 1994) and thus to evade opposition to their overoptimistic assessment of organizational decline. Even more, in order to avoid disciplinary action, they would have to incorporate boards' critical feedback into turnaround responses to at least some degree, preventing them from fully acting out their biased beliefs.[6] Hence, we predict:

Hypothesis 2: CEO duality strengthens the negative relationship between incumbent CEO overconfidence and a firm's subsequent turnaround performance.

CEO Turnover and Firm Turnaround Performance

Turnaround initiatives are often accompanied by CEO turnover (Bibeault, 1982). CEO turnover enables boards to readjust ('re-fit') the CEO to meet the latest business requirements and market conditions, which may have shifted profoundly since the incumbent was first hired (Henderson et al., 2006; Miller, 1991). As a means of establishing prudent leadership, CEO turnover is thus particularly relevant in turnaround situations, as its requirements usually deviate dramatically from those of 'regular' times (Chen, 2015; Trahms et al., 2013). Therefore, bringing in a new CEO can enhance turnaround performance by reinvigorating the struggling firm and introducing change throughout the turnaround process (Datta and Rajagopalan, 1998; Ravenscraft and Scherer, 1987; Weisbach, 1995).

Opposing this intuitively appealing perspective, however, the process of romanticizing leadership (the tendency to fallaciously attribute organizational performance predominantly to the leader) (Meindl and Ehrlich, 1987; Schyns et al., 2007) might also lead to the incumbent being used as a scapegoat for organizational decline (Boeker, 1992; Khanna and Poulsen, 1995). Hence, if the incumbent was particularly talented, finding an even more talented successor would not be easy, especially as new CEOs usually start at a disadvantage in terms of information, contacts, and organizational knowledge (Gabarro, 2007; Hambrick and Fukutomi, 1991).

To reconcile these opposing viewpoints, Finkelstein et al.'s (2009) fit-drift/shift-refit model illustrates that the benefits of CEO replacement in turnaround situations can

depend on the personal attributes integral to CEOs' performance effects (Chen and Hambrick, 2012). Specifically, since CEOs are relatively unlikely to overhaul the competencies and paradigms (Henderson et al., 2006) that regulate their eventual effectiveness, contextual shifts/drifts often engender a *misfit* between their capabilities and the extant organizational challenges. In case of such a misfit, CEO replacement should be beneficial as the average successor will, ceteris paribus, constitute a better *fit* than their predecessor (Finkelstein et al., 2009).

We thus argue that replacing overconfident incumbent CEOs should enhance turnaround performance. To the degree that overconfident incumbent CEOs suffer from cognitive dissonance and are inclined to explain away failure or reinterpret it optimistically instead of initiating the requisite restructuring measures, overconfidence should render them a profound *misfit* in turnaround situations. CEO replacement should thus enable firms to overcome the overconfident incumbent's misguided assessment of organizational decline whereas the average successor should be better suited to reverse firms' poor performance.[7] Therefore, we predict:

Hypothesis 3: Replacing an overconfident incumbent CEO is positively associated with a firm's subsequent turnaround performance.

As the misfit of CEO characteristics increases with CEOs' discretion, so should the merit of replacing such misfitting but particularly influential chief executives. Indeed, an integration of this triad should constitute a further stress test for our base arguments and corroborate our general reasoning. Correspondingly, we argue that CEO replacement should be particularly beneficial if it enables firms to overcome the overconfident incumbent's misguided assessment of organizational decline *and* if duality additionally enabled these CEOs to evade opposition to their overconfidence. Conversely, replacing non-chair overconfident incumbents might make a lesser contribution to enhancing turnaround performance because their ability to impair turnaround performance by acting on their deficient crisis perception and interpretation should be more limited in the absence of misguided board monitoring, and so be the gain from replacing these CEOs. Thus:

Hypothesis 4: Replacing an overconfident incumbent CEO is especially beneficial when the incumbent CEO is also the board chair.

Successor CEO Overconfidence in Turnaround Situations

Departing from the conventional understanding of CEO replacement in times of crisis (e.g., Chen and Hambrick, 2012; Finkelstein et al., 2009), however, we argue that CEO replacement may not only be relevant as a means to re-fit the fundamental characteristics of the chief cognizer and decision maker (Nadkarni and Herrmann, 2010) with organizational demands, but may also have a disproportionate effect on *how* these characteristics themselves will play out and manifest in organizational outcomes. Specifically, contrary to the case of *incumbent* CEO overconfidence, we argue that the crisis should

not create cognitive dissonance for an *overconfident successor CEO hired during decline*. This is because for overconfident successors, the turnaround situation is not linked to their prior leadership (see, Barker et al., 2001), such that the auto-referential aspect of their overconfidence can only *begin* to manifest in heightened subsequent performance expectations as they take charge. Indeed, the appointment of overconfident successor CEOs as 'saviours' to achieve performance turnaround should be relatively consistent with their subjective superiority to other candidates for the CEO post and evoke cognitive consonance – a harmonious state of consistency between expectation and experience (Festinger, 1957). Unlike overconfident incumbent CEOs, the overconfident successor's perception and interpretation (Hambrick and Mason, 1984) of the turnaround situation as a severe organizational crisis should therefore not be tainted by cognitive dissonance. Quite the opposite, as they experience no cognitive discomfort that they need to reduce, they can acknowledge the crisis fully and concentrate their cognitive efforts on the turnaround strategy.

It is true that non-overconfident successors may also be free from cognitive dissonance. Nevertheless, we argue that CEO replacement should particularly serve to arouse the productive side occasionally attributed to overconfidence (Picone et al., 2014; Tang et al., 2015a) in successor CEOs hired in turnaround situations, rendering them a profound fit to current organizational requirements. Specifically, the very same bias that paralysed an overconfident incumbent may turn out to be the ace in the hand of an overconfident successor (as opposed to a non-overconfident successor) in the turnaround context. This is because in the case of CEO replacement, what differentiates overconfident from non-overconfident CEOs is their ambitious disposition to devise restructuring efforts which are necessary to ensure future success (Morrow et al., 2007). Equipped with a heightened belief in their own efficacy and leadership to reverse corporate decline as well as the inclination to underestimate unfavourable outcomes, overconfident successors should be particularly prone to perceiving and interpreting organizational decline as an assessable managerial challenge and thus to formulating bolder visions of organizational recovery and future prosperity (Camerer and Lovallo, 1999; Hiller and Hambrick, 2005; Wiseman and Gómez-Mejía, 1998). In this situation, overconfidence should induce incoming CEOs to initiate turnaround strategies with more ambitious strategic elements directed at seizing growth opportunities and rendering prospective returns (Barker and Duhaime, 1997) than non-overconfident replacements would.

As such, an overconfident successor CEO should have a positive impact on firm stakeholders on at least two fronts. First, a bolder vision and a turnaround response that outlines a clear roadmap to recovery can reassure external stakeholders (i.e., investors, analysts, etc.) through their unquestioningly positive forward orientation (Pajunen, 2006). Garnering the support of key stakeholders who might demand premiums to compensate for potential losses in case of bankruptcy or who might even aim to take over control of the struggling firm, in turn, is a key element of turnaround management (Arogyaswamy et al., 1995).

Second, for stakeholders within the company (i.e., crisis-embattled employees), an ambitious recovery strategy – initiated by a CEO who is keen to take action – can serve as a vehicle for emotional contagion, spreading the CEO's optimism across the company (Bono and Ilies, 2006). As such, it can orientate a company's activities towards a desirable

future, which increases sensemaking and meaningfulness (Bono and Judge, 2003; Shamir et al., 1993). Therefore, the bold vision of an overconfident successor CEO may release considerable motivational power in the workforce (Bass, 1990; Locke and Latham, 2002), enhancing employee productivity (Hambrick and Schecter, 1983). Research into CEO humility supports this assertion. Owens and Hekman (2012, p. 799) argue that in situations of threat or when time is of essence, as in turnaround situations, acting humbly would 'cause followers to question a leader's worthiness to lead'. Instead, the authors report a need for leader self-confidence and assertiveness to quash followers' doubts and 're-stabilize' them in times of crisis.

Thus, we argue that when CEOs are recruited to turn a struggling firm around, overconfidence should enhance their fit to current organizational conditions and render them particularly suitable for the challenges ahead as they will be specifically inclined to perceive and interpret organizational turnaround as a feasible endeavour, enabling them to garner greater support from both external and internal stakeholders than their non-overconfident counterparts. Therefore, by formulating ambitious visions, initiating a bold recovery strategy, and thereby boosting investor confidence and workforce motivation, overconfident successor CEOs should enhance turnaround performance. Hence:

Hypothesis 5: Given CEO replacement, successor CEO overconfidence is positively associated with a firm's subsequent turnaround performance.

METHOD

Sample Selection

Our sample consists of S&P 1500 firms in the COMPUSTAT Capital IQ database that experienced turnaround situations in the fiscal years 1992 to 2012 and omits financial firms (SIC industries between 6000 and 6999). Following Demerjian et al. (2012), and to protect the validity of our industry controls, we further use the COMPUSTAT Historical Segments database to eliminate from our sample companies not deriving at least half of their revenue from their primary two-digit SIC industry (Chen and Hambrick, 2012; Zhang and Rajagopalan, 2004).

To identify firms in turnaround situations, we follow the operationalization of Chen and Hambrick (2012) and require companies to exhibit operating losses (before extraordinary items) after two consecutive years of satisfactory performance (returns on equity (ROE), before extraordinary items, exceeding expected returns (costs of equity (COE)). This sampling procedure allows us to study cases in which CEOs were replaced at the onset of organizational decline by new CEOs who potentially arrested the decline (Chen and Hambrick, 2012), and the presence of operating losses in the year of decline ensures that we do indeed sample seriously troubled firms in need of diligent leadership (Barker and Duhaime, 1997). In particular, more than half of our sample firms exhibit an Altman (1968) Z-score below 3 (indicating a substantial risk of bankruptcy) and in 90 per cent of all cases ROE dropped by more than 10 percentage points in the year of decline. In one-third of all cases, firms continued to incur losses throughout our sampling

period, indicating substantial, enduring problems. We present extensive technical details of all our variables in Online Appendix S1.

Dependent Variables

We assess turnaround performance by both an accounting- and a market-based measure: ROE and market-to-book ratio (MTB). ROE assesses how effectively CEOs performed one of their main tasks – generating shareholder value (Brealey and Myers, 2000), and is preferable to ROA, which is vulnerable to bias due to asset retrenchment actions commonly undertaken in turnaround situations (Morrow et al., 2004). Moreover, a focus on ROE corresponds to common management practices in turnaround situations, in which the decision of financiers to provide debt (and thus essential liquidity) often depends on the sentiment of investors (i.e., equity holders), whose key performance indicator is ROE. MTB indicates the future return potential of a firm's strategy as appraised by market participants and reflects performance evaluations of turnaround initiatives (Woo et al., 1992). Together, these two measures assess turnaround performance in a more holistic manner than if we were to use a backward- or forward-looking measure alone.

We conduct industry- and mean-reversion-adjustments of each measure and capture *abnormal* performance (Barber and Lyon, 1996) because analyses of performance changes around turnarounds and CEO successions are otherwise notably susceptible to mean reversion (Huson et al., 2004). Specifically, we follow Pérez-González (2006) and first obtain industry-adjusted performance measures (ROE and MTB) by subtracting the median performance of all COMPUSTAT firms in the same two-digit SIC industry and fiscal year. Second, industry-adjusted ROE and MTB are mean-reversion-adjusted by subtracting the (fiscal-year-)median industry-adjusted performance of all COMPUSTAT firms in the same industry-adjusted performance decile group (Pérez-González, 2006). Performance decile groups are formed in the fiscal year of decline (event-peer groups) to assess subsequent firm performance free from mean-reverting tendencies that affect the focal firms as well as their peer group firms in the same manner. While turnaround researchers acknowledge that restructuring efforts require a minimum of two years to have an impact on performance (Morrow et al., 2004), CEO succession researchers commonly assess performance effects for up to five years post-succession (Quigley and Hambrick, 2012). Therefore, our performance measures are observed from year t + 2 through year t + 5, with year 0 (i.e., year t) being the year of decline.

Independent Variables

CEO overconfidence. We follow prior literature to measure CEO overconfidence – using an option-based measure (Campbell et al., 2011) and a press-based measure (Malmendier and Tate, 2008) – both of which are regularly employed interchangeably to capture CEO overconfidence (e.g., Chen et al., 2015; Hirshleifer et al., 2012; Hribar and Yang, 2016; Malmendier and Tate, 2008). As such, these measures originated in the finance literature and are increasingly applied in management research on CEO overconfidence as well (e.g., Chen et al., 2015; Lee et al., 2023;

Pavićević and Keil, 2021; Tang et al., 2015b, 2018). Our first operationalization is based on the premise that risk aversion and personal under-diversification should lead the average unbiased CEO to exercise in-the-money stock options of their firm in a timely manner (Hall and Murphy, 2002; Malmendier and Tate, 2005, 2008). Overconfidence, however, should lead CEOs to continuously hold options that are deep in the money, in the unwavering conviction that their firm is undervalued given their superior ability to increase firm value (Malmendier and Tate, 2005). We exploit these respective insights and develop a '*maximum threshold measure*' as an advanced option-based measurement of CEO overconfidence as explained below.

Following Campbell et al. (2011), CEOs are regarded as overconfident if they, at least twice, did not exercise options that were more than 100 per cent in the money (i.e., stock price exceeds strike price by more than 100 per cent). This 100 per cent moneyness threshold corresponds to a CEO's hypothetical combination of a constant relative risk aversion (CRRA) of $\rho = 3$ and 50 per cent wealth in company equity in Hall and Murphy's (2002) certainty-equivalence framework (Malmendier and Tate, 2005). However, we recognize that this threshold may be rather ambiguous (e.g., Malmendier and Tate (2005) and Hribar and Yang (2016) employ a 67 per cent threshold) because a CEO's subjective risk aversion and actual percentage of wealth in stock remains unknown. To overcome this limitation and to capture the additional information about a CEO's specific *level of confidence* (Puri and Robinson, 2007) reflected in the moneyness of unexercised options, we develop a maximum threshold measure. Instead of using a fixed threshold of 100 per cent in the money to classify executives who continuously hold exercisable options with a moneyness above that threshold as overconfident, we gradually increase the moneyness threshold and determine the *maximum threshold* for which this procedure would still identify a CEO as overconfident. The intuition is that the moneyness threshold at which executives decide not yet to exercise their options reveals their individual level of confidence. Using the ExecuComp database, we construct the continuous variable *overconfidence options* as:

$$\text{overconfidence options} = \ln(1 + \text{maximum threshold} \times 100) \quad (1)$$

This operationalization assigns a minimum confidence level of zero to CEOs who can never be identified as overconfident. It further acknowledges that the level of confidence differs substantially between individuals (Oskamp, 1965). To avoid reverse causality, option-based overconfidence is assessed until the year of decline. Yet as the median ExecuComp coverage of successor CEOs prior to assuming the CEO post in a turnaround firm is even below shorter vesting periods of executive options (Hall and Murphy, 2002), we use this measure only for incumbent CEOs. Our results remain consistent with an ordered categorical variable discerning the in-the-money thresholds of Campbell et al. (2011): high overconfidence (above 100 per cent), moderate overconfidence (between 30 per cent and 100 per cent), and low overconfidence (below 30 per cent). Also, this measure has the same correlation with the press-based measure as documented by previous studies (e.g., Hribar and Yang, 2016).

Our second operationalization of overconfidence (*overconfidence press*) is based on the press portrayal of CEOs. The underlying assumption is that, despite inherent noise, press

reports are a reflection of CEO characteristics, in that CEOs' overconfidence is echoed, and thus traceable, in more optimistic press mentions compared to their non-overconfident counterparts (Malmendier and Tate, 2008). As such, scholars regularly rely on linguistic traces in CEOs' press portrayal to proxy overconfidence, making it an established, unobtrusive measure in CEO overconfidence studies (e.g., Chen et al., 2015; Hirshleifer et al., 2012; Hribar and Yang, 2016; Malmendier et al., 2011; Malmendier and Tate, 2008; Tang et al., 2015b, 2018). Following these studies, we use the Factiva database to count the number of articles referring to a CEO in confident terms ('confident', 'confidence', 'optimistic', 'optimism' – *confident articles*) as well as in non-confident terms ('reliable', 'cautious', 'conservative', 'practical', 'frugal', 'steady', 'not confident', 'not optimistic' – *non-confident articles*). We start off with those articles in which (non-)confident terms appear within a 10-word range of either the CEO's name or the term 'CEO', 'chief executive officer', or 'chief executive' (Chen et al., 2015). We draw on 144,188 articles within the entire Factiva universe referring to the corresponding CEOs. For incumbent CEOs, we assess all the articles throughout a CEO's tenure with the focal firm until the (fiscal) year of decline; and for successor CEOs, we screen all articles starting from their announcement as the CEO of the focal firm until six months after the end of year t + 1 to capture the linguistic traces of their overconfidence as nuanced as possible whilst preserving the temporal precedence of our dependent variables. Manually inspecting all 6291 initial hits resulted in a set of 2134 articles in which a keyword refers to the CEO of a sample firm. Further, we count all the articles mentioning a CEO (*number of articles*) and include this variable in our regressions to control for a biased press romanticizing leadership in times of very high or very low performance (Hirshleifer et al., 2012; Meindl et al., 1985). Following Hribar and Yang (2016), a continuous measure of overconfidence is then calculated by scaling the difference between the number of confident and non-confident articles by the total number of articles. Results remain very similar using the Janis-Fadner coefficient of imbalance (Janis and Fadner, 1965; Pfarrer et al., 2010) to operationalize press-based overconfidence.

Incumbent CEO duality. We gather CEO duality information by inspecting ExecuComp's *titleann* variable and SEC filings (in that order), and code an indicator variable *incumbent CEO duality* as one if duality was present in the year of decline (Peters and Wagner, 2014). Following Iyengar and Zampelli (2009), we regard duality as an exogenous variable in our performance analyses.

CEO replacement. We identify CEO turnovers using the ExecuComp database and code this dummy as one if a firm replaced its CEO in year 0 (t) or t + 1 (Chen and Hambrick, 2012).

Control Variables

Firm-level controls. We include the log-transformed *firm age* to control for the potential liabilities of aging, adolescence, or newness affecting turnaround success (Freeman et al., 1983; Thornhill and Amit, 2003). Reverse-coded, unadjusted performance (ROE or MTB) in year t controls for a firm's *performance severity*, affecting the extent and effectiveness of restructuring activities (Chen and Hambrick, 2012). *Pre-decline performance* (average ROE or MTB

throughout years t-2 and t-1) is included as a proxy for a firm's potential strength (Chen and Hambrick, 2012). To assess a firm's likelihood of bankruptcy, we include *Altman's Z-score* into our regressions (Altman, 1968). We also include additional firm characteristics to affect turnaround performance: *firm size* as proxy for corporate resources, inertia, and positive effects on risk-taking (Audia and Greve, 2006); *quick ratio* and *slack* to control for corporate means of financing short-term obligations (Hambrick and D'Aveni, 1988; Morrow et al., 2004); *leverage ratio* due to its effect on corporate credit ratings and interest payments (Robbins and Pearce, 1992); and *asset turnover* as it is connected to expected returns (Haugen and Baker, 1996). Also, an indicator variable *S&P 500 constituent* is used to capture the advantages of prominent and visible firms (Fama and French, 1993; Gompers et al., 2003). Finally, we include two variables to delineate the reasons for decline (Pearce and Robbins, 1993): *Cost crisis* indicates that, in the year of decline, costs increased while revenues either decreased or increased less strongly. *Revenue crisis* indicates that revenues declined more than costs. The baseline for these two variables is the neutral case where neither of the above are true.

Incumbent controls. We control for *CEO tenure* (in years) and *talent*. Capturing, among others, CEOs' commitment to the status quo (Hambrick et al., 1993), tenure is derived from ExecuComp and missing values are filled in manually based on SEC filings and web searches (in that order). To estimate a CEO's talent, we employ a (noisy) measure based on Garvey and Milbourn (2006), which decomposes corporate stock returns into 'luck' (i.e., industry effects) and a firm-specific performance effect that aims to reflect CEO talent. Specifically, we proxy for talent using the alpha of a regression of corporate monthly stock returns on an index of equally-weighted (two-digit SIC) industry returns of up to 48 months before the beginning of year 0. Our results remain robust to varying our proxy for CEO talent based on alternative suggestions in the literature (Chen and Hambrick, 2012).

Replacement controls. Following Chen and Hambrick (2012), we include several indicator variables delineating a firm's CEO change. *Early replacement* equals one if the incumbent was replaced at the onset of poor performance (year t) and zero otherwise. *Later replacement* indicates that the incumbent was accountable for turnaround responses but was still replaced (in year t + 2 or t + 3). *Multiple replacements* is coded as one if a firm experienced multiple CEO turnovers during the early stages of corporate turnaround (years t and t + 1).

Correction for endogeneity of CEO replacement. As numerous scholars have pointed out, CEO replacement is an endogenous event hinging on a variety of contextual factors (see Finkelstein et al. (2009) for a discussion of related articles). Consequently, to avoid biased results, we follow Chen and Hambrick (2012) and conduct a probit regression of our *CEO replacement* variable on a set of fitted context variables depicting the antecedents of executive succession as outlined by Finkelstein et al. (2009) and listed in Online Appendix S1. From this model, each firm's predicted likelihood of CEO replacement is used to control for replacement endogeneity in our respective main regressions (please refer to Chen and Hambrick (2012) for further insights).

Correction for (sub)sample selection bias. The non-random subsamples in which succession (a) *did* (i.e., H5) or (b) *did not* (i.e., H1 and H2) occur suffer from a sample selection bias due

to the endogenous nature of the replacement event (Heckman, 1976). So, we include a Heckman (1979) correction in the respective main regressions, calculated on the basis of the results of our probit regression on *CEO replacement* (Hamilton and Nickerson, 2003). Following Certo et al. (2016), we ensured that all selection equations (i.e., probit models) included a valid exclusion restriction.

Successor controls. To assess the performance impact of overconfident successors, we additionally control for their *duality* and *age* as well as an indicator variable *company insider*, indicating multi-year firm employment upon appointment and thus firm-specific expertise and commitment to the status quo (Chen and Hambrick, 2012; Hambrick et al., 1993). All successor controls are derived from ExecuComp, SEC filings, and complementary web searches. Due to data unavailability, we do not control for successor CEOs' talent. Yet, we find consistent results in the (smaller) subsample of firms with available data to proxy for successor talent using the change in average analyst forecast 15 days after their announcement.

Industry-level controls. As industrial conditions affect the adequacy of turnaround responses (Morrow et al., 2004; Schmitt and Raisch, 2013), we include an indicator variable *struggling industry* which is equal to one if the industry-median COE of all firms in the intersection of the CRSP and COMPUSTAT databases exceeded the industry-median ROE in the years t-2, t-1, and t (Chen and Hambrick, 2012). To control for environmental stability and predictability, we further include *market uncertainty*, measured by dividing the standard error of a regression of COMPUSTAT two-digit SIC industry sales against time by mean industry sales (Dess and Beard, 1984; Krishnan et al., 2006). We also control for *market munificence*, measured as the average change in industry sales of all COMPUSTAT firms over the previous five fiscal years (Goll and Rasheed, 1997; Keats and Hitt, 1988; Li and Tang, 2010).

Correction for survivorship bias. Performance analyses following severe organizational decline commonly suffer from survivorship bias as firms' mortality rates in turnaround situations are particularly high (Trahms et al., 2013). To account for this form of selection bias (Heckman, 1976), we predict the likelihood of each turnaround firm contributing performance observations in all subsequent periods (see Online Appendix S1 for details). Based on these estimations, we adopt Heckman's (1979) two-stage model and include an inverse Mills ratio accounting for survivorship bias in our main regressions.

Correction for endogeneity of CEO overconfidence. The observation of CEO overconfidence might generally be contingent on specific situational factors or firm-specific characteristics that attract overconfident executives (e.g., Hambrick and Mason, 1984; Hirshleifer et al., 2012). Moreover, precarious situations in particular have been shown to facilitate the quest for certain CEO characteristics – such as being overconfident or female (e.g., Hill et al., 2023; Ryan and Haslam, 2005). Therefore, we follow prior work controlling for the endogeneity of CEO attributes (e.g., Chatterjee and Hambrick, 2007; Tang et al., 2018). First, we regress both of our measures on variables that have been found to be associated with

overconfidence (again listed in Online Appendix S1). Second, the predicted values of these first-stage ordinary least squares (OLS) regressions serve as an endogeneity control for our main regressions. For further insights on this approach, we kindly refer to Chatterjee and Hambrick (2007) or Petrenko et al. (2016).

Corrections for negative book values of equity. Some seriously distressed firms inevitably report a negative book value of equity, eviscerating equity-based performance measures (Brown et al., 2008), so the finance literature tends to drop corresponding observations (e.g., Fama and French, 1992). To counter the resulting selection bias (Heckman, 1976), we periodically predict the likelihood that negative equity causes unobserved performance (see Online Appendix S1) and include a Heckman (1979) correction in the respective main regressions.

Empirical Strategy

Our panel consists of four observations per turnaround case (from year t+2 through year t+5) and, to maximize the sample size, we also include cases from 2012, where only observations from year t+2 through year t+4 were available from COMPUSTAT at the time. This yields a total of 240 turnaround cases. To observe the effects of incumbent CEO overconfidence in the absence of potential successors, our analyses of H1 and H2 are conducted in the subsample of firms that did not replace their CEOs (173 cases). Correspondingly, successor fit analyses are conducted on firms that did replace their chief executives (67 cases).

As our observations display serial correlation within turnaround cases, we test our hypotheses using generalized estimating equations (GEE) to avoid artificially low standard errors (Liang and Zeger, 1986). GEE yield robust standard errors and maximum likelihood estimates even if the data structures are autoregressive and are particularly recommended for estimating the performance effects of CEOs from panel data (Hambrick and Quigley, 2014). We specify (1) a Gaussian distribution of our dependent performance variables, (2) an identity link function, (3) a covariance structure accounting for first-order autocorrelation, and (4) robust standard errors to avoid heteroskedastic results (Huber, 1967; White, 1980). Further, we include year indicators to account for within-case temporal effects on abnormal performance. We mean-centre all continuous variables and standardize our overconfidence variables to ease interpretation.

DATA ANALYSIS AND RESULTS

Table I presents descriptive statistics and pairwise correlations. Tables II–IV present the results of incumbent overconfidence, CEO turnover, and successor overconfidence, respectively, with abnormal performance as the dependent variable in each panel. Model (1) includes our control variables.

Incumbent CEO Overconfidence

According to Hypothesis 1, incumbent CEO overconfidence is negatively associated with subsequent abnormal turnaround performance. In line with this hypothesis, Models (2A)

Table I. Descriptive statistics and pairwise correlations

	Variables	*Mean*	*S.D.*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1	Pre-decline ROE	0.22	0.19																		
2	Pre-decline MTB	3.60	3.49	0.50																	
3	Performance severity (ROE)	0.16	0.26	0.15	0.21																
4	Performance severity (MTB)	−2.58	2.51	−0.23	−0.57	−0.25															
5	Firm size (ln)	7.37	1.51	−0.04	−0.04	−0.04	−0.08														
6	S&P 500 constituent	0.47	0.50	0.05	0.14	0.08	−0.25	0.66													
7	Firm age	57.65	43.01	−0.16	−0.26	−0.08	0.07	0.34	0.22												
8	Quick ratio	1.67	1.46	0.17	0.20	−0.06	−0.09	−0.34	−0.15	−0.34											
9	Leverage ratio	0.35	0.30	−0.03	−0.17	0.13	0.00	0.19	0.13	0.24	−0.30										
10	Slack	23.56	19.21	0.15	0.20	−0.05	−0.07	−0.37	−0.20	−0.36	0.76	−0.41									
11	Altman Z-score	4.00	4.15	0.10	0.21	−0.06	−0.22	−0.06	0.03	−0.18	0.41	−0.47	0.40								
12	Asset turnover	1.04	0.70	−0.03	−0.10	0.11	0.16	0.21	−0.06	0.10	−0.30	−0.06	−0.09	0.07							
13	Cost crisis	0.53	0.50	0.00	0.01	−0.08	−0.03	0.06	0.06	0.05	−0.03	0.07	−0.13	−0.08	−0.08						
14	Revenue crisis	0.36	0.48	−0.03	−0.01	0.05	0.17	−0.06	−0.05	−0.07	0.04	−0.12	0.17	0.05	0.13	−0.79					
15	Struggling industry	0.62	0.49	−0.05	0.15	0.02	−0.12	−0.10	0.00	−0.11	0.14	−0.15	0.16	0.14	−0.19	−0.10	0.11				
16	Market uncertainty	6.02	5.92	0.04	0.19	−0.04	−0.10	−0.19	−0.10	−0.27	0.30	−0.16	0.20	0.13	−0.33	−0.07	0.08	0.38			
17	Market munificence	1.05	0.05	0.04	0.01	−0.11	−0.10	−0.02	0.02	−0.04	−0.05	−0.10	0.01	0.03	0.06	0.19	−0.23	0.10	−0.15		

(Continues)

Table I. (Continued)

	Variables	*Mean*	*S.D.*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
18	Survivorship bias control	−0.43	0.21	0.20	0.28	−0.10	−0.15	0.09	0.16	−0.11	0.28	−0.10	0.30	0.12	−0.15	−0.24	0.21	0.21	0.16	−0.09	
19	Negative equity control (ROE)	−3.48	1.36	−0.14	−0.14	0.20	0.02	0.32	0.21	0.29	−0.66	0.42	−0.46	−0.40	0.10	−0.10	0.07	−0.10	−0.22	0.00	−0.25
20	Negative equity control (MTB)	−3.07	0.90	−0.11	−0.14	0.27	0.02	0.38	0.26	0.32	−0.69	0.58	−0.60	−0.51	0.13	−0.02	−0.03	−0.16	−0.25	−0.04	−0.19
21	Missing peer group control	−7.58	3.20	0.15	0.05	0.45	−0.13	0.44	0.36	0.21	−0.33	0.47	−0.36	−0.31	0.10	−0.02	−0.06	−0.26	−0.23	−0.13	0.10
22	Replacement endogeneity control	−0.76	0.84	−0.11	−0.05	−0.03	0.01	0.16	0.11	0.17	−0.09	0.12	−0.09	−0.08	0.01	0.20	−0.11	−0.21	−0.11	−0.04	0.01
23	CEO replacement	0.28	0.45	−0.05	−0.04	−0.10	0.02	0.01	−0.04	0.06	−0.03	0.00	−0.02	−0.10	−0.03	0.11	−0.06	−0.11	0.02	0.00	−0.02
24	Early replacement	0.17	0.37	−0.05	−0.04	−0.12	0.06	−0.01	−0.04	0.02	−0.06	−0.08	−0.05	−0.04	0.05	−0.02	0.06	−0.08	0.00	−0.02	−0.04
25	Multiple replacements	0.02	0.14	0.21	0.17	0.00	0.00	−0.09	−0.02	−0.08	−0.03	−0.12	0.01	−0.06	0.07	−0.04	0.07	−0.07	0.04	0.00	0.04
26	Later replacement	0.22	0.41	−0.13	−0.08	0.16	0.11	0.00	0.07	−0.07	−0.06	−0.01	−0.01	−0.05	0.11	−0.06	0.13	−0.05	−0.10	−0.04	−0.03
27	Inc. CEO tenure	8.38	7.09	−0.05	−0.04	0.02	−0.04	−0.16	−0.18	−0.13	0.05	−0.09	0.04	0.10	0.00	0.02	−0.06	0.15	0.09	0.11	−0.11
28	Inc. CEO duality	0.58	0.49	0.01	0.06	0.05	−0.09	0.19	0.21	0.23	−0.11	0.10	−0.11	−0.03	0.10	0.04	−0.05	0.13	0.02	0.06	−0.02
29	Inc. number of articles	293.92	510.83	0.02	0.18	0.02	−0.20	0.41	0.25	−0.06	−0.06	0.09	−0.12	−0.03	−0.03	0.04	0.02	−0.08	−0.03	−0.08	0.11
30	Inc. talent	0.01	0.02	0.21	0.37	−0.03	−0.24	−0.02	−0.02	−0.21	0.20	−0.12	0.20	0.16	−0.03	−0.04	0.02	0.16	0.16	0.01	0.22

(Continues)

Table I. (Continued)

	Variables	*Mean*	*S.D.*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
31	Inc. overc. (options) endog. control	0.02	0.65	0.19	0.27	0.14	−0.15	0.11	0.04	−0.13	0.13	−0.06	0.10	0.10	−0.08	−0.08	0.14	0.29	0.26	−0.16	0.26
32	Inc. overc. (press) endog. control	0.01	0.50	0.09	0.03	0.14	0.00	0.13	0.10	0.23	−0.14	0.09	−0.08	−0.08	0.10	0.10	−0.14	−0.06	−0.22	−0.05	0.07
33	Inc. overc. (options)	4.31	1.61	0.14	0.19	0.14	−0.10	0.10	0.05	−0.07	0.14	−0.04	0.10	0.06	−0.04	−0.05	0.09	0.19	0.15	−0.12	0.17
34	Inc. overc. (press)	0.01	0.02	0.09	0.01	0.13	0.07	0.10	0.09	0.14	−0.01	0.03	0.01	−0.03	0.06	0.05	−0.07	−0.03	−0.12	−0.07	0.02
35	Company insider successor	0.69	0.47	0.13	0.10	0.13	−0.16	−0.03	−0.06	0.11	−0.12	0.16	−0.08	0.03	0.06	−0.08	0.04	0.13	0.13	−0.02	−0.04
36	Suc. CEO duality	0.41	0.49	0.18	0.01	0.09	−0.22	0.06	0.31	0.25	−0.24	0.09	−0.20	−0.12	−0.14	−0.03	−0.04	0.04	0.08	0.10	0.05
37	Suc. CEO age	52.07	6.30	−0.02	−0.01	0.27	−0.10	0.03	0.12	0.09	−0.08	0.24	−0.20	−0.24	−0.15	0.19	−0.19	0.10	0.10	−0.10	−0.17
38	Suc. number of articles	80.60	135.91	0.13	0.13	−0.09	0.02	0.53	0.29	0.04	−0.06	−0.01	0.03	0.03	0.26	0.05	−0.04	−0.07	−0.08	−0.13	0.11
39	Suc. overc. endog. control	0.01	0.85	−0.13	−0.17	−0.07	0.07	0.00	0.02	0.25	−0.16	−0.03	−0.17	0.04	0.10	0.09	−0.11	0.09	−0.18	0.27	−0.29
40	Suc. overc. (press)	0.01	0.04	−0.11	−0.16	−0.17	0.08	0.02	−0.06	0.24	−0.14	−0.03	−0.14	−0.08	0.06	0.07	−0.09	0.07	−0.16	0.22	−0.26

	Variables	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*27*	*28*	*29*	*30*	*31*	*32*	*33*	*34*	*35*	*36*	*37*	*38*	*39*
20	Negative equity control (MTB)	0.79																				

Table I. (Continued)

	Variables	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*27*	*28*	*29*	*30*	*31*	*32*	*33*	*34*	*35*	*36*	*37*	*38*	*39*
21	Missing peer group control	0.47	0.59																			
22	Replacement endogeneity control	0.09	0.11	0.04																		
23	CEO replacement	0.01	0.01	−0.05	0.38																	
24	Early replacement	−0.03	−0.03	−0.12	0.28	0.72																
25	Multiple replacements	0.01	0.01	−0.03	−0.01	0.17	0.25															
26	Later replacement	0.09	0.08	0.00	−0.04	−0.33	−0.24	−0.08														
27	Inc. CEO tenure	−0.07	−0.10	−0.29	−0.48	−0.12	−0.08	−0.03	0.00													
28	Inc. CEO duality	0.08	0.13	−0.02	0.02	0.02	0.00	−0.05	0.06	0.24												
29	Inc. number of articles	0.11	0.16	0.19	−0.06	−0.07	−0.05	0.11	0.05	0.12	0.04											
30	Inc. talent	−0.18	−0.16	−0.06	−0.10	0.05	0.04	0.02	−0.11	0.15	0.13	0.06										
31	Inc. overc. (options) endog. control	−0.04	−0.04	0.21	−0.06	−0.09	−0.10	0.02	−0.03	0.08	0.13	0.17	0.39									
32	Inc. overc. (press) endog. control	0.10	0.11	0.16	0.11	−0.04	0.00	−0.06	0.05	−0.03	0.14	−0.01	−0.17	−0.04								
33	Inc. overc. (options)	−0.06	−0.04	0.16	−0.07	−0.10	−0.12	0.00	0.03	0.05	0.08	0.08	0.26	0.65	−0.03							

(Continues)

Table I. (Continued)

	Variables	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*27*	*28*	*29*	*30*	*31*	*32*	*33*	*34*	*35*	*36*	*37*	*38*	*39*
34	Inc. overc. (press)	0.04	0.05	0.09	0.11	0.00	0.00	0.02	0.08	−0.02	0.07	0.03	−0.09	−0.03	0.50	0.03						
35	Company insider successor	0.13	0.13	0.06	0.12		−0.23	−0.10		0.07	0.14	−0.19	0.03	0.03	0.08	0.04	−0.05					
36	Suc. CEO duality	0.21	0.21	0.20	−0.07		0.17	0.05		0.03	0.25	−0.18	0.05	−0.13	0.00	−0.18	0.03	0.03				
37	Suc. CEO age	0.20	0.21	0.30	0.10		−0.24	−0.18		−0.05	0.13	−0.08	−0.08	0.09	0.01	0.06	0.00	0.17	0.26			
38	Suc. number of articles	0.08	0.11	0.17	0.18		0.12	0.08		−0.21	−0.03	0.52	−0.07	0.04	0.22	0.09	0.18	−0.19	−0.11	−0.09		
39	Suc. overc. endog. control	0.08	0.02	−0.26	0.11		0.12	0.04		0.38	0.03	0.01	−0.17	−0.36	0.19	−0.35	−0.02	0.15	0.03	−0.13	0.02	
40	Suc. overc. (press)	0.11	0.07	−0.20	0.06		0.22	0.07		0.32	0.05	−0.03	−0.09	−0.25	0.15	−0.29	0.01	0.13	0.03	−0.11	0.02	0.85

Note: Means and standard deviations are based on uncentered values.

Table II. Performance effects of incumbent CEO overconfidence

	Abnormal ROE					*Abnormal MTB*				
Variables	*(1A)*	*(2A)*	*(3A)*	*(4A)*	*(5A)*	*(1M)*	*(2M)*	*(3M)*	*(4M)*	*(5M)*
Pre-decline performance	0.61***	0.60***	0.61***	0.59***	0.59**	−0.05	−0.07	−0.07	−0.03	−0.06
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.17)	(0.17)	(0.17)	(0.16)	(0.16)
Performance severity	0.13	0.14	0.14	0.12	0.12	−0.25	−0.24	−0.24	−0.22	−0.20
	(0.11)	(0.10)	(0.10)	(0.11)	(0.10)	(0.23)	(0.24)	(0.24)	(0.22)	(0.21)
Firm size (ln)	0.05	0.05	0.06	0.06*	0.06*	−1.47**	−1.55**	−1.54**	−1.44**	−1.44**
	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)	(0.60)	(0.63)	(0.63)	(0.58)	(0.57)
S&P 500 constituent	0.00	0.01	0.01	0.01	0.01	2.84*	3.09**	3.09**	2.94**	3.02**
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(1.50)	(1.58)	(1.57)	(1.50)	(1.50)
Firm age (ln)	−0.00	−0.00	−0.01	−0.01	−0.01	−0.62	−0.64	−0.64	−0.66	−0.66
	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.49)	(0.48)	(0.47)	(0.45)	(0.45)
Quick ratio	−0.01	−0.00	−0.00	−0.00	−0.00	−0.06	−0.10	−0.10	−0.03	−0.04
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.26)	(0.25)	(0.25)	(0.26)	(0.26)
Leverage ratio	−0.27	−0.27	−0.28	−0.27	−0.27	10.36***	10.68***	10.67***	10.31***	10.54***
	(0.22)	(0.22)	(0.22)	(0.22)	(0.22)	(3.59)	(3.74)	(3.75)	(3.54)	(3.62)
Slack	0.00	0.00	−0.00	0.00	0.00	−0.02	−0.02	−0.02	−0.02	−0.02
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)
Altman Z-score	0.02***	0.02***	0.02***	0.02***	0.02***	0.33***	0.33***	0.33***	0.33***	0.33***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Survivorship bias control	−0.37**	−0.38**	−0.39**	−0.41**	−0.41**	1.11	1.01	1.00	0.35	0.64
	(0.17)	(0.17)	(0.17)	(0.18)	(0.18)	(1.57)	(1.57)	(1.57)	(1.42)	(1.46)
Asset turnover	−0.01	−0.01	−0.01	−0.01	−0.01	2.63**	2.72**	2.72**	2.67**	2.71**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(1.16)	(1.19)	(1.19)	(1.16)	(1.15)
Cost crisis	−0.08	−0.07	−0.07	−0.08	−0.08	1.46*	1.24	1.24	1.34*	1.69**
	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.75)	(0.76)	(0.76)	(0.72)	(0.82)

(Continues)

Table II. (Continued)

	Abnormal ROE					*Abnormal MTB*				
Variables	*(1A)*	*(2A)*	*(3A)*	*(4A)*	*(5A)*	*(1M)*	*(2M)*	*(3M)*	*(4M)*	*(5M)*
Revenue crisis	−0.10	−0.09	−0.09	−0.09	−0.09	0.13	−0.16	−0.16	0.07	0.63
	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.56)	(0.56)	(0.56)	(0.56)	(0.72)
Negative equity control	0.02	0.02	0.01	0.01	0.01	0.53	0.61	0.60	0.48	0.53
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.44)	(0.48)	(0.48)	(0.43)	(0.44)
Missing peer group control						−0.22	−0.31*	−0.31*	−0.24*	−0.25*
						(0.14)	(0.18)	(0.18)	(0.14)	(0.15)
Struggling industry	0.00	−0.01	−0.01	0.00	0.00	0.72	0.31	0.31	0.82	0.68
	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)	(0.84)	(0.93)	(0.93)	(0.85)	(0.84)
Market uncertainty	−0.00	−0.00	−0.00	−0.00	−0.00	0.01	0.00	0.00	0.03	0.03
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Market munificence	−0.14	−0.11	−0.18	−0.09	−0.09	−6.01	−5.57	−5.60	−5.96	−4.56
	(0.34)	(0.34)	(0.34)	(0.34)	(0.36)	(4.74)	(4.77)	(4.79)	(4.64)	(4.46)
Subsample truncation control	0.05*	0.05*	0.05	0.05*	0.05*	0.24	0.06	0.06	0.27	0.17
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.43)	(0.45)	(0.45)	(0.40)	(0.37)
Multiple replacements	−0.40	−0.41	−0.44*	−0.37	−0.37	−1.40	−1.80	−1.81	−1.34	−1.28
	(0.26)	(0.26)	(0.26)	(0.26)	(0.26)	(3.16)	(3.20)	(3.18)	(2.95)	(2.87)
Later replacement	−0.01	−0.01	−0.01	−0.01	−0.01	−0.13	−0.15	−0.15	−0.01	−0.32
	(0.06)	(0.06)	(0.06)	(0.07)	(0.07)	(0.46)	(0.45)	(0.45)	(0.42)	(0.52)
Inc. CEO tenure	0.00	0.00	0.00	0.00	0.00	−0.06*	−0.08*	−0.08*	−0.07**	−0.08**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)	(0.04)	(0.04)	(0.03)	(0.04)
Inc. CEO duality	−0.00	−0.01	−0.01	−0.01	−0.01	0.61*	0.53	0.53	0.53	0.52
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.36)	(0.37)	(0.37)	(0.36)	(0.36)
Inc. number of articles	−0.00	−0.00*	−0.00**	−0.00	−0.00	0.00***	0.00***	0.00***	0.00***	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

(Continues)

Table II. (Continued)

	Abnormal ROE					*Abnormal MTB*				
Variables	*(1A)*	*(2A)*	*(3A)*	*(4A)*	*(5A)*	*(1M)*	*(2M)*	*(3M)*	*(4M)*	*(5M)*
Inc. talent	−0.74	−0.82	−0.87	−0.46	−0.46	18.61	10.38	10.36	23.51	28.03
	(0.99)	(1.00)	(0.99)	(0.95)	(1.00)	(17.75)	(13.26)	(13.29)	(17.39)	(18.87)
Overconfidence endogeneity control		0.07*	0.08*	0.07	0.07		1.33*	1.34*	1.34*	1.53**
		(0.04)	(0.05)	(0.05)	(0.05)		(0.76)	(0.75)	(0.71)	(0.75)
Inc. overconfidence (options)		**−0.05*** **	**−0.02**				**−0.25**	**−0.23**		
		(0.02)	**(0.02)**				**(0.22)**	**(0.28)**		
Inc. overconfidence (options) × CEO duality			**−0.06****					**−0.04**		
			(0.03)					**(0.38)**		
Inc. overconfidence (press)				**−0.02**	**−0.02**				**−0.68****	**0.19**
				(0.03)	**(0.05)**				**(0.33)**	**(0.37)**
Inc. overconfidence (press) × CEO duality					**0.00**					**−1.50***
					(0.06)					**(0.79)**
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.16*	0.15*	0.16**	0.15*	0.15*	−1.51	−1.09	−1.09	−1.51	−1.71
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(1.00)	(0.92)	(0.92)	(1.01)	(1.06)
Observations	664	664	664	664	664	640	640	640	640	640
Wald χ^2	451.36	493.59	513.36	447.03	476.34	338.99	351.78	354.37	293.48	296.71
Pseudo R^2 (corr(y, $\hat{y}$)^2)	0.170	0.177	0.180	0.173	0.173	0.244	0.252	0.252	0.262	0.275

Bold values significance coefficients and standard errors.
Note: Standard errors in parentheses.
***p < 0.01; **p < 0.05; *p < 0.1.

Table III. Performance effects of replacing overconfident CEOs

	Abnormal ROE				*Abnormal MTB*					
Variables	*(1A)*	*(2A)*	*(3A)*	*(4A)*	*(5A)*	*(1M)*	*(2M)*	*(3M)*	*(4M)*	*(5M)*
Pre-decline performance	0.44**	0.44**	0.46***	0.44**	0.43**	−0.05	−0.05	−0.06	−0.05	−0.09
	(0.18)	(0.18)	(0.18)	(0.17)	(0.18)	(0.12)	(0.12)	(0.12)	(0.11)	(0.12)
Performance severity	0.22**	0.23**	0.22**	0.22**	0.22**	−0.25	−0.25	−0.26	−0.24	−0.25
	(0.11)	(0.10)	(0.10)	(0.11)	(0.11)	(0.17)	(0.17)	(0.17)	(0.16)	(0.16)
Firm size (ln)	0.06**	0.05*	0.06*	0.06**	0.05*	−1.09**	−1.13**	−1.11**	−1.08**	−1.04**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.47)	(0.49)	(0.49)	(0.46)	(0.44)
S&P 500 constituent	−0.03	−0.02	−0.01	−0.03	−0.02	1.84	2.05*	2.00*	1.87	1.89*
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(1.14)	(1.24)	(1.21)	(1.14)	(1.12)
Firm age (ln)	0.01	0.01	0.00	0.00	0.00	−0.57	−0.56	−0.52	−0.59*	−0.52
	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.35)	(0.35)	(0.34)	(0.33)	(0.32)
Quick ratio	0.00	0.00	0.01	0.00	0.00	0.02	0.00	−0.00	0.02	0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.22)	(0.22)	(0.22)	(0.23)	(0.22)
Leverage ratio	−0.18	−0.18	−0.20	−0.18	−0.19	8.81***	9.06***	9.13***	8.80***	8.99***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)	(2.85)	(2.98)	(3.00)	(2.84)	(2.92)
Slack	0.00	0.00	0.00	0.00	0.00	−0.02	−0.02	−0.02	−0.02	−0.02
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Altman Z-score	0.02***	0.02***	0.02***	0.02***	0.02***	0.30***	0.30***	0.30***	0.30***	0.30***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Survivorship bias control	−0.22	−0.24*	−0.26*	−0.25*	−0.26*	1.88	1.86	2.09	1.58	1.83
	(0.14)	(0.14)	(0.14)	(0.15)	(0.15)	(1.24)	(1.26)	(1.34)	(1.16)	(1.23)

(Continues)

Table III. (Continued)

	Abnormal ROE				*Abnormal MTB*					
Variables	*(1A)*	*(2A)*	*(3A)*	*(4A)*	*(5A)*	*(1M)*	*(2M)*	*(3M)*	*(4M)*	*(5M)*
Asset turnover	−0.02	−0.02	−0.02	−0.02	−0.02	2.05**	2.12**	2.11**	2.04**	2.05**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.96)	(1.00)	(1.00)	(0.96)	(0.95)
Cost crisis	−0.07	−0.07	−0.07	−0.07	−0.07	1.27*	1.10	1.10	1.20*	1.48**
	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)	(0.68)	(0.70)	(0.68)	(0.66)	(0.71)
Revenue crisis	−0.13*	−0.13**	−0.12*	−0.13*	−0.12	0.47	0.20	0.16	0.42	0.87
	(0.07)	(0.07)	(0.06)	(0.07)	(0.08)	(0.59)	(0.57)	(0.55)	(0.58)	(0.69)
Negative equity control	0.02	0.02	0.02	0.02	0.02	0.50	0.55	0.56	0.49	0.52
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.35)	(0.38)	(0.38)	(0.35)	(0.36)
Missing peer group control						−0.26**	−0.34**	−0.34**	−0.27**	−0.28**
						(0.12)	(0.15)	(0.15)	(0.12)	(0.13)
Struggling industry	0.00	−0.01	−0.01	−0.00	−0.01	−0.10	−0.42	−0.32	−0.09	−0.05
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.55)	(0.63)	(0.65)	(0.56)	(0.59)
Market uncertainty	−0.00	−0.00	−0.00	−0.00	−0.00	0.00	−0.00	−0.00	0.01	0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Market munificence	−0.00	0.07	0.02	0.02	−0.00	−5.27	−4.77	−4.60	−5.27	−4.12
	(0.28)	(0.27)	(0.27)	(0.28)	(0.30)	(3.61)	(3.61)	(3.57)	(3.60)	(3.34)
Replacement endogeneity control	0.03	0.03	0.02	0.03	0.02	0.10	−0.01	0.08	0.09	0.14
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.30)	(0.31)	(0.33)	(0.29)	(0.31)
CEO replacement	0.12**	0.13**	0.06	0.13**	0.08	−0.74	−0.66	0.12	−0.65	0.04
	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)	(0.66)	(0.64)	(0.52)	(0.61)	(0.49)

(Continues)

Table III. (Continued)

	Abnormal ROE				*Abnormal MTB*					
Variables	*(1A)*	*(2A)*	*(3A)*	*(4A)*	*(5A)*	*(1M)*	*(2M)*	*(3M)*	*(4M)*	*(5M)*
Early replacement	−0.10	−0.09	−0.10*	−0.10*	−0.11*	−0.08	−0.05	−0.02	−0.16	−0.24
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.58)	(0.59)	(0.58)	(0.58)	(0.58)
Multiple replacements	−0.07	−0.07	−0.13*	−0.06	−0.06	0.72	0.53	0.75	0.83	1.13
	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)	(1.38)	(1.44)	(1.35)	(1.40)	(1.27)
Later replacement	−0.02	−0.01	−0.02	−0.02	−0.02	−0.06	−0.06	−0.07	0.02	−0.27
	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)	(0.48)	(0.48)	(0.49)	(0.46)	(0.52)
Inc. CEO tenure	0.00	0.00	0.00	0.00	−0.00	−0.08***	−0.09***	−0.09**	−0.08***	−0.09***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Inc. CEO duality	0.04	0.04	0.01	0.04	0.02	0.60*	0.52	0.86**	0.55*	0.88**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.31)	(0.33)	(0.40)	(0.30)	(0.37)
Inc. number of articles	−0.00	−0.00*	−0.00**	−0.00	−0.00	0.00***	0.00***	0.00***	0.00***	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Inc. talent	−0.74	−0.91	−0.92	−0.56	−0.63	18.62	11.42	11.86	21.55	26.03
	(0.92)	(0.93)	(0.91)	(0.89)	(0.95)	(17.45)	(13.42)	(13.47)	(17.21)	(18.84)
Overconfidence endogeneity control		0.06*	0.06	0.04	0.04		0.96	0.98	0.56	0.79
		(0.04)	(0.04)	(0.04)	(0.04)		(0.59)	(0.60)	(0.55)	(0.59)
Inc. overconfidence (options)		−0.05***	−0.02				−0.15	−0.18		
		(0.02)	(0.02)				(0.19)	(0.26)		
Inc. overconfidence (options) × CEO replacement		**0.05***	**−0.04**				**−0.05**	**0.18**		
		(0.03)	**(0.03)**				**(0.31)**	**(0.50)**		
Inc. CEO duality × CEO replacement			0.12*		0.10			−1.45		−1.53
			(0.06)		(0.06)			(1.01)		(0.99)

(Continues)

Table III. (Continued)

	Abnormal ROE				*Abnormal MTB*					
Variables	*(1A)*	*(2A)*	*(3A)*	*(4A)*	*(5A)*	*(1M)*	*(2M)*	*(3M)*	*(4M)*	*(5M)*
Inc. overconfidence (options) × CEO duality			−0.04					0.02		
			(0.03)					(0.36)		
Inc. overconfidence (options) × CEO duality × CEO replacement			**0.15***** **(0.04)**					**−0.28** **(0.71)**		
Inc. overconfidence (press)				−0.01	−0.02				−0.43	0.31
				(0.02)	(0.05)				(0.27)	(0.29)
Inc. overconfidence (press) × CEO replacement				**0.03** **(0.04)**	**0.02** **(0.05)**				**0.70*** **(0.39)**	**−0.34** **(0.53)**
Inc. overconfidence (press) × CEO duality					0.01 (0.05)					−1.34* (0.72)
Inc. overconfidence (press) × CEO duality × CEO replacement					**0.02** **(0.08)**					**2.01**** **(0.93)**
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.14**	0.14**	0.15**	0.14**	0.16**	−0.60	−0.30	−0.50	−0.58	−0.96
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.68)	(0.63)	(0.69)	(0.68)	(0.79)
Observations	918	918	918	918	918	899	899	899	899	899
Wald χ^2	148.92	160.31	172.76	152.13	168.67	162.99	229.57	229.07	148.57	163.69
Pseudo R^2 (corr(y, $\hat{y}$)^2)	0.159	0.166	0.172	0.160	0.162	0.203	0.208	0.213	0.210	0.228

Bold values significance coefficients and standard errors.
Note: Standard errors in parentheses.
***p < 0.01; **p < 0.05; *p < 0.1.

and (4M) in Table II show negative and significant coefficients on abnormal ROE for option-based overconfidence and on abnormal MTB for press-based overconfidence (Model (2A): $\beta = -0.05$; $p = 0.007$; Model (4M): $\beta = -0.68$; $p = 0.040$). In particular, by comparison with the average incumbent, an incumbent exhibiting an option-based overconfidence score that is one standard deviation above the mean is associated with a drop in abnormal ROE of more than five percentage points ($\beta = -0.05$). Models (2M) and (4A) do not show significant effects of incumbent *overconfidence options* on abnormal MTB or of incumbent *overconfidence press* on abnormal ROE (Model (2M): $\beta = -0.25$; $p = 0.264$; Model (4A): $\beta = -0.02$; $p = 0.393$).

As set forth in Hypothesis 2, CEO duality is expected to exacerbate the negative performance effect of incumbent overconfidence. In Models (3A) and (5M) of Table II, negative and significant coefficients on the interaction terms between duality and overconfidence support this view for option-based overconfidence on abnormal ROE, whereas we find a marginally significant, negative effect of press-based overconfidence on abnormal MTB (Model (3A): $\beta = -0.06$; $p = 0.047$; Model (5M): $\beta = -1.50$; $p = 0.057$). Again, the effect of the option-based overconfidence measure's interaction with CEO duality in Model (3M) on abnormal MTB and the effect of the press-based overconfidence measure's interaction with CEO duality in Model (5A) on abnormal ROE are not significant (Model (3M): $\beta = -0.04$; $p = 0.913$; Model (5A): $\beta = 0.00$; $p = 0.995$). Further, including the interaction between *incumbent CEO duality* and *overconfidence* in our regressions eliminates the significant base term effects of overconfidence on subsequent abnormal performance. This suggests that the negative performance effects of overconfident incumbents are primarily driven by powerful CEOs. Figure 1a presents the economic significance of these results graphically for mean control values.

CEO Turnover

Our subsequent analyses in Table III cover the entire sample of 240 turnaround firms, allowing us to investigate whether CEO replacement can effectively reduce the negative effects of overconfident incumbents. Results supporting Hypothesis 3 would indicate that 'average' successors more than compensate for the costs associated with CEO replacement and the detriments otherwise resulting from overconfident incumbents. In line with this, Models (2A) and (4M) of Table III show marginally significant, positive performance effects of the interactions between CEO replacement and our option-based overconfidence measure on abnormal ROE and also with our press-based measure on abnormal MTB (Model (2A): $\beta = 0.05$; $p = 0.062$; Model (4M): $\beta = 0.70$; $p = 0.075$). The economic significance of this effect is shown in Figure 1b, confirming that the 5 per cent drop in abnormal ROE associated with incumbent CEO exhibiting an option-based overconfidence score one standard deviation above the mean (H1) is driven by incumbent CEOs that remained in office. Moreover, corroborating the previous patterns in the results, the coefficients of the press-based measure on abnormal ROE (Model (4A): $\beta = 0.03$; $p = 0.380$) and of the option-based measure on abnormal MTB (Model (2M): $\beta = -0.28$; $p = 0.689$) are again not significant.

Table IV. Performance effects of successor CEO overconfidence.

	Abnormal ROE		*Abnormal MTB*	
Variables	*(1A)*	*(2A)*	*(1M)*	*(2M)*
Pre-decline performance	0.16	0.12	0.04	−0.00
	(0.17)	(0.18)	(0.10)	(0.11)
Performance severity	0.73***	0.73***	−0.30*	−0.25**
	(0.09)	(0.09)	(0.17)	(0.10)
Firm size (ln)	0.03	0.02	−0.27	−0.51*
	(0.03)	(0.03)	(0.28)	(0.27)
S&P 500 constituent	−0.10*	−0.09	−0.31	0.36
	(0.05)	(0.06)	(0.53)	(0.55)
Firm age (ln)	0.06*	0.07**	0.53**	0.56**
	(0.03)	(0.03)	(0.25)	(0.26)
Quick ratio	0.02	0.02	0.09	0.13
	(0.03)	(0.03)	(0.23)	(0.22)
Leverage ratio	0.04	0.02	3.81***	3.97***
	(0.08)	(0.08)	(1.32)	(1.30)
Slack	−0.00	−0.00	0.00	−0.01
	(0.00)	(0.00)	(0.01)	(0.01)
Altman Z-score	0.03**	0.03***	0.12	0.22
	(0.01)	(0.01)	(0.22)	(0.18)
Survivorship bias control	0.16	0.10	2.61*	2.10*
	(0.12)	(0.10)	(1.52)	(1.28)
Asset turnover	−0.05	−0.05*	−0.09	−0.07
	(0.03)	(0.03)	(0.37)	(0.33)
Cost crisis	−0.07	−0.07	1.92*	1.55
	(0.06)	(0.06)	(1.11)	(1.07)
Revenue crisis	−0.21***	−0.21***	0.94	0.74
	(0.07)	(0.06)	(1.16)	(1.13)
Negative equity control	0.04**	0.03**	0.38	0.34
	(0.02)	(0.02)	(0.23)	(0.25)
Missing peer group control			−0.29**	−0.34**
			(0.14)	(0.14)
Struggling industry	−0.06	−0.04	−1.62**	−1.48***
	(0.05)	(0.04)	(0.68)	(0.50)
Market uncertainty	−0.00	−0.00	−0.01	−0.01
	(0.00)	(0.00)	(0.02)	(0.02)

(Continues)

Table IV. (Continued)

	Abnormal ROE		*Abnormal MTB*	
Variables	*(1A)*	*(2A)*	*(1M)*	*(2M)*
Market munificence	0.72**	0.83**	−3.49	−2.68
	(0.36)	(0.35)	(2.76)	(2.78)
Subsample truncation control	0.06	0.09	−0.12	0.61
	(0.06)	(0.06)	(0.55)	(0.58)
Early replacement	0.01	−0.01	0.50	−0.19
	(0.04)	(0.04)	(0.43)	(0.46)
Multiple replacements	0.11**	0.13***	1.58***	1.86***
	(0.04)	(0.05)	(0.55)	(0.54)
Company insider successor	0.06*	0.07*	0.38	0.46
	(0.04)	(0.04)	(0.48)	(0.50)
Suc. CEO duality	0.00	0.01	−0.82*	−0.59
	(0.05)	(0.05)	(0.43)	(0.42)
Suc. CEO age	0.01***	0.01**	0.04	0.02
	(0.00)	(0.00)	(0.03)	(0.03)
Suc. number of articles	0.00	0.00*	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Suc. overconfidence endogeneity control		−0.07		−2.19***
		(0.05)		(0.58)
Suc. overconfidence (press)		**0.03**		**1.60*** **
		(0.04)		**(0.44)**
Year indicators	Yes	Yes	Yes	Yes
Constant	0.23***	0.21***	−0.22	−0.06
	(0.08)	(0.08)	(0.83)	(0.92)
Observations	254	254	259	259
Wald χ^2	467.62	446.04	43.06	67.87
Pseudo R^2 (corr(y, $\hat{y}$)^2)	0.475	0.490	0.241	0.341

Bold values significance coefficients and standard errors.
Note: Standard errors in parentheses.
***p < 0.01; **p < 0.05; *p < 0.1.

Hypothesis 4 states that incumbent CEO duality moderates (amplifies) the positive performance effect of replacing overconfident CEOs (i.e., that the interactive combination of incumbent CEO overconfidence, duality, and CEO replacement will be positively associated with subsequent turnaround performance). We find significant support for this coherence in Models (3A) and (5M) of Table III on abnormal ROE for our option-based overconfidence measure and on abnormal MTB for our press-based overconfidence measure (Model (3A): β = 0.15; p = 0.001; Model (5M): β = 2.01; p = 0.032). When employing interactions of *incumbent CEO duality* and *CEO replacement*

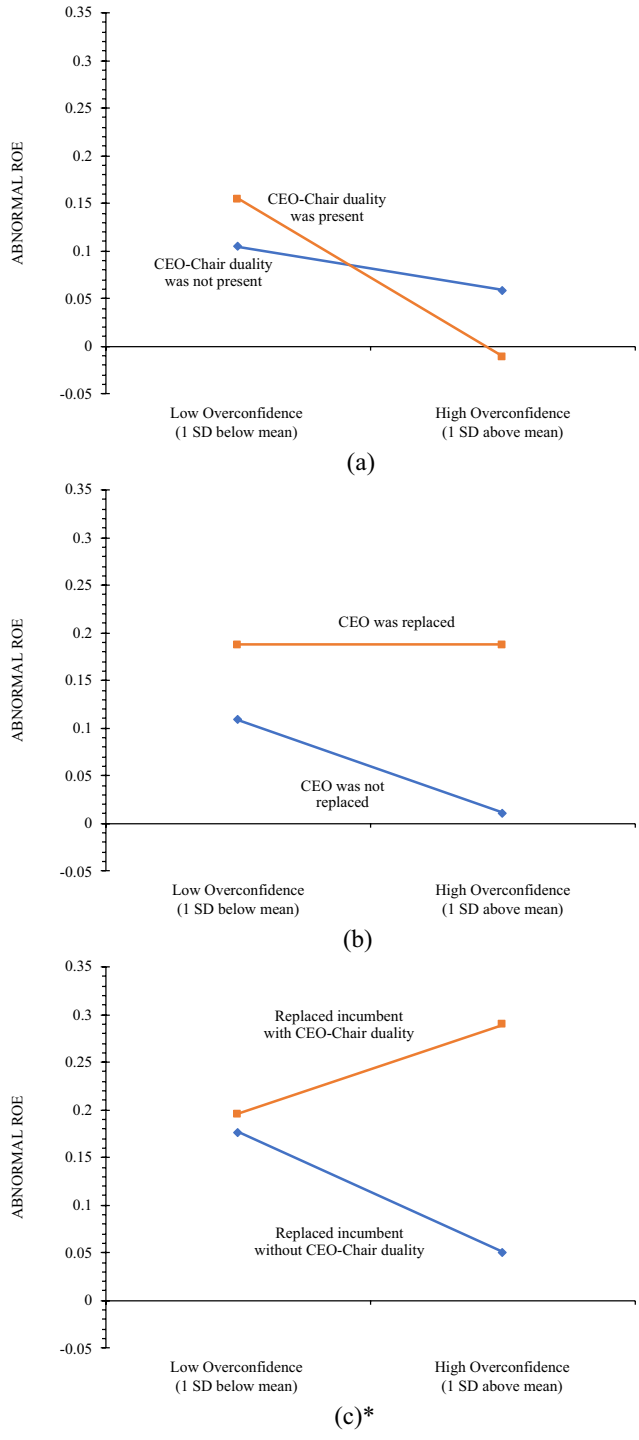

Figure 1. Performance effects of incumbent CEO overconfidence (options) [Colour figure can be viewed at wileyonlinelibrary.com]
Note: Figure 1c is a two-dimensional illustration of our three-way interaction (H4), where we hold CEO replacement constant (i.e., present) to ease illustration.

with our option-based measure of CEO overconfidence on abnormal MTB and with our press-based measure of CEO overconfidence on abnormal ROE, performance effects remain insignificant (Model (3M): $\beta = -0.28$; $p = 0.689$; Model (5A): $\beta = 0.02$; $p = 0.817$). Note that the positive effect of replacing overconfident incumbents (H3) vanishes after controlling for the interaction of *incumbent CEO overconfidence*, *duality*, and *replacement*. Hence, while the misfit between the capabilities of overconfident incumbent CEO-chairs and current corporate challenges – and hence the benefit of replacing powerful overconfident incumbents – is particularly distinct, the benefit of hiring an average successor does not compensate for the misfit of less powerful incumbents suffering from overconfidence and the cost of their replacement. Figure 1c illustrates the economic significance of this coherence graphically.

Successor CEO Overconfidence

Table IV portrays analyses of whether successor CEO overconfidence enhances turnaround performance (Hypothesis 5). In support of this hypothesis, Model (2M) of Table IV confirms a positive and significant effect of successor overconfidence on subsequent abnormal MTB ($\beta = 1.60$; $p = 0.000$). As before, however, press-based overconfidence is unrelated to book-value performance (Model (2A): $\beta = 0.03$; $p = 0.406$).

Supplemental Analyses

We conducted a set of supplemental analyses, both quantitatively and qualitatively, to complement our main results. First, to validate more closely the behavioural mechanisms invoked in our theorizing, we investigated the actions of overconfident CEOs. Scholars typically differentiate between two essential turnaround responses – retrenchment and recovery (Robbins and Pearce, 1992). Retrenchment aims to enhance efficiency through cost and asset reduction whereas recovery aims to reposition the firm strategically (Schmitt and Raisch, 2013). In this regard, for year t through year t + 3, we searched the Factiva universe for articles documenting the turnaround responses of sample firms and manually validated implemented asset retrenchment, cost retrenchment, and recovery actions (i.e., product/market refocusing).

We find a negative effect of our option-based measure of incumbent CEO overconfidence on the likelihood of asset retrenchment in years t and t + 1. This supports our presumption that overconfident incumbent CEOs are paralysed by the decline and do not appreciate the need to alter their existing strategies to ensure turnaround success. However, the turnaround response of incumbents identified as overconfident using the press-based measure does not differ from that of the average incumbent, explaining the constantly insignificant effect of this measure on incumbents' accounting-based performance (ROE). Further, consistently with our reasoning that overconfident successor CEOs develop bold visions focused on organizational recovery, we find that successor CEO overconfidence is positively associated with the degree of product/market refocusing. In addition, we find a positive effect of successor CEO overconfidence on employee productivity, which highlights their motivational power.

Second, to explore CEOs' cognitive assessment of decline more closely, we performed extensive qualitative analyses of their illustrations in quarterly conference calls, across both incumbent and successor CEOs, and in comparison to their non-overconfident

counterparts.[8] Specifically, for the turnaround cases in our sample that coincided with the availability of conference call transcripts from Refinitiv EIKON (since 2003), we selected those incumbent and successor CEOs particularly high/low in overconfidence (see, Eisenhardt, 2021; Langley and Abdallah, 2011) and examined the conference calls corresponding to incumbent CEOs' first quarter and fiscal year of organizational decline and for successor CEOs' first quarter in office, leading to a total of 30 conference calls. In an iterative process, we first used open coding to identify statements shedding light on CEOs' assessment of organizational decline as well as on their conclusions drawn from that assessment (Eisenhardt, 1989). In axial coding, we then revisited these statements to successively develop code categories grouping the statements. We then juxtaposed the emerging codes (together with their associated quotes) to re-evaluate our coding, merged highly similar codes and dropped ones experiencing low cross-case evidence until we achieved consensus and saturation in selective coding to identify overarching themes in CEOs' statements (Gioia et al., 2013).

We present these themes and representative quotes for incumbent and successor CEOs in Online Appendix S2 and S3, respectively. Specifically, we observe that overconfident incumbent CEOs tend to exhibit an unbroken conviction that extant ways of doing business will deliver future success despite the substantial decline of their firms. Such behaviour is in line with our theoretical argument that overconfident incumbent CEOs should experience cognitive dissonance in turnaround situations, hampering an adequate assessment of organizational decline. Non-overconfident incumbent CEOs, however, appear to acknowledge the extant crisis and be rather open to revising extant ways of doing business.

Moreover, we find that these divergent assessments of organizational decline are mirrored in incumbent CEOs' tendency to reinterpret (respectively reflect) their firms' challenging conditions more deeply. For example, an overconfident incumbent CEO in our sample noted that (s)he had 'seen nothing that should deter us from our goals […]. Let me say that again. I have seen nothing that should deter us from our goals', whereas their non-overconfident counterparts rather exhibited an intention to evaluate the situation carefully instead of reinterpreting it or explaining it away: 'we are guarded against the possibility the business could actually decline from these already low levels. […] we have already taken aggressive measures to [counter decline] and now we're in the process of evaluating additional actions […] in this extremely challenging business condition'.

By contrast with the incumbent CEOs in our sample, however, we find that overconfident *successor* CEOs (as well as their non-overconfident counterparts) *do* acknowledge organizational challenges. Yet what appears to differentiate the statements of overconfident and non-overconfident successor CEOs is their approach to, and communication while, countering decline. Whereas overconfident successor CEOs appear to communicate a rather concrete roadmap and an ambitious vision of organizational turnaround, non-overconfident successor CEOs rather tended to communicate a more cautious or vague roadmap focused on disciplined and inward-looking management. Such behaviour, in turn, is in line with our theoretical arguments that, what differentiates overconfident and non-overconfident CEOs is not their dissonance or consonance in the face of organizational decline, but the former's more ambitious disposition towards turning their firm around.[9]

DISCUSSION

Turning a firm around is an arcane managerial art and even considered to be 'black magic' because even small deviations from the path to restore organizational health can lead to certain failure (Bibeault, 1982, p. XV). Our study aims to take some of the mystery out of turnaround management. In particular, we shed light on how and under what circumstances CEO overconfidence affects turnaround performance and show that it can either be a catalyst for failure or an accelerant for recovery – depending on whether it is an overconfident incumbent or an overconfident successor CEO performing 'miracles'. Indeed, our findings suggest that the economic relevance of these effects is substantial, complementing prior work on overconfident CEOs focused on demonstrating its implications for strategic choice (Li and Tang, 2010).

In this vein, our analyses also yield a considerable insight for CEO overconfidence research: Accounting- and market-based measures of firm performance seem to react divergently to the two most prominent ways of measuring CEO overconfidence in prior literature. Whereas the option-based overconfidence measure yields significant and robust findings exclusively on accounting-based performance, significant results employing the press-based overconfidence measure are only associated with market-based performance. As prior literature regularly employed both measures interchangeably to assess CEO overconfidence (e.g., Chen et al., 2015; Hirshleifer et al., 2012; Hribar and Yang, 2016; Malmendier and Tate, 2008), this unexpected and remarkably robust finding deserves further reflection and may warrant a critical reconsideration of what each measures actually identifies.

In particular, the press-based measure tends to assess CEOs' openly *displayed* confidence as reflected in the business press (Malmendier and Tate, 2008). As such, constituency audiences seem to draw inferences from the press image of a CEO to form (market) expectations regarding the CEO's behaviour and thus the company's performance in line with our hypotheses. However, one could argue a CEO's press portrayal inevitably *also* entails impression management behaviour (Hill et al., 2014) aimed at conveying a desired and carefully constructed professional image (e.g., Goffman, 1959; Roberts, 2005; Westphal et al., 2012). Therefore, a CEO's press image may sometimes be a misleading façade, which would explain why we observe that this measure does not reliably translate to accounting-based performance.

With regards to the option-based assessment of CEO overconfidence, however, Malmendier and Tate (2005, 2677f.) argue that 'the usefulness of option-exercises as a signaling device is doubtful [as] financial services firms and financial press, while following stock purchases and sales of insiders closely, generally […] point to vesting and expiration times as the main determinants of exercise'. Indeed, as decisions related to CEOs' personal option portfolios are inherently tied to their personal wealth (Campbell et al., 2011), historical decisions pertaining to option exercises should arguably be more likely to capture an *intrinsic* manifestation of overconfidence since, unlike simply *displaying* confidence and having it reflected in the media, there are inherent costs (i.e., potential loss of personal wealth) attached to having a history of not exercising in-the-money stock options (Hall and Murphy, 2002). Thus, an option-based measure of overconfidence may approximate the behavioural

component of this cognitive biases' manifestation more closely, which is reflected in accounting performance (ROE in our case). Yet our results indicate that the market's impression of firm value (as reflected in MTB) is driven more by press impressions and less by the entire historical option-exercising behaviour of a CEO, which is presumably less salient to (and meaningful for) shareholders (arguably, if relevant at all, even analysts may assess only *recent* option-exercising behaviour). This interpretation is in line with Lee et al.'s (2017, p. 766) finding that market participants can be unaware of intrinsic overconfidence as they instead take 'CEOs' statements at face value.'[10] Together, our findings may thus suggest that researchers should align overconfidence and performance measures carefully depending on the research question (impression- or behaviour-related, market- or accounting-related) that they are pursuing, while being aware of the boundaries of these measures due to their nature as proxies.

Theoretical and Practical Implications

Our study contributes especially to the literature on executives' biases (Finkelstein et al., 2009) and CEOs' impact on organizational outcomes (Hambrick and Mason, 1984) by providing more evidence of CEO overconfidence and illustrating how it relates to firm performance. In particular, by theorizing how overconfidence distorts CEOs' perception and interpretation of organizational decline to ultimately affect abnormal turnaround performance, this study is not only among the first to assess the performance effect of overconfident CEOs – and to reveal its significant economic relevance in times in which diligent leadership is particularly essential. Even more, we show that CEO overconfidence can have both positive *and* negative effects on firm performance in a single setting and contribute to the research on CEO characteristics a theoretical rationale to explain the respective prevalence of both a 'dark side' and a 'bright side' (see, Bingham and Eisenhardt, 2011; Gigerenzer and Todd, 1999) to this mother of all biases. We thereby provide a reconciliatory perspective of the predominantly negative, but occasionally beneficial, depictions of CEO overconfidence in the literature (Chen et al., 2015; Hirshleifer et al., 2012; Malmendier and Tate, 2008; Picone et al., 2014; Tang et al., 2015a) and present post-hoc analyses shedding more light on this major dichotomy. Specifically, our research highlights the multifaceted nature of overconfidence, which may at times warrant a focus not only on their immediate effect on CEOs' cognition but also taking into consideration how linked coherences (in our case, CEO incumbency versus CEO succession) shape how these inclinations affect CEOs' perception and interpretation of administrative situations. Adopting this perspective thus enhances theoretical assessments of *when* and *why* either side, bright or dark, will destine the ultimate effects of CEO overconfidence on organizational trajectories.

Specifically, this view informs a further theoretical development of the concept of CEO overconfidence to include an 'auto-referential' aspect beyond its conventional understanding as the overestimation of one's own abilities and excessive trust in one's own predictions: CEO overconfidence has the potential to elicit particularly biased misperceptions of an administrative situation if (a) this situation is attributable to the CEO's

prior leadership (such that he or she is confronted with the auto-references concerning his or her prior decisions) and (b) provided these auto-references oppose their heightened initial expectations. Naturally, however, this underappreciated aspect of CEO overconfidence can only regulate their behaviour when an outcome is indeed connectable to CEOs' leadership, i.e., when such a reference is indeed present – explaining why auto-referentiality does not evoke additional distortions across overconfident successor CEOs that are new to an administrative situation.

This nuanced theoretical perspective on the divergent ramifications of CEO overconfidence also contributes to Finkelstein et al.'s (2009) fit/refit model to explicate the virtues and detriments of CEO replacement. Not only does our study underline the applicability of this model in turnaround situations and add overconfidence to the classification of CEO attributes that constitute a (mis)fit in turnaround situations, outlining when CEO turnover is warranted as its benefits exceed the costs involved. Even more importantly, by showing that incumbent overconfidence creates a harmful *misfit* whereas successor overconfidence creates a favourable *fit* in turnaround situations, we highlight that there is more to CEO replacement than a conventional readjustment of CEO attributes to current organizational challenges (see, Datta and Rajagopalan, 1998; Westphal and Fredrickson, 2001). Specifically, the very *same* attribute can play out very differently between incumbent and successor CEOs, such that CEO turnover, in and of itself, can give direction to *how* certain CEO attributes manifest in organizational outcomes. Considering that the attributes of successor CEOs often resemble those of their predecessors (Zajac and Westphal, 1996) – unless times call for change (Finkelstein et al., 2009) – this challenges common knowledge in the literature on CEO turnover in that even as times *do* call for change, installing a CEO with attributes similar to the detrimental predecessor can actually be fruitful.

Moreover, our results suggest that duality favours the detrimental mitigation of monitoring abilities in the case of overconfident incumbent CEOs, supporting the argument that discretion serves as a central moderator of CEO characteristics (Hambrick and Finkelstein, 1987) in turnaround situations. This particular insight contributes to our understanding of the *effectiveness* of CEO duality as a source of managerial discretion. Specifically, one could intuitively consider fundamental organizational decline the 'big moment' for directors guarding shareholder interests, thus defeating the relevance of CEO duality as general board vigilance increases. Yet, even in troubling times that call for particularly vigilant decision-making (oversight), the considerable structural power emanating from CEO-chair duality seems to render it a relevant source of managerial discretion.

Ultimately, our depiction of CEO overconfidence as a multivalent CEO attribute falls in a time in which researchers increasingly assess the complexity of psychological orientations that have been proved to be particularly influential for organizational outcomes (see, Gupta et al., 2019; Neely et al., 2020). In this respect, our study departs from prior work on the unilateral effects of CEO attributes (Hambrick and Mason, 1984) or on an attribute's effect heterogeneity regulated by its interplay with *other* attributes (Gupta et al., 2019; Hambrick, 2007). Instead, our reasoning suggests that the effect heterogeneity of CEO attributes (e.g., beneficial versus detrimental side) may also be sourced by an 'auto-referential' aspect of the attributes *themselves*, since

we demonstrate the very same CEO attribute to elicit opposing outcomes in the same business setting. As such, however, we suspect auto-referentiality – when the effect of an attribute is (inter-temporally) linked to the outcomes of prior behaviour – to be relevant to a host of CEO attributes beyond overconfidence (e.g., CEO career experience (Mueller et al., 2021), educational background (Chen et al., 2022), or dispositional conservatism (Chin et al., 2013)) to constitute a more general source of heterogeneity in CEOs' effects on organizational outcomes.

Our study also has relevant prescriptions for practice, especially as one can regularly observe an adverse selection of overconfident individuals to the CEO post (Hirshleifer et al., 2012; Malmendier and Tate, 2005). Our results indicate that such a hiring decision can indeed be a wise move, as it seems to evoke positive reactions from stakeholders in turnaround situations. Yet, while such 'good overconfidence' may carry an organization far when their ambitious targets are met, increased board vigilance seems to be necessary when overconfident CEOs do not meet their targets and their bias hence makes them particularly prone to cognitive misperceptions of their own failure ('bad overconfidence'). Moreover, it may indeed be possible to discern this dawn of 'bad overconfidence:' When a firm is aware of their CEO's overconfidence – in practice increasingly assessed upon their installation (see, Kaplan and Sorensen, 2021) – early crisis indications already deserve vigilant and critical oversight. For example, assigning an active chairman over the CEO can be a prescription for early crises, in case the board chooses not to replace the overconfident CEO.

Limitations and Future Research

The scope of our study is limited in that we have explored the performance of large, public US firms in turnaround situations. We encourage scholars to shed light on the co-existence of beneficial and detrimental consequences of CEO overconfidence – and the mirrored pair of incumbent and successor overconfidence – using large-scale, general samples. In corresponding analyses, the *maximum threshold measure* might prove useful to gain more insights into the impact of specific levels of (over)confidence.

Moreover, our findings imply a need for more discursive criticality. Particularly, our results suggest an opportunity for future research to develop a more nuanced scholarly conceptualization of what the start-of-the-art and well-established press-based measures of CEO overconfidence actually identify beyond overconfidence. Our results indicate that such measures may also capture deceptive self-presentation (Goffman, 1959; Hill et al., 2014; Pan et al., 2018) or (potentially strategically) *displayed* overconfidence. As reflected by the low correlation between the two measures, however, option-based measures may identify the intrinsic bias more closely and be rather free from 'cheap talk' (Farrell and Rabin, 1996) and low-cost versions of impression management due to their inherent tie to CEOs' personal wealth. While beyond the focus of this study, a future inquiry into the boundaries of these established proxies could therefore prove particularly insightful: To what degree do existing measures capture traces of CEO overconfidence, to what degree do they capture other strategic information content for the firm's stakeholders?

In the same regard, it might be possible to find support for a peculiar 'overconfidence conjecture:' Do those mechanisms of successor overconfidence that initially enhance

turnaround performance simultaneously favour false diagnoses and detrimental managerial behaviour in the long run? Does overconfidence exacerbate CEO obsolescence as their tenure increases (Henderson et al., 2006)? Thus, if boards choose to instal a '*maverick commander*' type of CEO in a crisis, should this be seen as an interim solution, such that overconfidence can, *ipso facto*, be considered a potential cure *and* a disease in turnaround situations?

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NOTES

[1] Extant research generally employs the terms 'overconfidence' and 'hubris' synonymously and relates them to a largely identical theoretical apparatus (e.g., Chen et al., 2015; Hill et al., 2012; Li and Tang, 2010). Yet, in contrast to 'mere' overconfidence, some authors additionally link hubris to retribution (Hayward and Hambrick, 1997) as, in Greek mythology, excessive hubris was regarded a sin that was punished by being struck down by the gods (Grimal, 1986). To aid 'building understanding in strategy research' by 'employing consistent terminology' (Hill et al., 2012, p. 187), we follow prior work in treating both concepts synonymously and adopt the term 'overconfidence' as the most frequent way to denote this construct (Chen et al., 2015) since our theorizing does not require retribution and also incorporates positive ramifications of overconfidence.

[2] As laid out by Chen and Hambrick (2012), this established definition follows the spirit of earlier work on turnaround situations, describing such instances as a context of 'declining financial performance subsequent to a period of prosperity' that induces severe organizational demise (Pearce and Robbins, 1993, p. 623), i.e., the case 'when performance declines and the survival of the firm is threatened' (Barker et al., 2001, p. 235). We explicate an analog, empirical operationalization in the methods sections.

[3] A strain of mind that occurs when individuals (here, overconfident CEOs) are confronted with inconsistent cognitive elements, such as their firm's performance decline despite their own, subjectively superior, capabilities (Festinger, 1957).

[4] For a comprehensive review of the literature on organizational decline and turnaround, please refer to Trahms et al. (2013) and Schweizer and Nienhaus (2017).

[5] We acknowledge there may be marginal changes in its markedness over a lifetime beyond the underlying inclination to be overconfident in life. However, as this study essentially represents an event study (turnaround situation), any marginal change would certainly materialize beyond the limited time frame assessed in this study. Accordingly, we seize upon this relatively stable nature (see, Chen et al., 2015; Malmendier and Tate, 2005) and treat overconfidence as a 'given' CEO attribute in the decision context we analyse (Hambrick and Mason, 1984).

[6] While not the paradigm of our study, a complementary argument could be made from an agency perspective. From this perspective, CEO duality facilitates the entrenchment of overconfident incumbent CEOs' (the agents') ill-suited crisis response, thus aggravating a classical principal-agent conflict (Berle and Means, 1932; Jensen and Meckling, 1976; Villalonga and Amit, 2006) through the increased ineffectiveness of the primary governance body (the board, i.e., the principal) over the CEO (i.e., the agent). We thank one reviewer for bringing up this additional perspective.

[7] Moreover, this argument holds even if we considered a more complex setting incorporating marginal temporal variance (i.e., within-CEO fluctuation) of confidence depending on task difficulty (the so called 'difficulty effect', see Griffin and Tversky, 1992; Tang et al., 2015a) around the CEO's relatively

stable (i.e., time-invariant), 'dispositional' level of confidence. In such a more complex conjuncture, the high situational difficulty of a turnaround situation would skew the (time-variant) distribution strongly towards *higher* degrees of (over)confidence, in addition to the general, dispositional level of (over)confidence, making the replacement of an overconfident incumbent CEO clinging to an inappropriate strategy even more necessary and thus beneficial. We thank one reviewer for highlighting this conjuncture.

[8] Given the challenges to gaining direct access to corporate executives for scholarly inquiry (Hambrick, 2007; Nadkarni and Chen, 2014) – particularly in situations as challenging and strenuous for CEOs as a turnaround situation (Chen, 2015) – periodic conference calls offer unique opportunities for researchers to observe and assess CEOs' contemporary assessment of organizational conditions in both their active representation of the company's situation as well as in their responses to critical analyst questions (DesJardine and Shi, 2021; Harrison et al., 2019; Matsumoto et al., 2011). Although portions of CEOs' statements – or responses to obvious questions – in such conference calls may be conceived and contrived in advance (thus potentially reducing the observable divergence between CEOs), Harrison et al. (2019, p. 1319) argue that 'CEOs' words […] in these calls are often ad hoc', and CEOs' assertions therefore tend to 'be relatively reflective of their cognitive processes' (Graf-Vlachy et al., 2020, p. 945) that can be observable throughout the entirety of such calls (DesJardine and Shi, 2021). As such, notable differences observable in the conference calls of overconfident CEOs as compared to their non-overconfident counterparts may in fact point to even more substantive differences behind closed doors. Moreover, the content of firms' conference calls is deemed particularly informative especially in times of crisis, because 'market participants will likely demand information about the reasons for the past poor performance (e.g., whether it is transitory) and plans for addressing the poor performance going forward' (Matsumoto et al., 2011, p. 1388) – rendering them uniquely suited in our research setting to explore CEOs' narrative of organizational decline.

[9] Beyond these themes cohering smoothly with our theorizing, we did not find systematic differences concerning alternative mechanisms across overconfident and non-overconfident CEOs. For example, we found quotes relatable to Hodgkinson and Healey's (2011) hot cognition / high affect mechanisms across both overconfident and non-overconfident CEOs in our sample.

[10] Prior literature on CEO overconfidence occasionally distinguishes whether an overconfidence measure is 'reflective' versus 'formative' in nature. In this regard, Chen et al. (2015, p. 1516) note that a central difference of reflective versus formative measures of CEO overconfidence is that reflective measures 'are not based on the assumption that the executive is aware of, or directly influenced by, the measure itself', which is, however, a central criterion of formative measures. While option-based measures are thus inevitably 'reflective' in nature (Campbell et al., 2011; Chen et al., 2015; Hirshleifer et al., 2012), prior work has employed both formative press-based measures that rely on the assumption that CEOs are aware of the press reports in question (Hayward and Hambrick, 1997) and reflective press-based measures that do not rely on this assumption (Chen et al., 2015; Malmendier and Tate, 2008). As the more prominent press-based assessment of CEO overconfidence (see, Hirshleifer et al., 2012; Hribar and Yang, 2016; Malmendier and Tate, 2008; Tang et al., 2015b, 2018), we employ the measure originally developed by Malmendier and Tate (2008) as reflective in nature and which, thus, 'is based on the premise that media reports are a reflection of the underlying characteristics of the executive, but makes no assumption regarding whether or not the executive is actually aware of this media coverage' (Chen et al., 2015, p. 1521). Yet, our MTB results suggest that market audiences seem to infer manifestations of CEO overconfidence based on CEOs' reflections in the press. This also suggests that, despite being conceptualized as reflective, this press-based measure entails a formative character with respect to the subsequent conclusions drawn from CEOs' press image by *externals*.

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