Why do executives commit 'fraud on the market'? Executive overconfidence and securities class actions*

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Abstract

Securities class actions (SCAs) often harm the subject firm's product market position and result in disciplinary actions against the CEO. This raises the question of why CEOs might engage in conduct that would give rise to a SCA. We propose one such explanation: executive overconfidence, which could cause an executive to recklessly, or intentionally, make imprudently overconfident statements or fail to disclose negative information, thereby exposing their companies to Rule 10b-5 SCAs. We hypothesize and show that CEO and non-CEO executive overconfidence increases the likelihood of a SCA. Managerial entrenchment worsens the impact of overconfidence whereas the enhanced monitoring and disclosure in SOX mitigates it. An exogenous reduction in incentive compensation, following SFAS 123R, appears to diminish overconfident CEOs' SCA-likelihood, potentially reflecting a decrease in risk-taking. Overconfidence has some impact on the likelihood of a post-SCA CEO turnover.

JEL Classification Code: G23, G32, G34
Keyword: Overconfidence, Securities Class Actions, Governance

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Abstract

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1 Introduction

Securities class actions have serious repercussions for firms and for executives. Firms that are sued often suffer in the product market (Johnson et al., 2014; Karpoff et al., 2008b) and have worse access to capital (Autore et al., 2014). Executives of these firms are exposed to disciplinary actions (Humphery-Jenner, 2012; Karpoff et al., 2008a). This begs the question of why an executive would risk such consequences. We propose one potential explanation: executive overconfidence. Overconfidence can cause executives to make imprudently positive statements and, anticipating favorable developments, to embellish financial reports – thereby exposing the firm to the risk of a securities class action. We suggest that CEO overconfidence is one, albeit not the only, driver of conduct leading to securities class actions.

Overconfident executives have, by definition, an overly positive view of their ability and of their company's prospects. This would manifest in the overconfident executive making excessively optimistic public statements about the company, or failing to disclose negative information in a timely manner (believing that they might be able to rectify this period of poor performance). Indeed, this is the logic behind the commonly used media-based measures of overconfidence (see e.g., Hirshleifer et al., 2012). However, should those statements prove to be falsely optimistic, the company risks becoming subject to a 10b-5 securities class action (SCA) in which shareholders sue for loss or damage arising by reason of relying on such information when purchasing stock. Exacerbating the risk of a class action lawsuit is that excessive optimism with regard to future performance could make the executives less concerned about shading their financial statements.

Our objective is to analyze whether, and in what circumstances, overconfident CEOs and non-CEO executives expose their companies to SCAs. For our analysis, we use a firm-year panel dataset from 1996-2012. We identify SCA-events using the Stanford Securities Class Action Clearinghouse (SCAC). We use option-based measures of overconfidence, focusing on the HOLDER67 measure (as in Malmendier et al., 2011), which classifies managers as overconfident if they refrain from exercising deep in-the-money (here 67% in-the-money) options.

The underlying logic is that an executive's personal wealth is often undiversified, so a rational executive would not hold deep in the money options. Recognizing the previously documented link between option-compensation and litigation-risk (Denis et al., 2006; Peng and Röell, 2008); and thus, the possibility of spurious correlation, we also check that the results are robust to news-based measures of overconfidence, and examine the role of exogenous changes in option-compensation for overconfident CEOs following SFAS 123R.

We first hypothesize and show that overconfident CEOs and executives expose their companies to SCAs. We examine the role of CEO overconfidence within a regression framework similar to that in Kim and Skinner (2012). These regressions utilize two-digit industry and year fixed effects, and control for other factors that might influence litigation-risk. Nonetheless, we also check that the results hold when using firm fixed effects and using different industry-definitions.[1] Our results indicate that overconfident CEOs' firms are about 25% more likely to be subject to a SCA than are other firms.[2] Further, the overconfidence of non-CEO executives increases the likelihood of a SCA and is in addition to the effect of CEO overconfidence. This evidence is consistent with the idea that overconfident executives are also more likely to expose their firms to a SCA by, for instance, making overly positive predictions about the firm that are not realized.

We then analyze a particular corporate event around which overconfidence might manifest itself: a seasoned equity offering ('SEO'). SEOs are events around which managers may fear a law suit, and potentially, attempt to reduce litigation-risk through under-pricing and/or accounting actions.[3] Overconfident CEOs are expected to overvalue their firms, leading them

[1]Requiring firm fixed effects significantly reduces the sample-size as many firms are sued only once or are never sued. Consequently, the main reported regressions use industry and year effects.

[2]This result comes from the marginal effects associated with the coefficient on CEO HOLDER67 in Table 3. Table 2 indicates that 4.5% of the non-overconfident observations feature a SCA (i.e., the litigation-risk of non-overconfident managers is 4.5%). The marginal effect on CEO HOLDER67 in Column 4 of Table 3 is 0.01. Thus, overconfident managers increase litigation risk by one percentage point to around 5.5%, after controlling for other corporate characteristics. The increase in litigation likelihood is higher when focusing on the marginal effect on CEO HOLDER67 in Column 4 of Table 3, which is 0.17. This represents an increase in litigation likelihood to around 6.2% for overconfident managers from around 4.5% for non-overconfident managers.

[3]Prior literature indicates that SEOs are one potential flash-point for shareholder litigation, especially if there is an accruals-reversal after the SEO, or an apparent performance-decline after the SEO (DuCharme et al., 2004). Prior literature has argued that CEOs may attempt to manipulate earnings around SEOs in

to issue stock only if they have a particularly positive view on the potential uses of the cash from the SEO. This suggests that overconfident CEOs would be more likely to make excessively, and recklessly, positive statements when undertaking a SEO. The statements could also be intentionally fraudulent if the CEO has an excessively positive view of the firm's longer-term prospects. The CEO may, for instance, be willing to conceal negative information in the (overconfident) belief that future performance would be strong enough to off-set it. Consistent with expectations, we find that firms with overconfident CEOs are more likely to be sued than are other firms, following a poorly performing SEO.

We next test the role of corporate governance in mitigating (or worsening) the impact of CEO overconfidence. We examine both proxies for poor governance (i.e., the Gompers et al. (2003) index of 'anti-takeover provisions') and an exogenous shock to governance (i.e., the passage of the Sarbanes-Oxley Act of 2002 (SOX)). We hypothesize and show that the improved monitoring following the passage of SOX moderates the impact of CEO overconfidence on SCAs. SOX significantly increased monitoring and disclosure, importantly forcing firms to have a majority independent board and a fully independent audit-committee, and requiring the CEO to personally sign-off on the firm's accounts. These changes would be expected to both improve corporate governance and expose the CEO to a wider range of independent view-points (thereby helping to moderate overconfident CEOs' views). Conversely, entrenched overconfident CEOs, as proxied by a preponderance of anti-takeover provisions (ATPs), are more likely to be sued (than are their non-overconfident counterparts).

Incentive contracts further influence the impact of overconfidence on SCA-likelihood. Compensating overconfident CEOs with option-based contracts has the potential to exacerbate the impact of overconfidence, encouraging overconfident CEOs to take yet more risks. Such additional risks could increase the likelihood that an overconfident CEO's company is sued. We find supportive evidence from the passage of SFAS 123(R). SFAS 123(R) is an exogenous shock to compensation contracts: It made option-compensation less attractive to firms,

order to avoid a sharp decline in earnings after the SEO; and thus, to mitigate the possibility of a law suit (Rangan, 1998). Law-suit avoidance is one argued explanation for underpricing in some SEOs (Ghosh et al., 2000).

thereby leading to a significant reduction in option-compensation (Hayes et al., 2012). We find that, following SFAS 123(R), there is a relative decline in the likelihood of overconfident CEOs' companies being sued under a SCA, as compared with those of other CEOs.

CEO overconfidence has some impact on post-SCA CEO turnover. Overconfident CEOs are more likely to leave their companies following a SCA than are other CEOs. Overconfident CEOs exposed to a SCA are also more likely to leave their companies than are their non-litigated counterparts. However, the impact of CEO overconfidence on post-SCA turnovers is concentrated in the set of non-entrenched CEOs. Specifically, overconfident CEOs that were internally appointed are no more likely to be fired following a SCA than are other CEOs, implying that the "insider" CEOs are more insulated from disciplinary action.

We take steps to mitigate econometric concerns that might otherwise influence a study of this type. These include (but are not limited to) the following. We examine the role of two exogenous events (SOX and SFAS 123R) in moderating the impact of CEO overconfidence. We expect both SOX and SFAS 123R to have a disproportionately greater effect on overconfident CEOs' litigation-likelihood: SOX because the actions of overconfident CEOs, more than other CEOs, are likely to be moderated as a result of greater external monitoring and oversight; SFAS 123R because overconfident CEOs, with the higher probabilities they assign to good outcomes, are likely to be more sensitive to risk-taking incentives. We do find that both exogenous events disproportionately affect overconfident CEOs, consistent with expectations. This tends to suggest that our results do not merely reflect endogeneity between SCA-likelihood and CEO overconfidence. Subsequently, these tests help to address identification-concerns, especially when coupled with the finding that overconfidence is moderated by other corporate characteristics in a manner consistent with expectations. We also undertake measures to address sample selection issues, including propensity score matching techniques. Further, we ensure that the results are robust to alternative measures of managerial overconfidence, including news-based measures (per Hirshleifer et al., 2012) and trading-based measures (per Kolasinski and Li, 2013). The results are also robust to 'adjusting' the overconfidence measure

for the firm's stock-performance.

The results contribute to the literature in several ways. First, we expand upon the prior SCA-literature by highlighting the influence of executives' behavioral characteristics (such as CEO overconfidence) on the likelihood of a SCA. Second, we provide additional evidence on the effect of SOX and corporate governance on both the impact of CEO overconfidence and the likelihood of SCAs. Third, we highlight the characteristics of CEOs that influence post-SCA disciplinary action, and explore further the circumstances in which CEOs are disciplined following a SCA. This provides additional context to the prior finding that firms tend to discipline CEOs following financial misstatements (see e.g., Karpoff et al., 2008a).

The structure of this paper is as follows. Section 2 both discusses the prior literature and presents the hypotheses. Section 3 describes the data and presents summary statistics. Section 4 presents the multivariate regression analysis that examines the relationship between executive overconfidence and SCAs. Section 5 concludes.

2 Hypotheses

A securities class action arises if the company, or an employee thereof, makes a materially falsely positive statement (or erroneously omits negative information) and shareholders subsequently suffer loss or damage by reason of relying on this misstatement. The shareholders typically do not need to prove that they relied on the misstatement (as the court assumes that they relied on the efficiency of the markets, which implicitly impounds all statements relating to the company).[4] Instead, it is generally sufficient for shareholders to prove that there is a false statement and that they purchased the shares after such a false statement. Thus, a 10b-5 SCA typically arises after one of the company's executives makes a positive statement that the company fails to actualize, or presents a positive prediction that fails to materialize. The plaintiff must also establish scienter, which is essentially that the defendant intentionally,

[4]This presumption of reliance originated in *Basic Inc. v. Levinson.* In June 2014, the United States Supreme Court upheld the validity of this presumption in *Halliburton Co. v. Erica P. John Fund, Inc.*

or recklessly, misled the market.[5] The following sub-sections discuss the relationship between overconfidence and the likelihood of a SCA.

2.1 Overconfidence and SCAs in general

We propose that overconfident executives are more likely to make such falsely positive statements. This is for at least four reasons:

First, as indicated, overconfident CEOs tend to over-estimate projects' returns and underestimate projects' risks. Additionally, as stated above, if the CEO makes a falsely positive statement (i.e., when promoting the firm's projects) and is reckless as to whether that statement is correct, then the firm can be liable for a SCA. Since making imprudently overconfident statements increases the chance of the CEO being found to be reckless, we expect that overconfident CEOs increase the likelihood of a SCA. Indeed, a track-record of overconfident behavior would help to establish a case that the CEO's statements were not merely 'negligent' (which would be insufficient to establish scienter), but were reckless.[6] We expect the above logic to apply mutatis mutandis to overconfident non-CEO executives.

Second, overconfident CEOs tend to over-invest (Malmendier and Tate, 2005, 2008). However, such investments often perform poorly (Kolasinski and Li, 2013; Malmendier and Tate, 2008), whereupon overconfident managers tend to adopt less conservative accounting practices, post-pone loss recognition (Ahmed and Duellman, 2013), and engage in earnings smoothing (Bouwman, 2014) and financial misstatements (Schrand and Zechman, 2012). Subsequently, Laux and Stocken (2012) present a theoretical model in which they argue that optimistic managers are more likely to (potentially inadvertently) misrepresent their investment prospects.

[5]For a discussion of scienter requirements see for example Bolger (1980). While the courts initially required the plaintiff to establish that the defendant intentionally mislead the market (i.e., by making a statement that he/she knew to be false), since *Ernst & Ernst v. Hochfelder* 425 U.S. 185 at 193 (1976), courts have accepted that it is sufficient to establish that the defendant acted recklessly (Bolger, 1980; Donelson and Prentice, 2012; Walker and Seymour, 1998). Further, Donelson and Prentice (2012) argue that PSLRA is premised on the sufficiency of establishing scienter by showing the defendant CEO was reckless.

[6]Courts have acknowledged that it is difficult to establish direct proof that the CEO intended to mislead or was reckless (*Clarke v. United States*, 132 F.2d 538, 540-41 (9th Cir. 1943)). Instead, the court will often determine scienter as "a matter of inference from circumstantial evidence" (*Herman & MacLean v. Huddleston*, 459 U.S. 375, 390 n.30 (1983).).

Relatedly, McTier and Wald (2011) indicate that over-investment (albeit, not necessarily involving overconfident CEOs), tends to be associated with increased litigation-risk.

Third, overconfident CEOs tend to have miscalibrated perceptions of the risk and return associated with investments (Ben-David et al., 2013). Thus, an overconfident CEO is more likely to believe (incorrectly) that the company will perform well enough that they will not be caught if they make a financial misstatement, or even if they are caught, the firm's stock price will not decline such that shareholders suffer a loss and instigate a Rule 10b-5 suit. Such beliefs appear to translate into overconfident CEOs producing less conservative accounting statements (Ahmed and Duellman, 2013). Overconfident CEOs also appear to fail to learn from their failure to meet such optimistic forecasts (Chen et al., Forthcoming). Thus, the overconfident CEOs' optimistic beliefs could result in recklessly optimistic representations as to the firm's future prospects.

Fourth, overconfident CEOs are more likely to omit negative information than are non-overconfident CEOs. A SCA can arise following the firm's failure to disclose negative information. An overconfident CEO, almost by definition, is more confident about his/her ability to rectify such negative outcomes. Thus, they would be slower to recognize negative information, giving rise to a SCA.

The foregoing reasons suggest that overconfident CEOs are more likely to make recklessly, or intentionally, falsely positive statements. Such actions, would then expose the firm to a SCA. Further, Overconfident, non-CEO senior executives, will exhibit similar tendencies and may likewise expose the firm to a SCA.

Hypothesis 1. *Companies with overconfident CEOs are more likely to be subject to a securities class action.*

Hypothesis 2. *Companies with overconfident senior, non-CEO, executives are more likely to be subject to a securities class action.*

2.2 SEOs, overconfidence, and litigation

We next explore one particular event around which firms are often typically considered to be especially wary of litigation: the issuance of equity. Equity offerings are particularly prone to precipitate law suits, especially if there appears to be a performance-decline after the SEO (DuCharme et al., 2004). This can encourage managers to attempt to ward off such law suits through actions such as under-pricing the SEO (Ghosh et al., 2000). We test whether overconfident CEOs are more prone to expose their companies to SCAs around such events than are other CEOs. As indicated above, we expect overconfident CEOs to be more likely to make positive statements that fail to materialize (and for such representations to be sufficiently reckless to establish scienter). This is likely to have a greater impact around a major corporate announcement, such as a SEO, around which there is a significant release of information and that has the potential to dilute the holdings of existing shareholders and reduce shareholder wealth if there is no off-setting value-creating investment. Reflecting this, the theoretical model in Laux and Stocken (2012) suggests that overconfident CEOs are likely to make misstatements when raising capital, reflecting their overly optimistic views about the firm's investment-prospects. DuCharme et al. (2004) indicate that misstatements around SEOs (as evidenced by the need to undertake accruals reversals) significantly increase the likelihood of a SCA. Thus, we expect that overconfident CEOs are more likely to be sued following a SEO than are other CEOs. However, we also expect that litigation-risk will reduce if the market responds more favorably to the SEO. Thus, we make the following predictions.

Hypothesis 3. *Overconfident CEOs are more likely to be sued following a SEO than are other CEOs.*

Hypothesis 4. *The likelihood that an overconfident CEO is sued following a SEO (relative to that of other CEOs) decreases if the stock market responds relatively more positively to the SEO announcement.*

2.3 Governance

Improvements in internal governance should reduce the likelihood that an overconfident CEO's company is sued. Monitoring by non-CEO executives and directors can mitigate the likelihood of securities fraud in general (Choi et al., 2013; Khanna et al., 2013). Higher quality boards are also associated with improved disclosure-quality (Reeb and Zhao, 2013). Additionally, one way to attenuate the impact of a CEO's behavioral biases is by improving independent oversight and exposing the CEO to a more diverse set of view-points. The Sarbanes-Oxley Act of 2002 (SOX) was enacted in response to corporate scandals that connoted both unethical behavior and CEO hubris. The passage of SOX represents an exogenous shock to internal corporate governance, forcing companies to adopt a majority-independent board and a completely independent audit committee.

There are at least three key aspects of SOX that would be expected to mitigate the impact of CEO overconfidence on SCA-likelihood. First, SOX would force an overconfident CEO to consider the alternative view-points when making decisions, thereby attenuating his/her tendency to make reckless statements. Second, SOX increases oversight, creating more checks and balances over financial statements. For instance, Duarte et al. (2014) argue that SOX reduces the discretion that insiders have as evidenced by (inter alia) restrictions on extracting wealth from minority shareholders, implying that SOX would reduce an overconfident CEO's discretion to act on their biases when making investments. This increase in oversight could, in and of itself, lead to a reduction in misreporting.[7] Third, SOX forces CEOs to sign-off on financial reports, presumably forcing CEOs to reflect more upon the company's true financial state. Thus, while there is some evidence that SOX does not per se reduce litigation likelihood (see e.g., Malm and Mobbs, 2014), we expect that it could do so in companies that could benefit from additional independent oversight and monitoring. That is, we expect that after SOX, overconfident CEOs' companies are less likely to be sued than before SOX. We capture the prediction in the following hypothesis.

[7]Dimmock and Gerken (2014) suggest that improvements in SEC oversight significantly reduced misreporting in the hedge fund sector.

Hypothesis 5. *SOX reduces the likelihood that an overconfident CEO's company is subject to a SCA.*

Managerial entrenchment is likely to exacerbate the impact of CEO overconfidence on the likelihood of a SCA. After a SCA, managers tend to become susceptible to disciplinary actions, such as a loss of compensation and a worsening of job prospects (Humphery-Jenner, 2012; Karpoff et al., 2008a). Ordinarily, the risk of disciplinary action would cause a CEO to exercise caution when issuing statements about investment prospects, even if the CEO is otherwise overconfident. However, if the CEO is entrenched (i.e., due to a preponderance of anti-takeover provisions), then it is likely that the CEO would exercise less caution. Thus, we expect that overconfident CEOs that are entrenched are more likely to be subject to a SCA.

A core aspect of managerial entrenchment is the presence of anti-takeover provisions (ATPs). ATPs insulate managers from the market for corporate control, which would otherwise function to discipline them for poor performance. ATPs are associated with lower firm value (Bebchuk et al., 2009; Gompers et al., 2003), and worse performance when making investments such as takeovers (Harford et al., 2012; Masulis et al., 2007). It is true that prior evidence documents only a weak relationship between measures of anti-takeover protection and takeover-deterrence (Bates et al., 2008); however, a preponderance of ATPs is still associated with worse governance and oversight (see e.g., Harford et al., 2012), suggesting a degree of 'entrenchment' from discipline in general. Therefore, given our expectation that poor governance worsens the impact of CEO overconfidence on SCA-likelihood, we expect entrenchment to increase the likelihood that an overconfident CEO's firm is subject to a SCA. This leads to our next hypothesis.

Hypothesis 6. *Managerial entrenchment, as proxied by a preponderance of anti-takeover provisions, increases the likelihood that an overconfident CEO is subject to a securities class action.*

2.4 Overconfidence, compensation, and SCAs

Compensation contracts are likely to influence the likelihood that an overconfident CEO exposes the company to a SCA. Peng and Röell (2008) suggest that options-based compensation can be associated with increased litigation likelihood. This reflects both the increased risk-taking that option compensation encourages, and managers' increased tendencies to manipulate stock prices. In particular, risk taking by overconfident CEOs is likely to be exacerbated by option-based incentives. It follows, therefore, that a reduction in the option-based incentive to take risk is likely to result in a greater reduction in SCA-likelihood for overconfident CEOs.

We capture the reduction in risk-taking incentives by examining an exogenous shock to option-compensation, as manifested by the passage of SFAS 123(R). SFAS 123(R) came into effect in December 2005. It changed the way companies could expense options. Prior to SFAS 123(R), companies could expense options at their intrinsic value. This advantaged companies because they often granted at-the-money options, which they could treat as having no intrinsic value prior to SFAS 123(R). However, after SFAS 123(R), companies had to record option compensation at fair value, making options less attractive to companies (see e.g., Hayes et al., 2012). Thus, we anticipate that the passage of SFAS 123(R) will reduce, to a relatively greater extent, the likelihood that an overconfident CEO's company is sued. Thus, we state the following hypothesis.

Hypothesis 7. *An exogenous reduction in option-based compensation will reduce the likelihood that an overconfident CEO's company is sued.*

2.5 Post-SCA disciplinary action

We expect that overconfident CEOs are more likely to be disciplined following a SCA. SCAs, and corporate frauds in general, tend to reduce shareholder wealth: they often involve a reputational penalty for the firm (Karpoff and Lott, 1993), which can have negative product market implications (Johnson et al., 2014; Karpoff et al., 2008b). Subsequently, firms might seek to discipline managers that expose them to such penalties. Prior literature suggests

that securities fraud can result in disciplinary action against executives (Aharony et al., 2014; Humphery-Jenner, 2012; Karpoff et al., 2008a). To the extent that securities fraud following overconfident CEOs' misstatements is more directly attributable to that CEO, we would expect overconfident CEOs to be more likely to be fired than other CEOs. We would also expect that a SCA would increase the likelihood that an overconfident CEO is fired. Thus, we make the following prediction.

Hypothesis 8. *Overconfident CEOs who are subject to a SCA are more likely to be fired than are other CEOs.*

We expect that overconfident CEOs with more 'power' and/or 'connections' are less likely to be fired. Khanna et al. (2013) and Choi et al. (2013) argue that the CEO's ties to other executives and to the board exacerbate the likelihood of corporate fraud. They suggest that the more accommodating directors/executives engage in less effective monitoring and oversight. By parity of reasoning, a CEO who is more entrenched with the board is less likely to be disciplined by that board. Specifically, if the CEO was an internal candidate (as opposed to an external appointee), then he/she is more likely to be entrenched vis-à-vis the board, so would be less likely to be dismissed following a SCA. We would also expect that CEOs in firms that are more entrenched (as proxied by a preponderance of ATPs) would be less likely to be disciplined as the boards in those firms would be less sensitive to external market pressure. Thus, we predict the following:

Hypothesis 9. *Overconfident CEOs that are more entrenched are relatively less likely to be dismissed following a SCA.*

3 Data

We create a firm-year panel data-set in which to examine the likelihood that a firm is subject to a securities class action in a given year. We start with the set of all companies in the

CRSP/Compustat universe. We then match this data with executive-level data from Execucomp, which we use to identify if the CEO is overconfident. Subsequently, we obtain data on whether the firm is subject to a SCA in each year by collecting such data from the Stanford Securities Class Action Clearing House (SCAC). We further collect data to compute various control variables that prior literature has used when examining litigation-likelihood (see e.g. Kim and Skinner, 2012). Relatively few of the firms in our sample are sued more than once. The exact number of repeat-defendants varies across model specifications (i.e., with the control variables that we require), being between 174 and 194 observations out of a sample of over 22,000 observations involving 1,375 law suits. The results are robust to eliminating such repeat SCA-targets from the sample.[8] In the reported models, we follow Kim and Skinner (2012), and use firm and two-digit industry fixed effects. However, in Section *4.7* we check that the results are robust to using firm fixed effects and to industry-definition.

We use option-based measures of overconfidence. In robustness tests, we also check that the results are robust to news-based measures of overconfidence. The idea behind option-based measures of overconfidence is that a CEO's personal wealth is undiversified, with his/her human capital being tied to his/her company. Consequently, a rational CEO would exercise his/her options as and when they vest. An overconfident CEO would hold options, especially deep in the money options, for an extended period. We capture this by collecting data on the number and value of the CEO's vested options. We start by constructing the CONFIDENCE measure as "average-value-per-option/average-strike-price" (as per Malmendier et al., 2011), where the average-value-per-option is the total value of the CEO's option-holdings (Execucomp: opt_unex_exer_val) scaled by the number of such options (Execucomp: opt_unex_exer_num). The average-strike-price is the firm's stock price at the end of the fiscal year (CRSP: prcc_f) less the value-per option.[9] We then construct two indicator variables: CONFIDENCE_TOPQ is an indicator that equals one if the CEO's CONFIDENCE variable is in the top quartile of all CEO's in that year. HOLDER67 is the Malmendier et al.

[8]We discuss these results in detail in the robustness section.

[9]This computation works on the idea that the value per option is roughly $S_t - X$, where S_t is the prevailing stock price at time t and X is the strike price. Thus, the average strike price is roughly $X = S_t - (S_t - X)$

(2011) HOLDER67 measure (computed using publicly available data), which is an indicator that equals one if the CONFIDENCE variable is at least 0.67 on at least two occasions (in which case HOLDER67 equals one from the first time that CONFIDENCE is at least 0.67).

The HOLDER67 measure has some advantages in this context over other measures of overconfidence. The LONGHOLDER measure (which essentially looks at the CEO's decision whether to exercise options in their last year of life) and the Kolasinski and Li (2013) trading-based measure both rely on CEOs' decisions vis-à-vis trading in options and stock. However, Bradley et al. (2014) highlight that CEOs may exercise options (and by parity-of-reasoning, trade stock) around SCA filings. Thus, in this context, such trading/exercise based measures may reflect other decisions rather than just CEO overconfidence. Nonetheless, in robustness tests (see Section *4.7*) we ensure that the results are robust to using both media-based and Kolasinski and Li (2013) trading-based measures of overconfidence.

In order to analyze the relationship between CEO overconfidence, SEOs, and SCAs, we also collect data on secondary offerings. The data is from SDC Platinum. We also compute the CAR following the SEO using data from CRSP. The CAR is the cumulative abnormal return over the period 30 days to 360 days after the SEO. The CAR is based on an OLS estimation of the market model computed over the prior year.

When analyzing the relationship between entrenchment, overconfidence and the likelihood of a SCA, we measure managerial entrenchment by collecting data on the firm's anti-takeover provisions (ATPs) from IRRC/RiskMetrics. We can obtain data from 1990 onwards for a sub-set of the firms (IRRC/RiskMetrics does not cover all firms in our sample). We construct both the Bebchuk et al. (2009) EINDEX and the Gompers et al. (2003) GINDEX. IRRC/RiskMetrics significantly changes their reporting after 2006, making it inaccurate to compute a GINDEX for observations after 2006, using post-2006 data. Thus, for all post-2006 observations, we back-fill the GINDEX with the value for the most recent prior year. Further, as IRRC/RiskMetrics does not report ATPs in all years, especially early in the sample, for missing years we back-fill data from the most recent prior year (as per Masulis et al., 2007).

The sample composition by year is in Table 1. The table indicates that the sample size is relatively stable over time. Approximately half of the CEOs in the sample are overconfident (i.e., have HOLDER67 equal to one). This is similar to the proportion of overconfident CEOs in prior studies using this measure (see e.g., Malmendier and Tate, 2005, 2008; Malmendier et al., 2011). Around 65% of all law suits involve overconfident CEOs (i.e., if the company is sued, then it is around 1.8 times as likely that the CEO is overconfident than non-overconfident). The proportion of suits that involve overconfident CEOs fluctuates over time.

[Table 1 about here]

The summary statistics are in Table 2. We report statistics for the full sample and for the sub-samples of companies run by overconfident CEOs. The summary statistics are relatively standard and are consistent with expectations. Interesting results in Panel A are that there is a significant negative stock-price run-up before the announcement of a SCA. The negative run-up is more severe for companies run by overconfident CEOs. Overconfident CEOs' companies are also more likely to be sued and to suffer more negative long-run post-SCA returns. There are some significant differences between overconfident CEOs' firms and non-overconfident CEOs' firms (viz Panel C). Interestingly, the level of anti-takeover provisions (ATPs) is approximately similar for both overconfident and non-overconfident firms (the Gompers et al. (2003) index is between 9.1 and 9.4, on average for both the overconfident and non-overconfident firms). In robustness tests (described below) we take steps to mitigate any concern that the results merely reflect systemic differences between overconfident CEOs' firms and non-overconfident CEOs' firms.

[Table 2 about here]

4 Analysis

This section presents the multivariate regression analysis. We begin by analyzing the relationship between CEO and non-CEO executive overconfidence and SCAs. We then explore

the relationship between overconfidence, SEOs and SCAs. Next, we explore how governance, entrenchment, and CEO compensation can moderate the relationship between overconfidence and SCAs, with improved governance helping to mitigate the impact of CEO overconfidence. Finally, we explore whether overconfident CEOs are more likely to be disciplined (as proxied by them leaving the company) following a SCA.

4.1 Executive overconfidence and the likelihood of a SCA

We begin by testing the hypothesis that overconfident CEOs' firms are more likely to be sued. We analyze the relation between CEO overconfidence and litigation likelihood in Table 3. The control variables are based on the models in Kim and Skinner (2012, Table 7, Table 8). The regression models in Table 3, and in subsequent tables, are logit regressions with year and SIC two-digit industry fixed effects (as per Kim and Skinner, 2012). The year fixed effects help to mitigate the impact of legal changes over time, such as PSLRA, that can influence SCA-likelihood (see e.g., Choi et al., 2009). The industry fixed effects help to address prior evidence that industry-conditions can influence fraud-propensity (Wang and Winton, 2014; Wang et al., 2010). If we use firm and year fixed effects, we obtain qualitatively similar results to those in Table 3. This tends to suggest that our results are not merely capturing a 'firm' effect and that changing the level of CEO-confidence at a given firm can result in a change in SCA-likelihood. However, the sample size falls to around 5,000 observations (from around 20,000) observations as many companies never experience a SCA, and many companies experience only one SCA.

The important finding in Table 3 is that CEO overconfidence is significantly and positively related to the likelihood of the company being sued, supporting Hypothesis 1. This result is economically significant. Table 2 indicates that 4.5% of non-overconfident CEOs are subject to a SCA. The marginal effect associated with CEO HOLDER67 in Column 4 of Table 3 indicates that overconfident managers are one percentage point more likely to be sued than are non-overconfident CEOs. This represents an increase in litigation risk of nearly 25% for

overconfident CEOs relative to non-overconfident CEOs (after controlling for other corporate characteristics).

The coefficients on the control variables are largely consistent with expectations and with prior literature (see e.g., Choi, 2006; Field et al., 2005; Kim and Skinner, 2012). Insider trading is not significantly related to SCA-likelihood. This is consistent with prior findings that there is little abnormal insider trading prior to SCAs (Niehaus and Roth, 1999). Institutional ownership is positively related to SCA-likelihood. This likely reflects the role of institutional investors in monitoring firms (and disciplining firms for misconduct), especially in light of SCA-reforms that emphasize the presence of a lead plaintiff (i.e., an institutional investor) to pursue the case (Perino, 2012, 2014). It is also consistent with prior evidence that some institutional shareholders tend to pay lower attorney-fees when litigating (Choi et al., 2011). Firms that raise equity tend to be more likely to be sued. This is unsurprising given the prior evidence on litigation (or at least companies' fears thereof) around equity issuance. The relationship between stock-returns and SCAs is unsurprising. Firms with lower stock returns and more volatile stock returns are more likely to be sued (as in Arena and Julio, 2011; Choi, 2006; Gande and Lewis, 2009; Jones and Weingram, 1996). Both results are consistent with the idea that a 10b-5 case will be successful only if the shareholder suffered a loss after they purchased the stock. This is easier to show if the stock price decreases.

Corporate fundamentals are also related to litigation-likelihood. Larger firms are more likely to be sued, likely representing the fact that larger firms have more assets with which to meet any litigation payout. Similarly firms with higher ROA and sales growth are more likely to be sued. This is consistent with prior evidence that large cash holdings can render firms vulnerable to litigation-like disputes with unions (Klasa et al., 2009). Conversely, higher levels of PP&E reduce SCA-likelihood (after controlling for the firm's asset-size). This would reflect the fact that PP&E cannot be easily converted into cash in order to meet a litigation-payout, making the company a less attractive target.

[Table 3 about here]

We next examine the relationship between non-CEO executive overconfidence and the likelihood of a SCA. We analyze the overconfidence of all executives for the firm in execucomp (TEAM HOLDER67, in Table 4, Panel A), non-CEO executives (OTHER EXEC HOLDER67, in Table 4, Panel B), senior executives (SR HOLDER67, in Table 4, Panel C), and junior executives (JR HOLDER67, in Table 4, Panel D). the main finding is that the overconfidence of the overall team (i.e., Panel A), non-CEO executives (i.e., Panel B) and senior executives (i.e., Panel C) significantly increases the likelihood of a SCA. However, the overconfidence of junior executives (i.e., Panel D) does not. This result likely reflects the fact that it is mainly senior executives who are involved is high-level decision making (and associated press-statements). The results support the predictions in Hypothesis 2.

[Table 4 about here]

4.2 CEO overconfidence, SEOs, and SCAs

We anticipate that overconfident CEOs are more likely to be sued following a SEO than are other CEOs. We expect (in Hypothesis 3) that because overconfident CEOs have a more positive view of their firms' prospects, they are more likely to make positive statements around SEOs that subsequently are not met. We capture this by examining whether overconfident CEOs are more likely to be sued following a SEO than are other CEOs. We further look at the sub-set of firms that do conduct SEOs, and examine the impact of the market's reaction on SCA-likelihood (following our prediction in Hypothesis 4). To do this, we collect data on SEOs from the SDC new issues database. We also calculate the cumulative abnormal return (CAR) following the SEO over the period of 30 to 360 days after the SEO. The CAR is based on an OLS estimation of the market model over the prior trading year.

The results are in Table 5. Columns 1-2 examine the impact of the firm undertaking a SEO in year $t-1$. Columns 1-2, indicate that overconfident CEOs are not more likely to be sued following a SEO than are other CEOs. However, Columns 3-6 show that a relatively positive stock market reaction to the SEO significantly reduces the likelihood that an overconfident

CEO is sued. Columns 5-6 further require that there is no overlap between the SEO return-period and the SCA announcement. The results suggest that if the market reacts more positively (or at least less negatively) to the SEO-announcement, then the overconfident CEO is less likely to be sued than would otherwise be the case. One possible explanation for this result is that the impact of CEO overconfidence depends on how the market responds to the SEO. That is, we conjecture that it is mainly in those cases where the overconfident CEO has made positive statements (which fail to materialize), and the SEO subsequently underperforms, that the firm is sued. This is consistent with the notion that law suits are less likely when investors are favorably disposed to the SEO – and the manager may not feel the need to make overly positive statements to persuade investors about the firm's prospects.

[Table 5 about here]

4.3 SOX, CEO confidence and the likelihood of a SCA

We expect that SOX ameliorates the impact of managerial overconfidence on SCA-likelihood (Hypothesis 5). We analyze this by interacting the CEO-overconfidence measures with a POSTSOX dummy that equals one if the observation post-dates SOX and equals zero otherwise (i.e., is equal to one if the observation occurs in 2002 or later). When examining SOX, we restrict the sample to be six years on either side of SOX (i.e., 1996-2008). We use a POSTSOX indicator, rather than splitting the sample by whether the firm was previously compliant with SOX's governance provisions, because SOX impacted even compliant firms through (inter alia) requiring CEOs to personally sign-off on financial reports, by increasing audit-stringency, and by enhancing internal controls (see e.g., Arping and Sautner, 2013). Put differently, SOX could improve governance both through its board-compliance provisions and through the increased SEC/regulatory oversight.[10]

The results are in Table 6. The coefficient on the POSTSOX dummy is positive and significant, potentially suggesting that the climate of increased scrutiny was associated with

[10]For example, related work indicates that SEC oversight significantly improved hedge fund governance and reporting (Dimmock and Gerken, 2014).

an increase in litigiousness. This finding is consistent with the results vis-à-vis securities litigation in Malm and Mobbs (2014). The CEO overconfidence variables remain positively associated with SCA-likelihood. The interaction terms of the POSTSOX dummy with the overconfidence measures are negative and usually statistically significant. They are also larger in magnitude than are the coefficients on the POSTSOX dummy. This implies that whereas SOX was associated with an increase in litigation in general, SOX appears to have reduced litigation-risk for firms run by overconfident managers, relative to firms run by other CEOs. This is likely because the increased monitoring through improved internal governance reduced the capacity of overconfident CEOs to make misstatements, and the requirement on CEOs to personally certify financial statements forced overconfident CEOs to reflect on the realism of their overconfident beliefs. The results are consistent with the prediction in Hypothesis 5.

The results are unlikely to suffer from biases vis-à-vis firms being exempt from SOX as our sample comprises only Execucomp (i.e., S&P 1500) companies whereas SOX exemptions apply only to small companies.[11] Further, the SOX results are unlikely to merely reflect an increase in litigation following the dot-com crash: the reported models include industry effects and we obtain qualitatively similar results (unreported) if we exclude 'high tech' firms or IT firms as defined following Loughran and Ritter (2004). Further, the regressions include industry fixed effects, which would mitigate the impact of the dot-com crash as any related litigation would concentrate in particular industries.

[Table 6 about here]

We supplement the results in Table 6 by examining subsamples of firms from before and after SOX. In Table 7, we split the sample into the pre-SOX period (1996-2001) and the post-SOX period (2002-2008) and examine the impact of CEO overconfidence on litigation likelihood. The core finding is that whereas overconfidence significantly increases litigation-risk in the pre-SOX period, it only insignificantly does so in the post-SOX period (after including the full set of controls). This suggests a significant change in the impact of CEO

[11] For example, the exemption from Section 404(b) applies only to companies with a market capitalization of under $75 million.

overconfidence around SOX.

[Table 7 about here]

We further explore the extent to which the results vary with whether the firm complied with SOX's board-independence and audit-committee independence requirements prior to its passage. As indicated above, board compliance is not the only avenue through which SOX could influence manager behavior – SOX was associated with improvements in auditing and reporting as well. Nonetheless, we obtain data on the firm's directors from RiskMetrics. We then determine if the firm was compliant with SOX before its passage (as evidenced by a majority independent board and an independent audit chair). We then split the sample into compliant and non-compliant groups. When undertaking the analysis we restrict the sample to six years either side of SOX (1998-2006). We report the results for this split in Table 8. Panels A and B look at the compliant and non-compliant sub-samples. The main finding is that the results vis-à-vis the interaction term are more statistically significant for the non-compliant sub-sample (though the interaction is not significant in all models). None of the interaction terms are statistically significant for the compliant sub-sample. This provides some suggestive evidence that the impact of SOX mainly concentrates in the set of firms that were non-compliant (i.e., that were most impacted by its passage).

[Table 8 about here]

4.4 Managerial entrenchment, CEO confidence and the likelihood of a SCA

We expect that overconfident CEOs that are more entrenched will have a higher litigation risk than will those that are not entrenched (see Hypothesis 6). We report results that focus on the Gompers et al. (2003) GINDEX and an indicator that equals one if the GINDEX is in the top quartile (i.e., above 11). We obtain similar results when using the Bebchuk et al. (2009) EINDEX. As indicated in Table 2, the level of managerial entrenchment is approximately equal, on average, for both overconfident and non-overconfident firms.

The results are in Table 9. We suppress control variables for brevity. However, Columns 1-4 contain the control variables from Columns 1-4 of Table 3, respectively. The key finding is that if the firm is entrenched, then an overconfident entrenched CEO is more likely to be sued than is a non-overconfident one. We report regressions that focus on an GINDEX TOPQ, an indicator that equals one if the GINDEX is in the top quartile. The results are qualitativley similar if we use the continuous variable (GINDEX) or the Bebchuk et al. (2009) EINDEX. Entrenchment itself is associated with a reduced likelihood of a SCA. This likely reflects the 'quiet life' theory behind entrenchment, whereby entrenched managers take advantage of their insulated position to shirk and reduce risk (Bertrand and Mullainathan, 2003; Low, 2009), thereby reducing the chances for risk-induced failure and reducing the likelihood of a SCA. However, overconfident CEOs off-set this effect, with overconfident CEOs increasing the likelihood of a SCA in entrenched companies. This suggests that compared with non-overconfident CEOs, overconfident CEOs, are more likely to exploit their entrenched position to engage in additional risk-taking.

[Table 9 about here]

4.5 Compensation, CEO confidence and the likelihood of a SCA

The hypothesis (in Hypothesis 7) is that compensation structures can influence the impact of CEO overconfidence on litigation-likelihood. Specifically, we expect that overconfident CEOs that are incentivized to take risk will be more likely to be sued. We examine this empirically by analyzing an exogenous reduction in option compensation following SFAS 123R using the POSTFAS indicator (an indicator that equals one if the observation is in 2005 or later). By changing the accounting-rules relating to option-compensation, SFAS 123R reduced the attractiveness of paying CEOs with options and resulted in a significant reduction in option compensation (Hayes et al., 2012).Thus, we anticipate that the passage of SFAS 123R will be associated with a greater reduction in litigation-likelihood for overconfident CEOs than for other CEOs. However, we would expect this effect only for the sub-group of CEOs with

relatively high levels of option-compensation.

The results are in Table 10 and are consistent with expectations. We split the sample into the set of CEOs whose option intensity (i.e., portion of compensation paid in the form of options) is in the top quartile. We find that SFAS 123R is associated in a reduction in the likelihood of a SCA only for the set of overconfident CEOs with high levels of option compensation. That is, while CEO HOLDER67(t-1)*POSTFAS is negative and significant in the high-option-compensation sub-sample, it is insignificant with the low-option-compensation sub-sample. These results suggest that adjusting CEOs' compensation contracts could reduce the likelihood that an overconfident CEO contributes to the occurrence of a SCA.

[Table 10 about here]

4.6 Post-SCA disciplinary action

We anticipate that overconfident CEOs who experience a SCA are more likely to leave the company after the SCA than are their non-litigated counterparts (Hypothesis 8). When we explore this, we look at all CEO turnovers (not conditioned on the stated reason for the departure). This is because it is plausible that a CEO might 'decide' to retire early after losing the support of the board, making it unclear precisely whether the turnover is forced or voluntary. To the extent that the analysis captures some voluntary turnovers, this would make it *more* difficult to find a relationship between SCAs, overconfidence and turnover.

The results support our predictions. In unreported tests, we do find that a SCA is positively related to CEO turnover (as in Aharony et al., 2014; Humphery-Jenner, 2012; Karpoff et al., 2008a). In Table 11 we report the interaction of the SUED indicator with CEO HOLDER67. There are several interesting findings. First, in Columns 1-4, if the firm has not experienced a SCA, then overconfident CEOs are less likely to leave the company. However, after we control for GINDEX in Columns 5-8, CEO overconfidence is generally insignificantly related to CEO turnover. Conversely, if the firm has an overconfident CEO, then he/she is significantly more likely to leave the company if there is a SCA.

Second, if the firm has experienced a SCA, then it is mainly the overconfident CEOs that are subsequently removed. That is, the coefficient on the SUED(t) indicator is negative and significant whereas the interaction CEO HOLDER67(t-1)*SUED(t) is positive and significant and of slightly larger magnitude. This suggests that firms consider the nature of their CEOs when deciding whether to remove them after a SCA. That is, firms are more likely to hold overconfident CEOs responsible for the SCA.

[Table 11 about here]

We further explore which overconfident CEOs are more vulnerable to post-SCA disciplinary action. We do this by splitting the sample into the set of CEOs that were internally appointed and the set of CEOs that were externally appointed. The internally appointed ones are more likely to be insiders, with greater power (vis-à-vis the board) and greater entrenchment. We then analyze whether overconfident CEOs that are entrenched are less likely to be removed following a SCA than are other CEOs. We present the results in Table 12. Columns 1,2,5,6 analyze the impact of SCAs on the removal of CEOs that were internally appointed (i.e., where the individual that was CEO at the time of the SCA was internally appointed). Columns 3,4, and 7,8 do likewise for externally appointed CEOs. The results are consistent with our predictions: overconfident CEOs that were internally appointed are no more likely to be disciplined than other CEOs. By contrast, overconfident CEOs that were externally appointed are significantly more likely to be disciplined than are other CEOs.

[Table 12 about here]

We additionally split the sample by whether the company is entrenched as proxied by the firm's GINDEX. We define entrenched companies as those for which the firm's GINDEX is at least 10 (per Masulis et al., 2007). The results are in Table 13. Columns 1-4 of Table 13 contain the control variables from Columns 1-4 of Table 11, respectively. The main finding is that in non-entrenched companies (i.e., with GINDEX ≤ 10), overconfident CEOs are more likely to be removed following a SCA, whereas in entrenched companies they are not. This suggests that stronger corporate governance plays a key role in disciplining overconfident CEOs.

[Table 13 about here]

4.7 Addressing alternative explanations and robustness tests

Media-based measures of overconfidence: The main reported models use the option-based measure of overconfidence. However, prior literature does show that there is a relationship between compensation-structures and litigation-risk (see e.g., Peng and Röell, 2008). This raises the possibility that option-based measures of overconfidence merely reflect the impact of the CEO's compensation structure. We argue that this is unlikely to be the case because (1) the option-based measures of overconfidence are derived from the CEO's behavior vis-à-vis those options, not merely from the receipt of options per se, and (2) we also find that the impact of option-compensation on litigation-likelihood is separate and distinct from the impact of overconfidence. Specifically, when analyzing SFAS 123R, we find that a reduction in option-compensation (following the accounting-rule change) reduces the impact of overconfidence on litigation-likelihood, implying that it has a separate (albeit complementary) impact from overconfidence. Nonetheless, we check that the results are robust to alternative measures of overconfidence.

An alternative way of measuring overconfidence is through media-based measures (per Hirshleifer et al., 2012). We ensure the results are robust to a 'net news' measure. We construct this measure by hand-collecting news-based data between 2000 and 2006 from Factiva. To do this, we search for newspaper reports that refer to the CEO as 'confident', 'optimistic', 'positive' (for confident news) as opposed to reports that refer to the CEO as 'not confident', 'not optimistic', 'not positive', or 'cautions' (for non-confident news). We then construct a 'net news' measure as the number of confident reports less the number of non-confident reports. We report the baseline models using the media-based measure in Table 14.[12] The results are qualitatively similar to the reported results: overconfident CEOs are more likely to be subject to a SCA than are other CEOs.

[12]In unreported tests, we find that the results are qualitatively similar if we twice-lag the media-measure to further obviate any concern about feedback between the SCA and the single-lagged media-measure.

[Table 14 about here]

Systematic differences and panel models: We also ensure that the results are robust to modeling technique. One concern is that there might be systematic differences between companies that are subject to a SCA and those that are not sued. We mitigate this by using propensity score matching techniques. We present these results, in additional to panel regressions, in Table 15. For brevity, we only report the results for one model specification.

Columns 1-6 use different propensity score techniques. Columns 1-3 match firms with overconfident CEOs to firms with non-overconfident CEOs. Column 1 contains a first-stage regression that predicts the likelihood that the firm has an overconfident CEO (as a function of firm-characteristics). Column 2 matches the control sample of non-overconfident firms with the set of overconfident firms as follows. We obtain the set of propensity scores from Column 1. Next we construct a distribution of propensity scores for the set of overconfident firms. Then we identify the 10^{th} percentile cut-off. Finally, we estimate the regression (in Column 2) omitting any non-overconfident firm whose propensity score lies below this 10^{th} percentile cut-off. In Column 3 we undertake one-to-four nearest neighbor matching. This functions by running the aforementioned first-stage model and obtaining the propensity scores from that model. The second-stage then retains the treatment firm and the nearest four control firms (which have the smallest difference in propensity score with the treatment firms). Columns 4-6 follow a similar process but matches sued firms with non-sued firms. In all cases we find that overconfident managers' firms are more likely to be sued. We obtain similar results (unreported for brevity) if we undertake one-to-one matching (instead of one-to-four matching) or if we use a different percentile cut-off instead of the 10^{th} percentile (e.g., the results are robust to using the 5^{th} and 15^{th} percentiles).

In Column 7, we report a regression that uses firm and year fixed effects. Using firm fixed effects significantly reduces the sample size. Nonetheless, our baseline results hold if we use firm fixed effects.

[Table 15 about here]

Ranking of 'senior' and 'junior' executives: The models in Table 4 split the executives into 'senior' and 'junior' executives based on the executives' titles. An alternative way to split executives is based on their salary. We do this by identifying the four highest remunerated executives (as compared with the other executives) at each firm. We then re-run the models from Table 4 but use the Top 4/Non-Top 4 split. We report the results in Table 16. The results are qualitatively similar to those in Table 4. Specifically, while the overconfidence of both the 'senior' (i.e., top 4) and 'junior' executives are individually associated with SCAs (see Panels A and B), this is mainly due to the overconfidence of the top 4 remunerated executives (see Panel C).

[Table 16 about here]

Kolasinski and Li (2013) type measure of overconfidence: We also ensure that the results are robust to using a Kolasinski and Li (2013) type measure of CEO overconfidence. They define an overconfident CEO to be one who purchases stock in his/her own company and then loses money on that purchase. We address this by identifying all CEO stock-purchases in the Thomson Reuters insider trading filings. We identify if the CEO purchased stock in year $t-1$ (where year t is the year from which the SCA-indicator dates). We then calculate the return that the CEO earned on that purchase over the following two years (500 trading days). We define the confidence-measure as the return earned on these repurchases. This is a continuous variable and we restrict attention to situations where the CEO did purchase stock, as a mere non-purchase could be due to either a lack of overconfidence or to financial constraints.

The results are in Table 17. The main finding is that the coefficient on the CEO stock return measure is negative and significant. This indicates that if the CEO purchases stock and the firm subsequently performs poorly (i.e., the CEO is more overconfident), then the firm is more likely to be sued. This result is consistent with those in the main regressions.

[Table 17 about here]

Option-based overconfidence and firm performance: One concern is that option-

based measures of overconfidence increase with the firm's performance; and thus, the HOLDER67 measure might merely proxy for other extraneous market movements. The aforementioned media-based measure of overconfidence at least partially mitigates this. Nonetheless, we also address this concern by using a 'residual' measure of CEO overconfidence. We define the Residual CEO HOLDER67 (t-1) variable as the residual from the regression CEO HOLDER67 (t-1) $= \alpha + \beta$RETURN (t-1) $+ \varepsilon$. This Residual CEO HOLDER67 (t-1) would capture the portion of CEO overconfidence that does not merely reflect stock returns. We report the results in Table 18. The results are qualitatively similar to those previously reported. Further, for the SEO-results, we ensure (in unreported tests) that the results hold when using a HOLDER67 measure constructed using the CEO's option holdings from prior to the SEO event.

[Table 18 about here]

Endogeneity concerns, including the issue of whether CEOs make false statements to increase the value of their option-holdings: One possible concern is that the HOLDER67 option-based measure of overconfidence is premised on the CEO holding options that are at least 67% in the money. However, if the CEO pumps the stock to increase the share price, then it would also increase the value of those options and could lead to those options becoming at least 67% in the money. Thus, the conduct leading to the SCA might create the appearance of the CEO intentionally holding highly in the money options (when in fact it was an indirect consequence of the misstatement).

We argue that endogeneity is unlikely to drive the results: (1) The options must be at least 67% in the money in at least two separate years, minimizing the chance of the CEO making false statements that merely indirectly inflate the value of the options. (2) The results are qualitatively similar if we use media-based measures of overconfidence, which are not subject to this criticism (see above and Table 14). (3) Prior literature shows that such risk-taking tendencies (as connoted by such measures as HOLDER67) tend to derive from genetic characteristics (Cesarini et al., 2009; Cronqvist and Siegel, 2013)[13] and/or early life

[13]Cesarini et al. (2009) examine sets of twins and argue that genetics explains between 16% and 34% of an individual's overconfidence. Cronqvist and Siegel (2013) suggest that genetic differences can explain up

experiences (Bernile et al., 2014; Malmendier et al., 2011).[14] (4) It is often the case that 'informed' traders *short* the company's stock (or manufacture a short position) prior to SCAs (Blau and Tew, 2014), which would imply that CEOs should endeavour to exercise any options prior to the SCA: That is, the prospect of a SCA would not cause the CEO to hold in the money options.

Nonetheless, in unreported tests, we take additional steps to mitigate these endogeneity concerns. First, the results are qualitatively similar if we exclude any situation where the firm is subject to two SCAs. This excludes any situation where the CEO could have pumped the stock price twice (rending the CEO overconfident according to the HOLDER67 definition). Thus, it excludes possible situations where the conduct giving rise to the SCA also inflated the stock price and created the appearance of overconfidence.

Second, we obtain qualitatively similar results if we measure overconfidence based on the CEO's conduct *after* year t. In this case, it would be necessary for the options to be at least 67% in the money on two occasions after the SCA, meaning that the falsely positive misstatement cannot have driven the value of the options.

Third, in unreported tests, we obtain qualitatively similar results if we omit any situation where the CEO would have 'inflated' the stock price in order to exercise his/her options. The underlying concern is that the CEO might 'hype' the stock, which would give rise to the SCA and also give rise to the appearance of options that are more valuable (causing the CEO to appear to be overconfident). We address this by excluding from the sample any situation where the CEO exercises options in year t or $t-1$, when the SCA was in year t. The results for these tests are qualitatively similar to the reported results.

Repeat law suit targets: The results are robust to addressing the issue of firms being

to 45% of the variation in investment biases in individual investors. However, life experiences can moderate the impact of genetic characteristics. Similarly, Cronqvist et al. (2014) argue that genetic-characteristics also explain home ownership choice (which suggests that genetic-characteristics could also explain risk-taking in investment in general).

[14]Specifically, Bernile et al. (2014) show that CEO risk-taking tendencies are associated with early life experiences in surviving natural disasters. Similarly, Malmendier et al. (2011) show that early-life experiences, such as growing up in the Great Depression, or having military experience, are associated with the degree of managerial overconfidence and influence corporate risk-taking tenencies.

sued repeatedly. In the 'raw' SCA data (i.e., set of SCAs for all firms before restricting the sample to the set of firms with relevant company-level variables), there are 2559 lawsuits against 2089 unique firms, of which 329 unique firms were sued more than once. In the data, 256 lawsuits (from 106 unique firms) overlapped in class periods. In percentage terms, 256/2559 = 10% of lawsuits overlap in class periods; 106/329=32.2% of firms with multiple lawsuits overlap in class periods; 106/2089 =5.07% of unique firms that were litigated in overlapping class periods. In our sample (i.e., that requires control variables), removing firms that are sued more than once results in only a loss of between 174 and 194 observations (depending on the controls required) from an overall sample of 1375 litigation-observations. The regression results are robust to omitting these observations. We report the regressions in Table 19. The main finding is that the results are qualitatively similar in these regressions: CEO overconfidence remains significantly and positively associated with the likelihood of a SCA.

[Table 19 about here]

Does CEO overconfidence merely represent an aggressive 'corporate' culture? One concern is that aggressive corporations, which are more likely to be subject to a SCA due to the culture of risk-taking, seek overconfident CEOs, meaning that the overconfidence/SCA relationship merely reflects other corporate factors. We argue that this is unlikely to be a concern. First, we control for corporate characteristics, including corporate risk (as proxied by stock return volatility). Second, Table 4 and Table 16 mitigate this concern. The overconfidence-level of junior executives captures the nature of the firm's corporate culture; an aggressive firm will also hire more overconfident junior executives. However, the overconfidence of junior executives is not significantly related to SCA-likelihood after controlling for the overconfidence of senior executives (i.e., decision-makers), which is significantly related to SCA likelihood. Thus, it is unlikely that CEO overconfidence merely captures another corporate trait. Third, as indicated above, the results are robust to including firm fixed effects, which control for unobserved firm-related factors, which would include any particularly

aggressive and persistent corporate culture.

Are overconfident CEOs merely more likely to be detected rather than to make false statements? An alternative explanation for the baseline results in Table 3 is that overconfident CEOs are more likely to be detected (rather than being more likely to make false statements).We argue that this is unlikely to be the case for at least three reasons. First, this alternative 'detection-likelihood' story would not explain the results we find in relation to the impact of SOX, managerial entrenchment, and compensation on the likelihood that an overconfident CEO is sued. That is, the moderating effects that we document help to cross-validate the relationship between overconfidence and SCA likelihood. Second, the detection-likelihood story pre-supposes some difference in corporate-characteristics that leads overconfident CEOs' firms to be more likely to be sued. However, as indicated in Table 15, the results survive propensity score matching techniques, which aim to mitigate the impact of such differences. Third, as indicated in Table 15, the results in Table 3 hold after including firm fixed effects, which implicitly control for any such firm-level factors that would correlate with detection-likelihood.

CEO inattention and the option-based measure of overconfidence: One possible concern with the option-based measures of overconfidence relates to CEO inattention. Specifically, if a CEO holds relatively few options, then he/she might hold well in the money options because the value of exercising them is low and the CEO might simply ignore them. We argue that this is unlikely to drive the results given that they are robust to using the media-based measure of overconfidence (see Table 14). Nonetheless, in unreported results we check that the findings hold if we exclude from the sample any CEO whose option-holdings (i.e., value of vested but unexercised options) are in the bottom quartile of the sample for that year. The results are qualitatively similar in this sub-sample.

CEO gender and board gender diversity: We check that the results do not merely reflect a CEO-gender effect. Levi et al. (2014) argue that female CEOs are less overconfident than are male CEOs, leading to fewer takeover bids and more value-creation in those bids.

Cumming et al. (2014) argue that gender diversity might influence litigation likelihood. However, Adams and Ragunathan (2013) argue that female directors are not per se associated with lower risk taking. Whichever is the case, we check that our results are robust to controlling for CEO gender and interacting an indicator for whether the CEO is female with the overconfidence measure. The results are unreported for brevity. Only 1.7% of the observations in our sample feature a female CEO. We find little relationship between CEO gender and the likelihood of a SCA. The impact of CEO overconfidence on litigation-risk varies slightly across CEO gender: overconfident female CEOs are less likely to be sued than are overconfident male CEOs. This is potentially consistent with female CEOs being more prudent than male CEOs (as per Levi et al., 2014). However, the result is only weakly significant and there are relatively few female CEOs in the sample, making it difficult to draw strong conclusions from the results. Similarly, we find that board gender diversity is not statistically significantly related to litigation likelihood.

CEO age: CEO age is arguably associated with corporate risk taking, with younger CEO being associated with riskier corporate policies (see e.g., Kim, 2013; Serfling, 2014). In unreported tests, we also analyze whether the results are robust to controlling for CEO age, or indicators for whether the CEO is over 50, 60, or 65. CEO age is generally negatively related to litigation-likelihood (however, the statistical significance of the coefficient is sensitive to the set of control variables used). Controlling for these measures of CEO age does not qualitatively change the relationship between CEO overconfidence and litigation-likelihood.

Year and industry effects: The reported results include year and two-digit SIC industry fixed effects and cluster standard errors by firm (per Kim and Skinner, 2012). The results are robust to clustering by year, industry, or both. Clustering by year produces smaller standard errors than does clustering by firm. The results are also robust to how we define industry, also holding if we use three-digit or four-digit SIC classifications.

5 Conclusion

This paper analyzes the impact of CEO overconfidence on the likelihood of a securities class action. By definition, overconfident CEOs tend to overestimate the potential payoffs of projects and underestimate their risks. This would result in overconfident CEOs' statements being reckless and falsely positive, thereby exposing the company to a 10b-5 securities class action.

We hypothesize and show that overconfident CEOs' firms are more likely to be sued via a SCA. Furthermore, the likelihood of a SCA increases following a poorly performing SEO. That is, overconfident CEOs are more likely to be sued following a poorly performing SEO than are other CEOs. Additionally, improved governance mitigates the impact of overconfidence on SCA-likelihood. Specifically, overconfident CEOs have a less severe impact on SCA-likelihood following SOX and in companies with fewer anti-takeover provisions.

We also find that overconfident CEOs are more likely to be disciplined following a SCA. In particular, if the company is subject to a SCA, then overconfident CEOs are more likely to lose their jobs in the following two years than are other CEOs. However, CEO entrenchment reduces this likelihood: Specifically, overconfident CEOs that were internally appointed are no more likely to be fired than are non-overconfident CEOs.

This paper contributes to both the literature on CEO overconfidence and on securities regulation. We demonstrate another avenue through which CEO overconfidence can undermine shareholder wealth (exposing the company to a SCA). This highlights the need for shareholders to be cautious when interpreting statements given by overconfident CEOs. The paper also contributes to the regulation-literature by exploring an additional antecedent to financial-misstatements (CEOs' behavioral biases).

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Appendix: Variables

Variable	Definition
CEO HOLDER67	The CEO's HOLDER67 value computed in the same way to in Malmendier et al. (2011). This is an indicator that equals one from the first time that the CEO holds options that are (on average) at least 67% in the money if the CEO does so on at least two occaisions. We use Execucomp data to obtain a measure for how in the money the options are on average. We first create a measure of the extent to which the options are in-the-money, defined as *Average value per option/Number of options*, where the *Average value per option* is the estimated value of the vested optiosn scaled by the number of such options. We then scale this 'in-the-moneyness' variable by the average strike price for the options, which we proxy as $S - (S - X)$ = Stock price at the end of the fiscal year (in CRSP/Compustat: prcc_f) - the avera average value per option (computed as indicated previously).
TEAM HOLDER67	The average Holder67 measure for all executives at the firm in that year. We compute the Holder67 measure for non-CEO executives in the same way as we compute CEO HOLDER67.
OTHER EXEC HOLDER67	The average Holder67 measure for all non-CEO executives at the firm in that year. We compute the Holder67 measure for non-CEO executives in the same way as we compute CEO HOLDER67.
SENIOR HOLDER67	The average Holder67 measure for all senior executives at the firm in that year. We compute the Holder67 measure for non-CEO executives in the same way as we compute CEO HOLDER67. We define senior executives as any executive with the title (in Execucomp) of CEO, CFO, COO, President, Chairman/woman, and executives whose title includes the word 'chief'.
JUNIOR HOLDER67	The average Holder67 measure for all junior executives at the firm in that year. We compute the Holder67 measure for non-CEO executives in the same way as we compute CEO HOLDER67. We define junior executives as any non-senior executive.
NYSE	An indicator that equals one if the firm trades on the New York Stock Exchange.
LNASSET	The natural log of the firm's book assets (Compustat: at).
ROA	The firm's return on assets, defined as its net income scaled by its assets.

SALES GROWTH	The sales growth in year $t-1$ is the sales in year $t-1$ less the sales in year $t-2$ all scaled by the assets at the beginning of year $t-1$.
R&D	The R&D expense (Compustat: xrd) scaled by the beginning-of-year assets.
PP&E	The firms property, plant and equipment scaled by its assets.
MB	The firm's market value of equity at the end of the fiscal year (Compustat: prcc_f $\times$ csho) scaled by its book value of equity.
RETURN	The firm's market adjusted stock return over the year (with stock return data from CRSP).
SKEW	The skewness of the firm's stock return over the year
RETURN STD DEV	The standard deviation of the daily stock return over the year.
TURNOVER	The trading volume for the year scaled by the number of shares outstanding at the beginning of the year.
INST	The percentage of shares that institutional investors hold. The institutional-holding data is from the Thomson 13F filings. If the firm does not appear in the filings, we deem it to have zero institutional holdings.
EQUITY PROCEEDS	The amount of capital that the firm raises via equity issuances in that year scaled by the firm's assets.
DEBT PROCEEDS	The amount of capital that the firm raises via debt in that year scaled by the firm's assets.
INSIDER TRADING	The insider trading figure for year $t-1$ is the average insider insider sales (net of purchases) for years $t-1$ and $t-2$ scaled by the firm's revenue.
INSIDER HOLDING	The average of all insider share holdings scaled by the total shares outstanding.
IND_WC	The industry average working capital accruals (current assets less current liabilities) scaled by the total assets.
IND_ALTMAN Z	The industry average Altman (1968) Z score.
SUED	An indicator that equals one if the firm was subject to a securities class action. The data is from the Stanford Securities Class Action Clearinghouse (SCAC).
POSTSOX	An indicator that equals one if the observation is after the Sarbanes-Oxley Act of 2002 (i.e. if the observation is in 2002 or later).
POSTFAS	An indicator that equals one if the observation is after FAS 123R (i.e. the observation is in 2005 or later).
GINDEX	The firm's Gompers et al. (2003) index of 24 anti-takeover provisions.
GINDEX TOPQ	An indicator that equals one if the firm's GINDEX is in the top quartile (corresponding to a GINDEX of greater than 11).
SHROWN	The CEO's percentage share ownership.

STOCK INTENSITY	The CEO's stock intensity, defined as the proportion of compensation that comes from stock grants scaled by its total compensation. The data comes from Execucomp.
OPTION INTENSITY	The CEO's option intensity, defined as the proportion of compensation that comes from option grants scaled by its total compensation. The data comes from Execucomp.
SEOCAR(+30,+360)	The cumulative abnormal return following the announcement of the SEO. We calculate the CAR by summing the abnormal returns over the period 30 days to 360 days after the announcement of the SEO. The CARs are based on an OLS estimation of the market model over the prior trading year.

Tables

Table 1: Sample Distribution by Year

This table contains the sample composition by year. We define overconfident CEOs as those for which HOLDER67 equals one (HOLDER67 is defined in the variable appendix). We identify law suits using the Stanford Securities Class Action Clearinghouse (SCAC).

Year	#CEO	#Overconfident CEO	# Lawsuits filed	#Overconfident CEO involved in lawsuits	%Lawsuits involving overconfident CEOs
1996	1125	505	14	9	64.286
1997	1135	578	38	29	76.316
1998	1183	676	57	46	80.702
1999	1234	720	93	65	69.892
2000	1300	742	105	78	74.286
2001	1355	786	129	98	75.969
2002	1339	746	124	81	65.323
2003	1384	715	119	81	68.067
2004	1419	763	111	73	65.766
2005	1395	803	87	52	59.770
2006	1378	796	76	46	60.526
2007	1398	798	104	63	60.577
2008	1509	805	99	53	53.535
2009	1498	731	71	37	52.113
2010	1475	691	73	37	50.685
2011	1417	676	48	23	47.917
2012	1329	631	27	17	62.963
Total	22873	12162	1375	888	64.582

Table 2: Summary Statistics

This table contains the summary statistics. The variable definitions are in the variable Appendix.

	Full Sample			Over-confident CEOs			Non-Over-confident CEOs		
	Mean	Median	Std Dev	Mean	Median	Std Dev	Mean	Median	Std Dev
Panel A: Litigation variables									
SUED indicator	0.060	0.238	0.000	0.073	0.260	0.000	0.045	0.208	0.000
Litigation firm long-run cumulative abnormal returns LCAR(+10, +360)(%)	-28.431	221.691	-14.998	-37.041	161.524	-20.723	-18.722	273.812	-9.339
Litigation firm pre-runup CAR(-360, 0)(%)	-34.980	256.839	-19.751	-35.854	188.056	-19.691	-33.996	316.958	-19.765
Panel B: Confidence Measures and CEO characteristics									
CEO Holder67 indicator	0.532	0.499	1.000						
TEAM Holder67 indicator	0.789	0.408	1.000						
SR Holder 67 indicator	0.786	0.411	1.000						
JR Holder 67 indicator	0.667	0.471	1.000						
CEO Stock Intensity	0.131	0.202	0.000	0.118	0.198	0.000	0.147	0.205	0.000
CEO Option Intensity	0.300	0.272	0.261	0.327	0.287	0.294	0.269	0.251	0.232
CEO Shares owned	0.018	0.038	0.003	0.022	0.041	0.005	0.013	0.034	0.002
CEO age (years)	60.770	8.706	61.000	61.396	8.427	61.000	60.056	8.958	60.000
CEO Turnover (in t+1 and t+2)	0.071	0.257	0.000	0.065	0.256	0.000	0.078	0.269	0.000
Internal CEO indicator	0.311	0.463	0.000	0.316	0.465	0.000	0.306	0.461	0.000
Female CEO indicator	0.019	0.138	0.000	0.012	0.110	0.000	0.028	0.164	0.000
Netnews	3.089	2.260	2.817	4.075	2.210	4.221	1.754	1.521	1.503
Panel C: Firm Variables									
Altman-Z	4.922	6.413	3.508	6.122	7.483	4.152	3.579	4.589	2.961
Assets (mns)	8695.599	20992.480	1679.331	8088.222	19834.200	1560.185	9384.651	22214.420	1841.269
Debt proceeds (net)	0.011	0.084	0.000	0.015	0.085	0.000	0.006	0.083	0.000
Equity proceeds (net)	-0.004	0.093	0.000	-0.004	0.098	0.000	-0.005	0.085	0.000
FPS	0.282	0.450	0.000	0.311	0.463	0.000	0.249	0.432	0.000
Goodwill	0.097	0.134	0.029	0.101	0.138	0.028	0.094	0.129	0.029
Governance Index (Gindex)	9.307	2.631	9.000	9.117	2.667	9.000	9.511	2.577	10.000
Insider Holding	0.016	0.053	0.002	0.018	0.054	0.003	0.014	0.051	0.001
Insider Trading	0.020	0.108	0.002	0.027	0.120	0.003	0.012	0.092	0.001
Institutional ownership (INST)	0.552	0.560	0.640	0.569	0.529	0.671	0.532	0.594	0.608
Market-to-book (MB)	3.209	3.652	2.204	3.715	3.924	2.647	2.630	3.219	1.843
NYSE Indicator	0.626	0.484	1.000	0.603	0.489	1.000	0.652	0.476	1.000
POSTFAS indicator	0.498	0.500	0.000	0.487	0.500	0.000	0.511	0.500	1.000
POSTSOX indicator	0.679	0.467	1.000	0.670	0.470	1.000	0.690	0.463	1.000
PP&E	0.262	0.230	0.192	0.245	0.228	0.173	0.281	0.232	0.219
Return(t-1)	-0.001	0.037	0.000	0.003	0.038	0.003	-0.006	0.036	-0.004
Return skewess (t-1)	0.173	0.791	0.150	0.168	0.785	0.146	0.178	0.767	0.155
Return std dev (t-1)	0.107	0.071	0.090	0.109	0.072	0.092	0.105	0.070	0.087
ROA	0.032	0.138	0.044	0.047	0.120	0.055	0.014	0.154	0.033
R&D	0.030	0.064	0.000	0.032	0.066	0.000	0.028	0.062	0.000
Sales growth	0.071	0.213	0.053	0.101	0.212	0.076	0.036	0.209	0.030
Turnover (t-1)	2.042	2.164	1.453	2.276	2.448	1.637	1.777	1.749	1.262
US incorporated	0.981	0.138	1.000	0.978	0.147	1.000	0.984	0.126	1.000
Working capital (WC)	0.220	0.206	0.195	0.238	0.212	0.216	0.199	0.197	0.174
Panel D: Other Variables									
BIDDER indicator (t-1)	0.305	0.460	0.000	0.329	0.470	0.000	0.277	0.447	0.000
TARGET indicator (t-1)	0.062	0.241	0.000	0.070	0.254	0.000	0.054	0.225	0.000
SEO indicator (t-1)	0.056	0.230	0.000	0.061	0.240	0.000	0.050	0.219	0.000
Mean bidder cumulative abnormal returns BCAR (-10,+1) (%)	0.110	8.040	-0.001	0.148	8.291	0.094	0.060	7.704	-0.239

Mean Target cumulative abnormal returns TCAR (-10,+1) (%)	0.139	7.812	-0.080	-0.028	7.892	0.075	0.382	7.695	-0.253
Mean SEO cumulative abnormal returns TCAR (+10,+360) (%)	-45.108	97.647	-29.089	-50.272	100.008	-35.622	-37.956	93.905	-23.629
BETA	1.260	0.661	1.170	1.328	0.669	1.227	1.182	0.643	1.103
MSE	0.025	0.013	0.021	0.025	0.013	0.022	0.024	0.014	0.020
Panel E: Industry Variables									
IND_Altman-Z	-23.614	65.932	-0.349						
IND_Assets (mns)	6859.480	13367.350	1707.560						
IND_Debt proceeds (net)	-0.026	0.678	0.022						
IND_Equity proceeds (net)	0.148	0.420	0.091						
IND_Goodwill	0.067	0.048	0.056						
IND_MB	6.269	6.996	4.041						
IND_PP&E	0.249	0.182	0.184						
IND_ROA	-1.196	2.680	-0.313						
IND_R&D	0.097	0.145	0.019						
IND_Sales growth	-0.360	1.809	0.012						
IND_WC	-1.497	3.476	-0.127						

Table 3: CEO overconfidence and SCAs

This table contains models that use the specification in Kim and Skinner (2012, Table 7). The models are logit models in which the dependent variable is an indicator that equals one if the firm is subject to a SCA in year t. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	SCA Indicator			
Model	[1]	[2]	[3]	[4]
CEO HOLDER67(t-1)	0.380***	0.354***	0.289***	0.294***
	[0.095]	[0.093]	[0.098]	[0.099]
NYSE(t-1)			-0.073	-0.038
			[0.122]	[0.123]
LNASSET(t-1)		0.369***	0.387***	0.386***
		[0.040]	[0.043]	[0.043]
ROA(t-1)			0.842**	0.756**
			[0.346]	[0.347]
SALES GROWTH(t-1)		1.462***	1.383***	1.298***
		[0.196]	[0.214]	[0.212]
R&D(t-1)			2.097**	1.671*
			[0.988]	[1.014]
PP&E(t-1)				-1.527***
				[0.388]
MB(t-1)			0.053***	0.055***
			[0.008]	[0.008]
RETURN(t-1)		-8.761***	-10.974***	-10.905***
		[1.166]	[1.357]	[1.359]
SKEW(t-1)		-0.056	-0.032	-0.036
		[0.060]	[0.063]	[0.063]
RETURN STD DEV(t-1)		1.680**	1.582*	1.755**
		[0.801]	[0.827]	[0.890]
TURNOVER(t-1)		0.129***	0.104***	0.099***
		[0.016]	[0.017]	[0.018]
INST(t-1)				0.204***
				[0.068]
EQUITY PROCCEEDS(t-1)			2.433***	2.266***
			[0.465]	[0.470]
DEBT PROCCEEDS(t-1)			-0.059	-0.056
			[0.238]	[0.235]
INSIDER TRADING(t-1)			0.167	0.117
			[0.444]	[0.464]
INSIDER HOLDING(t-1)			-2.065*	-2.596*
			[1.254]	[1.341]
IND_WC(t-1)				0.015
				[0.018]
IND_ALTMAN Z(t-1)				-0.001
				[0.001]
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.073	0.143	0.15	0.156
Observations	22385	22385	19673	19128

Table 4: Team overconfidence and SCAs

The models are logit models in which the dependent variable is an indicator that equals one if the firm is subject to a SCA in year t. The models include control variables with Columns 1-4 including the control variables in Columns 1-4 of Table 3, respectively. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	SCA Indicator			
Model	[1]	[2]	[3]	[4]
Panel A				
TEAM HOLDER67(t-1)	0.611***	0.425***	0.399**	0.420**
	[0.156]	[0.156]	[0.166]	[0.169]
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.072	0.142	0.15	0.156
Observations	22385	22385	19673	19128
Panel B				
CEO HOLDER67(t-1)	0.229**	0.264***	0.211**	0.218**
	[0.099]	[0.098]	[0.102]	[0.103]
OTHER EXEC HOLDER67(t-1)	0.536***	0.330**	0.296*	0.314*
	[0.162]	[0.160]	[0.169]	[0.171]
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.076	0.144	0.151	0.157
Observations	22200	22200	19514	18982
Panel C				
SENIOR HOLDER67(t-1)	0.641***	0.454***	0.420**	0.450***
	[0.156]	[0.156]	[0.166]	[0.171]
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.075	0.142	0.15	0.156
Observations	22385	22385	19673	19128
Panel D				
SENIOR HOLDER67(t-1)	0.922***	0.755***	0.784***	0.765***
	[0.234]	[0.240]	[0.255]	[0.268]
JUNIOR HOLDER67(t-1)	-0.185	-0.211	-0.293*	-0.292*
	[0.159]	[0.162]	[0.170]	[0.173]
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.073	0.137	0.149	0.163
Observations	11928	11928	10225	10000

Table 5: SCAs following SEOs

This table contains regressions that examine the likelihood of a SCA following a SEO, especially by an overconfident CEO. The models are logit models in which the dependent variable is an indicator that equals one if the firm is subject to a SCA in year t. Columns 1-2 contain the full sample of firms. Columns 3-4 restrict the sample to the set of firms that conduct a SEO in year $t-1$. Columns 5-6 further restrict the sample to require that that SEO alsonot be within 400 days of the subsequent SCA (in order to prevent any overlap between the SEO and the SCA). We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	SCA Indicator					
Sample	Full Sample		SEO in year $t-1$		SEO in year $t-1$ and no overlap with SCA	
	[1]	[2]	[3]	[4]	[5]	[6]
CEO HOLDER67(t-1)	0.343***	0.287***	0.473	0.536	0.341	0.258
	[0.111]	[0.102]	[0.538]	[0.405]	[0.737]	[0.561]
SEO(t-1)	0.076	0.141				
	[0.365]	[0.286]				
CEO HOLDER67(t-1)*SEO(t-1)	0.013	0.093				
	[0.407]	[0.335]				
SEOCAR(+30,+360)			-0.243	-0.205	0.265	0.083
			[0.340]	[0.206]	[0.447]	[0.327]
CEO HOLDER67(t-1)*SEOCAR(+30,+360)			-0.566*	-0.457*	-0.767*	-0.737**
			[0.350]	[0.263]	[0.455]	[0.370]
NYSE(t-1)	-0.084	-0.033	1.363**	1.278***	1.598**	1.326**
	[0.135]	[0.122]	[0.593]	[0.446]	[0.712]	[0.644]
LNASSET(t-1)	0.348***	0.388***	0.306	0.293**	0.287	0.116
	[0.047]	[0.043]	[0.192]	[0.144]	[0.252]	[0.228]
WC(t-1)	-0.193		0.911		1.895	
	[0.414]		[1.614]		[2.028]	
ROA(t-1)	0.421	0.752**	1.537	2.552**	2.717	3.814**
	[0.324]	[0.348]	[1.102]	[1.157]	[1.801]	[1.907]
SALES GROWTH(t-1)	1.138***	1.333***	1.492**	1.364*	3.223**	3.288***
	[0.209]	[0.210]	[0.753]	[0.777]	[1.343]	[1.266]
R&D(t-1)	1.213	1.585	6.812**	7.655***	-0.222	3.146
	[1.032]	[1.052]	[3.038]	[2.732]	[5.310]	[4.042]
GOODWILL(t-1)	-0.617	-0.555	-4.341**	-5.487***	-6.587**	-6.302**
	[0.484]	[0.445]	[1.722]	[1.928]	[3.292]	[2.643]
PP&E(t-1)	-1.894***	-1.680***	-1.978	-2.284*	-1.487	-2.74
	[0.452]	[0.408]	[1.764]	[1.211]	[2.067]	[1.692]
ALTMAN Z(t-1)	0.013*		0.057**		0.016	
	[0.007]		[0.028]		[0.046]	
MB(t-1)	0.047***	0.054***	0.078	0.128**	0.338***	0.370***
	[0.008]	[0.008]	[0.048]	[0.059]	[0.096]	[0.088]
RETURN(t-1)	-9.889***	-10.952***	-8.644**	-9.573***	-14.671***	-13.725***
	[1.464]	[1.350]	[3.606]	[3.229]	[5.278]	[4.995]
SKEW(t-1)	-0.016	-0.035	0.003	-0.066	0.041	0.098
	[0.070]	[0.063]	[0.305]	[0.236]	[0.361]	[0.321]
RETURN STD DEV(t-1)	1.07	1.714**	5.138*	3.367	8.243**	4.587
	[0.716]	[0.873]	[2.864]	[2.206]	[4.101]	[3.695]
TURNOVER(t-1)	0.069***	0.097***	0.220***	0.232***	0.186**	0.200***
	[0.017]	[0.018]	[0.051]	[0.044]	[0.082]	[0.075]
INST(t-1)	0.184**	0.205***	-0.077	-0.142	0.084	-0.018
	[0.072]	[0.069]	[0.217]	[0.216]	[0.491]	[0.452]
EQUITY PROCCEEDS(t-1)	1.880***	2.067***	-8.792***	-5.944***	-9.338***	-8.201***
	[0.510]	[0.512]	[2.235]	[1.773]	[3.523]	[2.830]
DEBT PROCCEEDS(t-1)	0.008	-0.032	0.478	0.529	0.369	0.643
	[0.263]	[0.232]	[0.782]	[0.611]	[1.094]	[0.862]
INSIDER TRADING(t-1)	0.138	0.071	0.494	0.715	1.641*	1.829**
	[0.462]	[0.468]	[0.790]	[0.553]	[0.922]	[0.905]
INSIDER HOLDING(t-1)	-2.358*	-2.643**	-7.122***	-5.843**	-9.918*	-8.473*
	[1.422]	[1.347]	[2.764]	[2.421]	[5.248]	[4.328]
IND_WC(t-1)		0.013		-0.073		-0.217
		[0.018]		[0.076]		[0.151]
IND_ALTMAN Z(t-1)		-0.001		-0.001		0.004
		[0.001]		[0.003]		[0.007]
INTERCEPT	-19.855***	-8.910***	-5.889**	-20.683***	-5.679	-20.461***
	[0.763]	[0.640]	[2.717]	[2.685]	[3.605]	[3.858]
Industry and year FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.144	0.157	0.334	0.296	0.436	0.394
Observations	16562	19129	546	743	389	536

Table 6: CEO overconfidence, SOX, and SCAs

This table contains models that examine the role of SOX in mitigating the impact of CEO overconfidence on SCAs. The sample period spans six years either side of SOX (from 1996 to 2008). The models are logit models in which the dependent variable is an indicator that equals one if the firm is subject to a SCA in year t. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	SCA Indicator			
Model	[1]	[2]	[3]	[4]
CEO HOLDER67(t-1)	0.765***	0.653***	0.564***	0.564***
	[0.149]	[0.149]	[0.158]	[0.159]
POSTSOX	0.540***	0.530***	0.484***	0.222
	[0.145]	[0.150]	[0.165]	[0.177]
CEO HOLDER67(t-1)*POSTSOX	-0.491***	-0.383**	-0.360*	-0.362*
	[0.175]	[0.178]	[0.190]	[0.193]
NYSE(t-1)			-0.039	-0.016
			[0.132]	[0.132]
LNASSET(t-1)		0.382***	0.385***	0.385***
		[0.043]	[0.047]	[0.048]
ROA(t-1)			0.769**	0.646*
			[0.366]	[0.366]
SALES GROWTH(t-1)		1.324***	1.277***	1.212***
		[0.211]	[0.228]	[0.228]
R&D(t-1)			2.354**	2.065**
			[1.014]	[1.036]
PP&E(t-1)				-1.497***
				[0.426]
MB(t-1)			0.057***	0.060***
			[0.008]	[0.008]
RETURN(t-1)		-8.537***	-10.551***	-10.514***
		[1.238]	[1.436]	[1.437]
SKEW(t-1)		-0.107	-0.078	-0.084
		[0.067]	[0.071]	[0.071]
RETURN STD DEV(t-1)		4.117***	3.496***	3.481***
		[1.059]	[1.236]	[1.254]
TURNOVER(t-1)		0.112***	0.090***	0.080***
		[0.019]	[0.021]	[0.021]
INST(t-1)				0.291***
				[0.081]
EQUITY PROCCEEDS(t-1)			1.984***	1.832***
			[0.474]	[0.476]
DEBT PROCCEEDS(t-1)			-0.044	-0.031
			[0.261]	[0.253]
INSIDER TRADING(t-1)			0.118	0.076
			[0.496]	[0.516]
INSIDER HOLDING(t-1)			-2.208*	-2.730*
			[1.319]	[1.397]
IND_WC(t-1)				-0.01
				[0.023]
IND_ALTMAN Z(t-1)				-0.001
				[0.001]
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.057	0.134	0.145	0.154
Observations	16512	16512	14382	14036

Table 7: CEO overconfidence and litigation in pre-SOX and post-SOX periods

This table contains models that examine the role of SOX in mitigating the impact of CEO overconfidence on SCAs. Panel A restricts attention to observations in the pre-SOX period; Panel B to the post-SOX period. The regressions in Columns 1-4 contain the controls from Columns 1-4 of Table 6, respectively. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	SCA Indicator			
Panel A: Observations from 1996-2001				
CEO HOLDER67(t-1)	0.820***	0.622***	0.600***	0.516***
	[0.159]	[0.161]	[0.175]	[0.179]
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	6723	6723	5520	5448
Pseudo R-squared	0.102	0.162	0.179	0.218
Panel: B: Observations from 2002-2008				
CEO HOLDER67(t-1)	0.237*	0.205	0.123	0.107
	[0.126]	[0.127]	[0.131]	[0.133]
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	9149	9149	8300	8040
Pseudo R-squared	0.063	0.119	0.122	0.127

Table 8: Litigation and SOX, by SOX compliance

This table contains models that examine the role of SOX in mitigating the impact of CEO overconfidence on SCAs. The sample period spans six years either side of SOX (from 1996 to 2008). The models are logit models in which the dependent variable is an indicator that equals one if the firm is subject to a SCA in year t. We report regression coefficients. The regressions in Columns 1-4 contain the controls from Columns 1-4 of Table 6, respectively. Panel A contains restricts attention to the set of 'compliant' firms, which we define as firms with a majority independent board and an independent audit chair. Panel B focuses on the sub-sample of non-compliant firms. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent variable	SCA Indicator			
	[1]	[2]	[3]	[4]
Panel A: Compliant Subsample				
CEO HOLDER67(t-1)	1.107**	0.805*	0.624	0.807
	[0.477]	[0.463]	[0.506]	[0.523]
POSTSOX	-0.720*	-0.667	-0.563	-0.573
	[0.433]	[0.410]	[0.451]	[0.477]
CEO HOLDER67(t-1)*POSTSOX	-0.724	-0.417	-0.313	-0.524
	[0.503]	[0.486]	[0.534]	[0.562]
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.109	0.18	0.191	0.205
Observations	3293	3293	3099	2984
Panel B: Non-Compliant Subsample				
CEO HOLDER67(t-1)	0.762***	0.537***	0.441**	0.438**
	[0.178]	[0.180]	[0.191]	[0.193]
POSTSOX	0.569***	0.531**	0.526**	0.249
	[0.206]	[0.218]	[0.235]	[0.248]
CEO HOLDER67(t-1)*POSTSOX	-0.603**	-0.421*	-0.407	-0.414
	[0.246]	[0.253]	[0.272]	[0.277]
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.05	0.115	0.14	0.144
Observations	9079	9079	8059	7917

Table 9: Managerial entrenchment, CEO overconfidence, and SCAs

This table contains models that examine the relationship between CEO overconfidence, managerial entrenchment and litigation-likelihood. The models are logit models in which the dependent variable is an indicator that equals one if the firm is subject to a SCA in year t. GINDEX is the Gompers et al. (2003) index of 24 ATPs. GINDEX TOPQ is an indicator that equals one if the firm's GINDEX score is in the top quartile (corresponding to a GINDEX of greater than 11). The models include control variables with Columns 1-4 including the control variables in Columns 1-4 of Table 3, respectively. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	SCA Indicator			
Model	[1]	[2]	[3]	[4]
CEO HOLDER67(t-1)	0.251**	0.210*	0.157	0.155
	[0.115]	[0.114]	[0.121]	[0.124]
GINDEX TOPQ(t-1)	-0.558**	-0.537**	-0.458*	-0.433*
	[0.235]	[0.235]	[0.252]	[0.252]
CEO HOLDER67(t-1)* GINDEX TOPQ(t-1)	0.537**	0.518*	0.486*	0.458
	[0.272]	[0.275]	[0.291]	[0.293]
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.081	0.154	0.162	0.167
Observations	16522	16522	14839	14494

Table 10: FAS 123R, CEO overconfidence, and and SCAs

This table contains models that examine the role of FAS 123R in moderating the impact of CEO overconfidence on SCAs. TThe models are logit models in which the dependent variable is an indicator that equals one if the firm is subject to a SCA in year t. The models include control variables with Columns 1-4 including the control variables in Columns 1-4 of Table 3, respectively. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	SCA Indicator			
Model	[1]	[2]	[3]	[4]
Panel A: HIGH option intensity (¿p75)				
CEO HOLDER67(t-1)	0.720***	0.656***	0.586***	0.617***
	[0.160]	[0.162]	[0.175]	[0.182]
POSTFAS	0.021	-0.055	-0.011	-0.169
	[0.206]	[0.211]	[0.226]	[0.242]
CEO HOLDER67(t-1)*POSTFAS	-0.562**	-0.518**	-0.512*	-0.606**
	[0.251]	[0.254]	[0.268]	[0.270]
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.097	0.121	0.138	0.089
Observations	5212	5212	4693	4630
Panel B: LOW option intensity(< p75)				
CEO HOLDER67(t-1)	0.396***	0.318**	0.291*	0.298*
	[0.149]	[0.149]	[0.162]	[0.164]
POSTFAS	-0.021	-0.525***	-0.560***	-0.716***
	[0.148]	[0.161]	[0.170]	[0.180]
CEO HOLDER67(t-1)*POSTFAS	-0.246	0.001	-0.026	0
	[0.192]	[0.196]	[0.212]	[0.216]
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.054	0.139	0.151	0.158
Observations	16467	16467	14372	13897

Table 11: CEO overconfidence, SCAs, and CEO turnover

The models are logit models in which the dependent variable is an indicator that equals one if the CEO in year $t+1$ or $t+2$ differs from that in year t. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	CEO turnover in year, $t+1$ or $t+2$							
Model	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
CEO HOLDER67(t-1)	-0.287***	-0.196***	-0.181**	-0.161**	-0.277***	-0.197**	-0.153*	-0.128
	[0.069]	[0.072]	[0.077]	[0.078]	[0.079]	[0.083]	[0.087]	[0.087]
SUED(t)	-0.651**	-0.665**	-0.565*	-0.490*	-0.654**	-0.665**	-0.574*	-0.52
	[0.273]	[0.284]	[0.294]	[0.292]	[0.303]	[0.317]	[0.323]	[0.322]
CEO HOLDER67(t-1)*SUED(t)	0.938***	0.919***	0.798**	0.714**	0.837**	0.822**	0.771*	0.693*
	[0.341]	[0.347]	[0.360]	[0.360]	[0.384]	[0.390]	[0.399]	[0.401]
GINDEX(t-1)					0.030**	0.013	0.016	0.015
					[0.015]	[0.016]	[0.017]	[0.017]
NYSE(t-1)			-0.112	-0.091			-0.072	-0.052
			[0.097]	[0.097]			[0.113]	[0.113]
LNASSET(t-1)		0.054**	0.078***	0.073**		0.058*	0.075**	0.072**
		[0.025]	[0.029]	[0.029]		[0.030]	[0.034]	[0.034]
ROA(t-1)			-0.432*	-0.337			-0.529	-0.438
			[0.246]	[0.242]			[0.346]	[0.334]
SALES GROWTH(t-1)		-0.362**	-0.303*	-0.290*		-0.352**	-0.3	-0.289
		[0.143]	[0.162]	[0.160]		[0.164]	[0.186]	[0.185]
R&D(t-1)			-0.145	-0.108			0.089	0.085
			[0.753]	[0.753]			[1.007]	[1.003]
PP&E(t-1)				-0.043				0.034
				[0.275]				[0.320]
MB(t-1)			0.003	0.002			-0.003	-0.004
			[0.010]	[0.010]			[0.012]	[0.012]
RETURN(t-1)		-1.037	-0.873	-0.749		-1.513	-1.454	-1.202
		[0.794]	[0.867]	[0.859]		[0.980]	[1.062]	[1.049]
SKEW(t-1)		0.012	0.001	0.005		-0.009	-0.02	-0.013
		[0.043]	[0.047]	[0.048]		[0.050]	[0.054]	[0.055]
RETURN STD DEV(t-1)		0.746	0.547	0.226		0.292	0.32	0.05
		[0.486]	[0.550]	[0.608]		[0.658]	[0.725]	[0.795]
TURNOVER(t-1)		-0.031	-0.029	-0.024		-0.046	-0.052	-0.041
		[0.028]	[0.030]	[0.029]		[0.035]	[0.038]	[0.037]
INST(t-1)				-0.515***				-0.495**
				[0.154]				[0.215]
EQUITY PROCCEEDS(t-1)			0.205	0.227			0.612	0.618
			[0.509]	[0.502]			[0.819]	[0.809]
DEBT PROCCEEDS(t-1)			-0.042	0.002			-0.265	-0.221
			[0.204]	[0.201]			[0.250]	[0.247]
INSIDER TRADING(t-1)			-0.109	-0.067			-0.202	-0.18
			[0.379]	[0.369]			[0.469]	[0.456]
INSIDER HOLDING(t-1)			-0.363	-0.467			0.216	0.134
			[0.853]	[0.872]			[0.957]	[0.968]
CEO SHARE OWNED(t-1)		-8.396***	-9.135***	-9.261***		-7.272***	-7.827***	-7.957***
		[1.543]	[1.639]	[1.650]		[1.807]	[1.827]	[1.835]
IND_WC(t-1)				0.003				-0.013
				[0.024]				[0.027]
IND_ALTMAN Z(t-1)				0				0.001
				[0.001]				[0.001]
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.059	0.072	0.077	0.078	0.059	0.069	0.073	0.073
Observations	18473	17909	15676	15287	13922	13500	12089	11840

Table 12: Post SCA turnover for internally versus externally appointed CEOs

This table contains regressions that examine the likelihood that the CEO is replaced following a SCA. The models are logit models in which the dependent variable is an indicator that equals one if the CEO in year $t+1$ or $t+2$ differs from that in year t. Columns 1,2,5,6 focus on the sub-sample of CEOs (in year t) who were internally appointed to determine whether an internally appointed CEO is likely to be removed in years $t+1$ or $t+2$. Columns 3,4,7,8 do similarly but for CEOs who were externally appointed. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	CEO turnover in year $t+1, t+2$							
	Internal CEO		External CEO		Internal CEO		External CEO	
VARIABLES	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
A: CEO HOLDER67(t-1)	-0.240**	-0.218**	-0.108	-0.074	-0.196*	-0.17	-0.13	-0.092
	[0.097]	[0.098]	[0.139]	[0.140]	[0.111]	[0.111]	[0.152]	[0.154]
B: SUED(t)	-0.455	-0.393	-0.771	-0.668	-0.576	-0.547	-0.622	-0.529
	[0.340]	[0.340]	[0.595]	[0.592]	[0.383]	[0.385]	[0.588]	[0.584]
A*B	0.328	0.299	1.568**	1.416**	0.187	0.189	1.403**	1.247*
	[0.411]	[0.412]	[0.672]	[0.672]	[0.481]	[0.484]	[0.664]	[0.662]
NYSE(t-1)	-0.095	-0.079	-0.192	-0.162	-0.058	-0.041	-0.126	-0.106
	[0.115]	[0.116]	[0.179]	[0.176]	[0.137]	[0.138]	[0.203]	[0.203]
LNASSET(t-1)	0.071**	0.065*	0.082	0.079	0.090**	0.086**	0.059	0.059
	[0.036]	[0.036]	[0.051]	[0.050]	[0.043]	[0.043]	[0.057]	[0.057]
ROA(t-1)	-0.556**	-0.452*	0.144	0.151	-0.798**	-0.666**	0.382	0.377
	[0.243]	[0.239]	[0.637]	[0.634]	[0.339]	[0.331]	[0.745]	[0.746]
SALES GROWTH(t-1)	-0.114	-0.085	-0.763***	-0.779***	-0.165	-0.132	-0.607**	-0.620**
	[0.205]	[0.203]	[0.285]	[0.281]	[0.250]	[0.248]	[0.281]	[0.280]
R&D(t-1)	0.148	0.222	-0.021	-0.066	0.447	0.498	-0.063	-0.038
	[0.862]	[0.859]	[1.560]	[1.594]	[1.161]	[1.141]	[1.910]	[1.954]
PP&E(t-1)		-0.128		0.033		-0.061		0.12
		[0.347]		[0.471]		[0.410]		[0.526]
MB(t-1)	0.002	0.001	0.004	0.002	-0.002	-0.003	-0.004	-0.005
	[0.012]	[0.012]	[0.018]	[0.018]	[0.015]	[0.015]	[0.021]	[0.021]
RETURN(t-1)	0.39	0.448	-4.521***	-4.208**	-0.018	0.221	-4.918***	-4.516**
	[1.059]	[1.048]	[1.654]	[1.649]	[1.342]	[1.317]	[1.853]	[1.850]
SKEW(t-1)	0.04	0.039	-0.07	-0.062	0.029	0.032	-0.102	-0.092
	[0.050]	[0.050]	[0.093]	[0.096]	[0.058]	[0.058]	[0.099]	[0.102]
RETURN STD DEV(t-1)	0.411	0.08	0.44	0.18	0.429	0.14	-0.603	-0.756
	[0.599]	[0.680]	[1.397]	[1.407]	[0.727]	[0.837]	[1.657]	[1.680]
TURNOVER(t-1)	-0.005	-0.003	-0.121*	-0.116*	-0.048	-0.04	-0.047	-0.042
	[0.029]	[0.029]	[0.065]	[0.065]	[0.042]	[0.041]	[0.071]	[0.073]
INST(t-1)		-0.576***		-0.382		-0.654**		-0.262
		[0.192]		[0.254]		[0.280]		[0.282]
EQUITY PROCCEEDS(t-1)	-0.03	-0.039	1.206	1.328	0.151	0.099	2.067	2.15
	[0.581]	[0.570]	[1.127]	[1.133]	[1.024]	[1.003]	[1.481]	[1.488]
DEBT PROCCEEDS(t-1)	-0.103	-0.08	0.205	0.242	-0.464	-0.441	0.225	0.251
	[0.247]	[0.242]	[0.375]	[0.374]	[0.312]	[0.308]	[0.437]	[0.434]
INSIDER TRADING(t-1)	-0.116	-0.094	0.108	0.22	-0.251	-0.273	0.208	0.298
	[0.446]	[0.436]	[0.528]	[0.516]	[0.580]	[0.565]	[0.801]	[0.762]
INSIDER HOLDING(t-1)	-0.174	-0.212	-1.165	-1.318	0.647	0.594	-0.313	-0.33
	[0.975]	[0.950]	[1.608]	[1.839]	[1.125]	[1.069]	[1.575]	[1.787]
CEO SHARE OWNED (t-1)	-8.448***	-8.766***	-12.948***	-12.840***	-7.654***	-7.965***	-10.206**	-10.093**
	[1.823]	[1.835]	[4.015]	[3.970]	[2.151]	[2.148]	[4.038]	[3.985]
IND_WC(t-1)		-0.027		0.099*		-0.051*		0.082
		[0.027]		[0.059]		[0.030]		[0.061]
IND_ALTMAN Z(t-1)		0.001		-0.003		0.003*		-0.004
		[0.001]		[0.002]		[0.002]		[0.003]
GINDEX(t-1)					0.009	0.006	0.033	0.036
					[0.021]	[0.021]	[0.030]	[0.030]
Industry and year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.077	0.078	0.073	0.075	0.077	0.079	0.07	0.071
Observations	10423	10155	4446	4386	7714	7561	3777	3728

Table 13: Post SCA turnover for CEOs at high GINDEX and low GINDEX companies

This table contains regressions that examine the likelihood that the CEO is replaced following a SCA. The models are logit models in which the dependent variable is an indicator that equals one if the CEO in year $t+1$ or $t+2$, differs from that in year t. Each of Columns 1-4 contains the control variables from Columns 1-4 of Table 11, respectively. The models also include industry and year fixed effects. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	CEO Turnover in Year $t+1$, $t+2$			
VARIABLES	[1]	[2]	[3]	[4]
Sample	Low GINDEX (GINDEX $\leq$ 10)			
CEO HOLDER67(t-1)	-0.310***	-0.218**	-0.205*	-0.188*
	[0.097]	[0.103]	[0.108]	[0.109]
SUED(t)	-0.849**	-0.851**	-0.850**	-0.790**
	[0.371]	[0.394]	[0.399]	[0.396]
CEO HOLDER67(t-1)*SUED(t)	0.854*	0.827*	0.831*	0.803*
	[0.475]	[0.487]	[0.495]	[0.482]
Controls, industry and year FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.04	0.055	0.061	0.059
Observations	8486	8255	7365	7130
Sample	High GINDEX (GINDEX > 10)			
CEO HOLDER67(t-1)	-0.172	-0.124	-0.039	-0.006
	[0.133]	[0.139]	[0.148]	[0.149]
SUED(t)	-0.252	-0.277	-0.125	-0.085
	[0.549]	[0.563]	[0.601]	[0.609]
CEO HOLDER67(t-1)*SUED(t)	0.855	0.889	0.78	0.64
	[0.671]	[0.668]	[0.705]	[0.731]
Controls, industry and year FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.07	0.078	0.08	0.083
Observations	4502	4321	3871	3840

Table 14: Media-based measures of overconfidence

This table contains regressions that examine the likelihood of a SCA using media-based measures of CEO overconfidence. The models are logit models in which the dependent variable is an indicator that equals one if the firm is subject to a SCA in year t. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	SCA Indicator		
	[1]	[2]	[3]
NETNEWS(t-1)	0.135***	0.109***	0.107***
	[0.035]	[0.038]	[0.038]
NYSE(t-1)		0.222	0.233
		[0.193]	[0.191]
LNASSET(t-1)	0.361***	0.346***	0.348***
	[0.061]	[0.064]	[0.064]
ROA(t-1)		1.458*	1.14
		[0.765]	[0.761]
SALES GROWTH(t-1)	1.393***	1.598***	1.540***
	[0.435]	[0.488]	[0.485]
R&D(t-1)		4.007**	3.719*
		[1.915]	[1.975]
PP&E(t-1)			-0.855
			[0.696]
MB(t-1)		0.049***	0.050***
		[0.015]	[0.015]
RETURN(t-1)	-12.678***	-14.905***	-14.274***
	[2.017]	[2.232]	[2.235]
SKEW(t-1)	-0.121	-0.107	-0.114
	[0.089]	[0.095]	[0.096]
RETURN STD DEV(t-1)	1.354	0.882	1.006
	[1.672]	[1.733]	[1.728]
TURNOVER(t-1)	0.156***	0.139***	0.128***
	[0.034]	[0.034]	[0.034]
INST(t-1)			0.239**
			[0.103]
EQUITY PROCCEEDS(t-1)		0.952	0.606
		[1.073]	[1.098]
DEBT PROCCEEDS(t-1)		0.068	0.083
		[0.398]	[0.394]
INSIDER TRADING(t-1)		0.552	0.606
		[0.594]	[0.591]
INSIDER HOLDING(t-1)		-2.589	-2.494
		[2.966]	[2.843]
IND_WC(t-1)			-0.043
			[0.049]
IND_ALTMAN Z(t-1)			0.003
			[0.003]
INTERCEPT	-18.913***	-19.756***	-19.774***
	[0.923]	[0.990]	[1.124]
Industry and year FE	Yes	Yes	Yes
Pseudo R-squared	0.148	0.16	0.161
Observations	3345	3078	2986

Table 15: Propensity Score and Panel Models

This table contains models that ensure the results are robust to modeling technique. Columns 1-6 use different propensity score techniques. Columns 1-3 match firms with overconfident CEOs with firms with non-overconfident CEOs. Column 1 contains a first-stage regression that predicts the likelihood that the firm has an overconfident CEO (as a function of firm-characteristics). Column 2 matches the control sample of non-overconfident firms with the set of overconfident firms as follows. We obtain the set of propensity scores from Column 1. Next we construct a distribution of propensity scores for the set of overconfident firms. Then we identify the 10^{th} percentile cut-off. Finally, we estimate the regression (in Column 2) omitting any non-overconfident firm whose propensity score lies below this 10^{th} percentile cut-off. In Column 3, we undertake one-to-four nearest neighbor matching. This functions by running the aforementioned first-stage model and obtaining the propensity scores from that model. The second-stage then retains the treatment firm and the nearest four control firms (which have the smallest difference in propensity score with the treatment firms). Columns 4-6 do a similar process but matching sued firms with non-sued firms. Column 7 contains a panel regression that uses firm and year fixed effects. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent variable	CEO HOLDER67(t)	SCA Indicator		SCA Indicator			SCA Indicator
Regression Technique	First stage-Logit	Matched sample. Remove lower 10% by P-Score	Matched sample. 1-to-4 nearest distance matching.	First stage-Logit	Matched sample. Remove lower 10% by P-Score	Matched sample. 1-to-4 nearest distance matching.	Panel Regression
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
CEO HOLDER67(t-1)		0.359***	0.368***		0.293***	0.268**	0.604***
		[0.112]	[0.111]		[0.107]	[0.113]	[0.129]
NYSE(t-1)	0.199**	0.021	-0.058	-0.021	-0.085	-0.039	
	[0.093]	[0.140]	[0.139]	[0.127]	[0.135]	[0.140]	
LNASSET(t-1)	-0.104***	0.347***	0.347***	0.280***	0.223***	0.130***	1.177***
	[0.030]	[0.049]	[0.048]	[0.042]	[0.051]	[0.045]	[0.128]
WC(t-1)	-0.019	-0.238	-0.147	-0.979**	0.094	0.676*	-0.335
	[0.266]	[0.431]	[0.418]	[0.415]	[0.409]	[0.407]	[0.513]
ROA(t-1)	1.623***	0.233	0.139	0.671**	0.078	-0.196	0.887**
	[0.330]	[0.409]	[0.344]	[0.342]	[0.308]	[0.357]	[0.435]
SALES GROWTH(t-1)	1.001***	1.324***	1.225***	1.076***	0.681***	0.21	0.944***
	[0.106]	[0.241]	[0.225]	[0.176]	[0.227]	[0.220]	[0.234]
R&D(t-1)	1.011	1.496	1.003	1.581*	0.311	-0.315	3.462**
	[0.680]	[1.045]	[1.061]	[0.895]	[1.026]	[1.021]	[1.380]
GOODWILL(t-1)	0.778**	-0.57	-0.625	-0.795	-0.443	0.15	0.12
	[0.308]	[0.517]	[0.499]	[0.500]	[0.488]	[0.492]	[0.630]
PP&E(t-1)	0.343	-1.716***	-1.954***	-2.071***	-0.545	-0.125	-2.051**
	[0.222]	[0.474]	[0.465]	[0.392]	[0.480]	[0.481]	[0.831]
ALTMAN Z(t-1)	0.047***	0.017**	0.014**	0.022***	0.008	0	0.035***
	[0.012]	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]	[0.009]
MB(t-1)	0.038***	0.048***	0.052***	0.050***	0.037***	0.013	0.060***
	[0.012]	[0.009]	[0.009]	[0.008]	[0.008]	[0.009]	[0.014]
RETURN(t-1)	5.625***	-10.618***	-10.671***	-9.820***	-6.410***	-1.974	-6.167***
	[0.532]	[1.623]	[1.577]	[1.499]	[1.545]	[1.442]	[1.171]
SKEW(t-1)	-0.032	-0.026	-0.027	-0.072	0.015	0.054	0.102*
	[0.023]	[0.078]	[0.074]	[0.073]	[0.070]	[0.071]	[0.058]
RETURN STD DEV(t-1)	0.433	0.934	0.927	2.408**	0.547	-0.387	-1.932**
	[0.396]	[0.697]	[0.688]	[0.986]	[0.691]	[0.724]	[0.935]
TURNOVER(t-1)	0.153***	0.075***	0.074***	0.059***	0.058***	0.035*	0.075***
	[0.023]	[0.018]	[0.018]	[0.018]	[0.017]	[0.018]	[0.026]
INST(t-1)	0.003	0.159**	0.173**	0.106*	0.140*	0.055	0.611***
	[0.062]	[0.074]	[0.074]	[0.059]	[0.072]	[0.073]	[0.198]
EQUITY PROCCEEDS(t-1)	0.713	1.880***	1.892***	2.225***	1.324***	0.247	1.065
	[0.447]	[0.499]	[0.471]	[0.460]	[0.436]	[0.472]	[0.672]
DEBT PROCCEEDS(t-1)	0.405**	-0.123	-0.187	0.126	-0.082	-0.121	-0.303
	[0.178]	[0.267]	[0.259]	[0.235]	[0.263]	[0.272]	[0.318]
INSIDER TRADING(t-1)	0.022	0.167	0.063	0.255	0.125	0.085	0.731**
	[0.239]	[0.487]	[0.497]	[0.463]	[0.403]	[0.358]	[0.338]
INSIDER HOLDING(t-1)	1.334**	-2.596*	-2.038	-2.13	-0.904	-0.525	-3.466**
	[0.635]	[1.450]	[1.502]	[1.342]	[1.441]	[1.346]	[1.387]
Industry FE	No	Yes	Yes	No	Yes	Yes	No
Year FE	No	Yes	Yes	No	Yes	Yes	Yes
Firm FE	No	No	No	No	No	No	Yes
Pseudo R-squared	0.075	0.153	0.151	0.095	0.094	0.076	4230
Observations	16178	13924	15153	16958	11537	4074	407

Table 16: Team overconfidence and SCAs: Executives ranked by salary

The models are logit models in which the dependent variable is an indicator that equals one if the firm is subject to a SCA in year t. The models include control variables with Columns 1-4 including the control variables in Columns 1-4 of Table 3, respectively. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	SCA Indicator			
Model	[1]	[2]	[3]	[4]
Panel A				
Top4 EXEC HOLDER67(t-1)	0.573***	0.373**	0.349**	0.369**
	[0.154]	[0.152]	[0.163]	[0.164]
Controls	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Pseudo R-squared	0.074	0.131	0.135	0.14
Observations	22264	22264	19579	19034
Panel B				
Non-Top4 EXEC HOLDER67(t-1)	0.493***	0.238**	0.205	0.167
	[0.122]	[0.121]	[0.126]	[0.126]
Controls	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Pseudo R-squared	0.072	0.129	0.135	0.142
Observations	18651	18651	16470	16062
Panel C				
Top4 EXEC HOLDER67(t-1)	0.380**	0.331*	0.357*	0.415**
	[0.193]	[0.197]	[0.210]	[0.206]
Non-Top4 EXEC HOLDER67(t-1)	0.311**	0.077	0.039	-0.02
	[0.146]	[0.150]	[0.153]	[0.149]
Controls	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Pseudo R-squared	0.074	0.129	0.136	0.143
Observations	18649	18649	16469	16061

Table 17: Kolasinski and Li (2013) type measures of overconfidence

This table contains regressions that examine the likelihood of a SCA using Kolasinski and Li (2013) measures of CEO overconfidence. The models are logit models in which the dependent variable is an indicator that equals one if the firm is subject to a SCA in year t. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	SCA Indicator			
	[1]	[2]	[3]	[4]
CEO stock purchase performance (t-1)	-0.615***	-0.560***	-0.544***	-0.527***
	[0.092]	[0.100]	[0.108]	[0.105]
NYSE(t-1)			-0.288	-0.293
			[0.219]	[0.212]
LNASSET(t-1)		0.392***	0.475***	0.440***
		[0.055]	[0.058]	[0.061]
ROA(t-1)			-0.17	-0.212
			[0.406]	[0.392]
SALES GROWTH(t-1)		0.789**	0.866**	0.851**
		[0.354]	[0.343]	[0.332]
R&D(t-1)			1.751	1.619
			[1.196]	[1.189]
PP&E(t-1)				-0.69
				[0.579]
MB(t-1)			0.012	0.011
			[0.014]	[0.014]
RETURN(t-1)		2.734*	2.423	2.415
		[1.616]	[1.997]	[2.042]
SKEW(t-1)		-0.12	-0.092	-0.062
		[0.087]	[0.093]	[0.096]
RETURN STD DEV(t-1)		2.367***	2.153***	2.087***
		[0.827]	[0.738]	[0.708]
TURNOVER(t-1)		0.061	0.03	0.027
		[0.109]	[0.052]	[0.029]
INST(t-1)				0.714**
				[0.310]
EQUITY PROCCEEDS(t-1)			0.514	0.594
			[0.628]	[0.601]
DEBT PROCCEEDS(t-1)			-0.017	0.151
			[0.353]	[0.335]
INSIDER TRADING(t-1)			0.913**	0.904**
			[0.419]	[0.409]
INSIDER HOLDING(t-1)			-2.432*	-1.887
			[1.456]	[1.341]
IND_WC(t-1)				0.054
				[0.046]
IND_ALTMAN Z(t-1)				-0.003
				[0.002]
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.0736	0.132	0.149	0.158
Observations	9395	9395	8753	8244

Table 18: Holder67 residual measure of overconfidence

This table contains regressions that examine the likelihood of a SCA using a Holder67 'residual' measure of overconfidence. We define the Residual CEO HOLDER67 (t-1) variable as the residual from the regression CEO HOLDER67 (t-1) = $\alpha + \beta$RETURN (t-1) + ε. The models are logit models in which the dependent variable is an indicator that equals one if the firm is subject to a SCA in year t. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent variable	SCA Indicator			
	[1]	[2]	[3]	[4]
Residual CEO HOLDER67(t-1)	0.351***	0.256***	0.186*	0.181*
	[0.094]	[0.092]	[0.097]	[0.098]
NYSE(t-1)			-0.137	-0.11
			[0.124]	[0.125]
LNASSET(t-1)		0.359***	0.378***	0.377***
		[0.040]	[0.043]	[0.044]
ROA(t-1)			0.632*	0.551
			[0.355]	[0.354]
SALES GROWTH(t-1)		1.455***	1.368***	1.288***
		[0.195]	[0.215]	[0.213]
R&D(t-1)			1.954**	1.555
			[0.979]	[1.002]
PP&E(t-1)				-1.284***
				[0.381]
MB(t-1)			0.052***	0.054***
			[0.008]	[0.008]
RETURN(t-1)		-4.387***	-6.006***	-5.896***
		[1.153]	[1.334]	[1.334]
SKEW(t-1)		-0.119*	-0.096	-0.101
		[0.062]	[0.065]	[0.065]
RETURN STD DEV(t-1)		2.457**	2.473**	2.633**
		[0.980]	[1.115]	[1.143]
TURNOVER(t-1)		0.117***	0.097***	0.093***
		[0.018]	[0.019]	[0.019]
INST(t-1)				0.209***
				[0.067]
EQUITY PROCCEEDS(t-1)			1.902***	1.734***
			[0.516]	[0.525]
DEBT PROCCEEDS(t-1)			-0.064	-0.058
			[0.238]	[0.234]
INSIDER TRADING(t-1)			0.113	0.066
			[0.454]	[0.475]
INSIDER HOLDING(t-1)			-2.327	-2.912*
			[1.454]	[1.564]
IND_WC(t-1)				0.022
				[0.019]
IND_ALTMAN Z(t-1)				-0.001
				[0.001]
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.0677	0.125	0.129	0.134
Observations	22173	22173	19496	18958

Table 19: Robustness to removing repeatedly sued firms

This table contains models that use the specification in Kim and Skinner (2012, Table 7) and that omit firms that are sued more than once during the sample period. The models are logit models in which the dependent variable is an indicator that equals one if the firm is subject to a SCA in year t. We report regression coefficients. Brackets contain standard errors (based on standard errors clustered by firm) and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	SCA Indicator			
Model	[1]	[2]	[3]	[4]
CEO HOLDER67(t-1)	0.409***	0.373***	0.297***	0.286***
	[0.098]	[0.099]	[0.103]	[0.104]
NYSE(t-1)			-0.097	-0.053
			[0.124]	[0.125]
LNASSET(t-1)		0.315***	0.330***	0.332***
		[0.037]	[0.039]	[0.040]
ROA(t-1)			0.784**	0.690**
			[0.337]	[0.335]
SALES GROWTH(t-1)		1.428***	1.363***	1.303***
		[0.195]	[0.215]	[0.215]
R&D(t-1)			1.791*	1.435
			[1.000]	[1.025]
PP&E(t-1)				-1.323***
				[0.394]
MB(t-1)			0.056***	0.058***
			[0.008]	[0.008]
RETURN(t-1)		-8.495***	-10.947***	-10.895***
		[1.227]	[1.430]	[1.433]
SKEW(t-1)		-0.036	-0.007	0
		[0.064]	[0.067]	[0.068]
RETURN STD DEV(t-1)		1.705**	1.473*	1.541*
		[0.861]	[0.843]	[0.862]
TURNOVER(t-1)		0.120***	0.094***	0.090***
		[0.016]	[0.016]	[0.017]
INST(t-1)				0.199***
				[0.069]
EQUITY PROCCEEDS(t-1)			2.380***	2.257***
			[0.461]	[0.464]
DEBT PROCCEEDS(t-1)			-0.068	-0.105
			[0.251]	[0.251]
INSIDER TRADING(t-1)			0.225	0.187
			[0.436]	[0.454]
INSIDER HOLDING(t-1)			-1.974	-2.455*
			[1.256]	[1.340]
IND_WC(t-1)				0.015
				[0.019]
IND_ALTMAN Z(t-1)				-0.001
				[0.001]
INTERCEPT	-4.719***	-7.922***	-7.993***	-8.293***
	[0.891]	[0.692]	[0.670]	[0.664]
Industry and year FE	Yes	Yes	Yes	Yes
Pseudo R-squared	0.062	0.119	0.127	0.133
Observations	22191	22191	19490	18954