Sensation-seeking CEOs and Stock Price Crashes

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Abstract

This study investigates the association between sensation-seeking CEOs and firms' stock price crash risk. Using CEOs' pilot licenses to proxy for sensation-seeking personality trait, we find the positive association between sensation-seeking CEOs and stock price crash risk after controlling for a vector of the firm- and CEO- level of characteristics and firm and year fixed effect. After performing a series of robustness tests, using the propensity score matching method, and several difference-in-difference tests to address endogeneity problems, our positive association remains. Furthermore, our channel tests show that sensation-seeking CEOs are more likely to use aggressive accounting reporting policies and real earnings management to hide bad news. In our further tests, we provide evidence that sensation-seeking CEOs are more likely to hide bad news related to excess corporate risk-taking. Finally, we find that higher managerial ability can moderate the association between sensation-seeking CEOs and stock price crash risk. Overall, our study shed light on how sensation-seeking CEOs affect firms' stock price crash risk.

Sensation-seeking CEOs; Stock price crash risk; Bad news withholding.

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1. Introduction

Stock price crash risk captures the third moment of stock returns—tail risk, attracting a lot of attentions after the 2008 financial crisis. The stock price crash risk is defined as conditional skewness in the stock return distribution for individual stocks. It can capture the asymmetry in risk. The previous literature on stock price crash risk mainly focuses on how firm-level characteristics affect firms' future stock price crash risk. For example, Hutton et al. (2009) show that firms with opaque financial reports are more likely to experience future stock price crash risk. Besides, Kim et al. (2011b) find that corporate tax avoidance is positively associated with firms' future stock crashes. Furthermore, Kim and Zhang (2016) give evidence that firms that are conservative in financial reporting are negatively associated with future stock price crashes.

This stream of studies on stock price crash risk is concentrated on the impact of firm-level characteristics on the likelihood of experiencing future stock price crashes. However, there is less evidence on whether stock price crash risk is affected by characteristics of CEOs who operate corporate activities every day. Kim et al. (2016) first study how overconfident CEOs affect firms' stock price crash risk. Their study finds that overconfident CEOs are more likely to withhold bad news, and induce firms to experience future stock price crashes. Andreou et al. (2016) document that younger CEOs are more likely to withhold bad news due to financial incentives, which induce firms to have higher likelihood of

experiencing stock price crashes in the future. Additionally, Chen et al. (2021) find that traumatic early-life disasters can lead CEOs to be more risk-tolerant and likely to accept the risk from bad news holding, consequently can increase the probability of experiencing stock price crashes. This stream of literature argues that CEO-specific characteristics can bias their decisions towards withholding bad news. Firms are more likely to experience stock price crashes when insider managers find that the cost of holding bad news is higher than the benefits of holding bad news.

Among these studies, it is unclear whether sensation-seeking CEOs could affect firms' future stock price crash risk. Therefore, this study investigates the impact of sensation-seeking CEOs on firms' stock price crash risk. Evidence from psychology studies has confirmed that the sensation-seeking personality trait is a consistent and innate personality trait, which associates with an extremely wide range of risk-taking behaviours, such as risky sports, smoking, and crime (Zuckerman, 2007). In addition, individuals with sensation-seeking personality trait are more likely to perceive stressful situations as lower-risk situations (Franken et al., 1992).

Prior studies on corporate finance have confirmed that firms led by sensation-seeking CEOs are more likely to have aggressive corporate decisions (Cain and McKeon, 2016), better innovation outcomes (Sunder et al., 2017), use trade credit (Xu et al., 2021a), use corporate tax avoidance (Liu et al., 2021), and less likely to release voluntary earning forecast (Gao et al., 2022). Furthermore, recent

studies argue that CEOs act as the highest rank of employees in firms, and take responsibility for major corporate decisions, and operating decisions, and linking other executives and board of directors with corporate decisions (Li and Zeng, 2019). Therefore, we predict that CEOs with sensation-seeking personality trait are more likely to perceive the risk and costs of hiding bad news as lower risk and costless, consequently inducing firms to experience stock price crashes in the future.

We test our research question using a sample of S&P 1500 firms during 1993-2020. We follow the previous studies in the sensation-seeking literature (e.g., Cain and McKeon, 2016, Sunder et al., 2017) to use pilot licenses to proxy for CEO sensation-seeking. We manually collect CEOs' pilot licenses from the Federal Aviation Administration (FAA) online airmen inquiry website. With respect to stock price crash risk, we follow prior studies in the crash risk literature (e.g., Chen et al., 2001, Hutton et al., 2009, Chen et al., 2021) to use negative skewness (NSKEW), and down-to-up volatility (DUVOL) to measure firms' stock price crash risk.

Consistent with our hypothesis, we find that firms led by sensation-seeking CEOs are more likely to experience future stock price crashes. Additionally, we perform a variety of robustness tests to examine the robustness of the positive association between CEO sensation-seeking and firms' stock price crash risk, and robustness tests including: (1) using Cain and McKeon's sample; (2) dropping aviation industries; (3) dropping market over-volatile periods; (4) keeping

financial and utility industries; (5) controlling for CEOs' characteristics; (6) controlling for high-dimensional fixed effect. All of our robustness tests support our positive relationship between sensation-seeking CEOs and firms' stock price crash risk.

Our baseline regression results may suffer from several endogeneity issues. For example, firms with ex-ante higher stock price crash risk may be more likely to hire sensation-seeking CEOs since they think sensation-seeking CEOs may help them reduce the high level of stock price crash risk. Besides, sensation-seeking CEOs may be more likely to engage in firms with higher ex-ante stock price crash risk to seek thrilling feelings. Therefore, we first use the propensity score matching method to eliminate the difference in firms' characteristics which may bring different stock price crash risk between firms led by sensation-seeking CEOs and firms led by non-sensation-seeking CEOs. Our results in propensity score matching tests are consistent with our baseline regression results. Additionally, we perform the univariate difference-in-difference tests, generalised difference-in-difference tests, and dynamic difference-in-difference tests to address our endogeneity issue. All our difference-in-difference test results support our baseline regression finding.

Furthermore, we explore the potential channels through which sensation-seeking CEOs could affect firms' future stock price crash risk. We examine the direct channel, that is, sensation-seeking CEOs induce firms' higher stock price crash risk by increasing asymmetric information between firms and outsiders. We

follow Kim and Zhang (2016) and Kim et al. (2021) to examine whether firms led by sensation-seeking CEOs are less likely to use firm-level conditional accounting conservatism and more likely to use real earnings management. Our evidence of channel tests shows that firms led by sensation-seeking CEOs are less likely to use conditional accounting conservatism and more likely to use real earnings management, suggesting that sensation-seeking CEOs induce firms' stock price crash risk due to withhold bad news.

In further tests, we examine whether sensation-seeking CEOs hide bad news related to excess risk-taking corporate decisions. Sensation-seeking CEOs are more likely to undertake risky corporate decisions, which could increase the ex-ante firms' financial risk. Besides, the outsiders could investigate the excess risk-taking behaviours that bring by sensation-seeking CEOs. Consequently, firms led by sensation-seeking CEOs are more likely to experience financial constraints. In higher ex-ante financial risk or financially constrained environments, sensation-seeking CEOs are more likely to hide bad news to bias the views of market investors or financing institutions. Consequently, firms led by sensation-seeking CEOs are more likely to trigger future stock price crashes. Our cross-sectional regression results suggest that the positive association between sensation-seeking CEOs and firms' stock price crash risk is more pronounced in the higher ex-ante financial risk and financially constrained environment, which supports our predictions.

Finally, we examine whether high managerial ability could moderate the positive relation between sensation-seeking CEOs and firms' stock price crash risk. With higher managerial ability, managers could operate firms more efficiently, which could cause less bad news. Our results show that firms led by sensation-seeking CEOs are less likely to experience stock price crashes when managers have the higher managerial ability.

Our study makes several contributions. First, we fill the gap of how CEOs' characteristics affect corporate decisions and outcomes, especially in the impact of sensation-seeking CEOs on stock price crash risk. Prior studies have examined the impact of sensation-seeking CEOs on risky corporate policies (Cain and McKeon, 2016), innovation outcomes (Sunder et al., 2017), credit rating (Cao et al., 2019), financial reporting quality (Lobo et al., 2018), trade credit (Xu et al., 2021a), corporate tax avoidance (Baghdadi et al., 2021, Liu et al., 2021), and cost of debt (Ouyang et al., 2021), and management earning forecast (Gao et al., 2022). Our study can add the discussion to the impact of sensation-seeking CEOs on firms' future stock price crash risk.

Second, our study contributes to the determinants of stock price crash risk. The rapid growth of studies on crash risk have confirmed that stock price crash risk could be affected by financial reporting opacity (Hutton et al., 2009), managerial incentive (Kim et al., 2011a), tax avoidance (Kim et al., 2011b), corporate social responsibility (Kim et al., 2014), religion (Callen and Fang, 2015a), overconfident CEOs (Kim et al., 2016), CEO age (Andreou et al., 2016),

accounting conservatism (Kim and Zhang, 2016), top management team gender (Li and Zeng, 2019), CFO culture background (Fu and Zhang, 2019), powerful CEOs (Al Mamun et al., 2020), financial distress (Andreou et al., 2021), married CEOs (Kim et al., 2021), and board social capital (Jebran et al., 2022). Our study suggests that sensation-seeking CEOs may be a determinant of stock price crash risk.

The remainder of this paper is as follows: section 2 provides related literature and empirical predictions. Section 3 provides the data and sample selection. Section 4 provides the empirical results. Section 5 provides further tests. Section 6 provides the conclusion.

2. Related literature and empirical predictions

Stock price crashes could be triggered by several mechanisms. Earlier studies have confirmed that investors who hold different opinions could affect market crashes (Hong and Stein, 2003). In comparison, the literature on corporate finance focuses on the impact of firm-level characteristics on stock price crash risk. Jin and Myers (2006) argue that inside managers may soak up some firm-specific bad news in opaque firms to protect their jobs. The number of withholding these firm-specific bad news is limited, and these accumulative firm-specific bad news will flow to the market at once when inside managers do not want to hide this bad news, engendering that stock market crashes.

In this vein, a growing stream of empirical studies has given direct evidence of how opacity could affect firms' stock price crash risk. For example, Hutton et al. (2009) use earning management to proxy for opacity and find that earning management is positively associated with firms' stock price crash risk. Besides, Kim et al. (2011b) use tax avoidance to measure the opacity and find that tax avoidance is positively associated with firms' stock price crash risk. Kim et al. (2014) argue that firms with higher levels of corporate social responsibility are more likely to be transparent, therefore, these firms are less likely to experience stock price crashes.

Furthermore, Callen and Fang (2015a) argue that firms headquartered in higher levels of religious areas are less likely to withhold bad news, consequently experiencing fewer stock price crashes. Kim and Zhang (2016) find that accounting conservatism can increase the validity of news released to the market, which is more likely to decrease stock price crash risk. Andreou et al. (2021) show that financially distressed firms are more willing to hoard bad news, inducing that these firms experience stock price crashes.

The above studies are based on a hypothesis that corporate managers are homogeneous and they can make rational decisions. Managers withhold bad news to gain interests at the expense of shareholders' interests because of receiving bad incentives (Kim et al., 2016). However, recent studies in psychology and corporate finance argue that individual's personality traits, demographic characteristics, and early-life experience could bias their decision-making,

consequently affecting the likelihood of stock price crashes. For example, Kim et al. (2016) examine whether overconfident CEOs affect firms' stock price crash risk. They argue that overconfident CEOs are more likely to overestimate their ability and mis-calibrate the value of projects, inducing that overconfident CEOs are more likely to stick with value-decreasing projects. Furthermore, overconfident CEOs are more likely to convince impatient outside investors that their projects are value-increasing; therefore, overconfident CEOs are willing to stockpile bad news, which eventually induces future stock price crashes.

Andreou et al. (2016) study whether CEOs' age impacts stock price crash risk. They argue that younger CEOs have incentives to hoard bad news to secure their future career and compensation package, inducing that firms with younger CEOs are positively associated with future stock price crash risk. Li and Zeng (2019) argue that female executives are more likely to be conservative and less overconfident; therefore, firms with female executives are less likely to experience stock price crashes. Fu and Zhang (2019) examine whether CFOs' cultural backgrounds could affect firms' stock price crash risk in the UK market. They find that CFOs with higher level of country-level Hofstede uncertainty avoidance index are less likely to hoard bad news, eventually, less likely to experience stock price crashes.

Chen et al. (2021) investigate whether CEOs' early-life disaster experiences could affect stock price crash risk. They find that CEOs' early-life disaster experiences (e.g., earthquakes, volcanic) can affect their risk preferences and

make them more risk-tolerant. Therefore, firms led by CEOs who experience early-life disasters are more to experience stock price crashes in the future. Finally, Kim et al. (2021) find that married CEOs are more likely to be conservative and thus negatively associated with stock price crash risk.

Among these studies, there is no evidence of how sensation-seeking managers affect stock price crash risk. Sensation seeking is an innate personality trait which is associated with individuals' risk-taking behaviours under an extremely wide range of situations, such as risk driving, risky sports, risky vocation, alcohol, smoking, crime, risky sexual activity, gambling, and some leisure activities (such as bungee jumping) (Zuckerman, 2007). Sensation-seeking personality trait is considered as a stable personality which is less likely to be changed through interventions (Zuckerman, 2007), since this personality trait is predominantly controlled by an individual's addictive gene action (Fulker et al., 1980).

Prior studies have confirmed that firms led by sensation-seeking CEOs are more likely to adopt risky corporate decisions (Cain and McKeon, 2016), engage in corporate avoidance (Baghdadi et al., 2021), and less likely to disclose private information to the market (Gao et al., 2022). These studies imply that firms operated by sensation-seeking CEOs are more likely to adopt aggressive corporate policies and hold bad news related to bad effects of aggressive decisions. Based on these studies, we predict that sensation-seeking CEOs are

more likely to underestimate the risk and costs of hoarding bad news, inducing that firms are more likely to experience stock price crashes in the future.

Hypothesis: Firms operated by sensation-seeking CEOs are positively associated with stock price crash risk.

3. Data and sample selection

3.1. Data source

We collect information on CEOs from Standard & Poor's ExecuComp database and pilot information from Federal Aviation Administration's Airmen Certification Inquiry database.[1] Firms' market-based data from the Center for Research in Security Price database, and accounting-based data from the Compustat database.

3.2. Sample selection

Our sample period is from 1993 to 2020.[2] We follow Chen et al. (2021) and Al Mamun et al. (2020) to make several restrictions for our sample. First, we drop firm-year observations with negative total assets. Second, we drop firm-year observations if the number of firms' annual stock return data is fewer than 26 weeks. Third, we drop firm-year observations that fiscal year-end stock price is lower than $1. Fourth, we drop financial and utility industries due to the different regulations. Finally, we drop firm-year observations with missing data. Our final

[1] Website for this database: https://amsrvs.registry.faa.gov/airmeninquiry/
[2] We lag our independent variable by one year, therefore, we start at 1993.

sample consists of 15,135 firm-year observations, 1,341 unique firms, and 2,702 unique CEOs.

3.3. Measuring sensation-seeking CEO

In this study, we follow Cain and McKeon (2016) and Sunder et al. (2017) to use piloting small aircrafts as a proxy for sensation-seeking personality trait. The prior studies in psychology literature have confirmed that individual who pilot a small aircraft is identified as a sensation seeker (Slanger and Rudestam, 1997).

We follow Cain and McKeon (2016) to use three steps to identify whether CEOs are sensation-seeking CEOs. First, we input the CEOs' full names that from Execucomp database into the FAA airmen online inquiry website.[3] We classify CEOs as non-sensation-seeking CEOs if there is no recording for these CEOs on this website after the first step. In the second step, we use the date of birth to verify whether the recording on the FAA website is sensation-seeking CEOs. To retrieve CEOs' date of birth, we use BoardEx, Ancenstry.com, Prabook.com, Notable Names Database (NNDB), Wikipedia, and obituary information to collect CEOs' date of birth. Finally, we input CEOs' names and date of birth on the FAA website to verify sensation-seeking CEOs. If there is still a recording for CEO after performing this step, we classify this CEO as a sensation-seeking CEO.

[3] FAA website also provides downable database for airmen's certificates information. However, airmen who are not willing to disclose their certificates information are not shown in the downable database. Therefore, we follow Cain and McKeon (2016) to use FAA online airmen inquiry website rather than downable database.

3.4. Measurements for stock price crash risk

We follow prior studies (Chen et al., 2001, Hutton et al., 2009, Chen et al., 2021) to use negative skewness (NSKEW) and down-to-up volatility (DUVOL) to measure firms' stock price crash risk. To estimate these stock price crash risk, we first estimate firm-specific weekly returns by using OLS regression, and the equation is shown as below:

$$r_{n,t} = \alpha_n + \beta_1 r_{m,t-2} + \beta_2 r_{m,t-1} + \beta_3 r_{m,t} + \beta_4 r_{m,t+1} + \beta_5 r_{m,t+2} + \varepsilon_{n,t} \quad (1)$$

Where $r_{n,t}$ is the return for stock n in week t and $r_{m,t}$ is the return for value-weighted market index in week t. We follow Dimson (1979) to use two lead and lag terms of return of value-weighted market index to correct for non-synchronous trading. These four returns for value-weighted index capture firm's return that is associated with the stock market movement. The residual term $\varepsilon_{n,t}$ refers to idiosyncratic error term. To reduce positive skewness and increase symmetry for stock return distribution, the firm-specific weekly return ($W_{n,t}$) is calculated by natural logarithm of idiosyncratic error term (residual term) plus 1.

We follow Chen et al. (2001) to use NSKEW to capture the stock price crash risk, which is calculated by the negative of the third movement of firm-specific weekly return divided by the standard deviation of firm-specific weekly returns raised to the third power. The equation for this measurement is shown below:

$$NSKEW_{n,t} = -\frac{N(N-1)^{\frac{3}{2}}\sum W_{n,t}^3}{(N-1)(N-2)(\sum W_{n,t}^2)^{\frac{3}{2}}} \quad (2)$$

Where N is the total number of firm-specific returns for firm n in fiscal year T. $\sum W_{nD,t}^3$ refer to sum of cub of firm-specific weekly return for firm n in fiscal year T.

Second, we follow Chen et al. (2001) to use DUVOL to capture the stock price crash risk. DUVOL is computed by natural logarithm of standard deviation of firm-specific weekly returns below the annual mean (down week) divided by standard deviation of firm-specific weekly returns over the annual mean (up week), and the equation is shown as below:

$$DUVOL_{n,t} = \ln \frac{(N_U-1)\sum W_{nD,t}^2}{(N_D-1)\sum W_{nU,t}^2} \quad (3)$$

Where N_D and N_U refer to total number of weeks in the down week and up week for firm N in fiscal year t, separately. $\sum W_{nD,t}^2$ and $\sum W_{nU,t}^2$ refer to sum of square of firm-specific weekly return in down week and up week for firm n in fiscal year T, separately.

Following Kim et al. (2011a) and Al Mamun et al. (2020), the estimating period for our two stock price crash risk starts from three months after firms' fiscal year-end and ends at 12 months later. The higher values of these stock price crash risk measurements refer to higher levels of crash risk.

3.5. Descriptive statistics

Panel A of table 1 reports the descriptive statistics in our study. The mean value of sensation-seeking CEOs is 7.3%, which is similar with Sunder et al. (2017) who report mean value of sensation-seeking CEOs is 7.77%. The mean

value of NCSKEW is 9.4%, and the mean value of DUVOL is 5.8%.[4] Descriptive statistics for other control variables are also comparable with prior studies (e.g., Li and Zeng, 2019). Panel B of table 1 reports the univariate test on the association between sensation-seeking CEOs and firms' stock price crash risk. Consistent with our hypothesis, the firms with sensation-seeking CEOs are more likely to have higher stock price crash risk measured by DUVOL. Correlation matrix is reported in online appendix A1.

4. Empirical results

4.1. Sensation-seeking CEOs and stock price crash risk

We use OLS model to examine whether sensation-seeking CEOs affect firms' stock price crash risk. Our baseline model is shown below:

$$crash\ risk_{n,T+1} = \beta_0 + \beta_1 sensation - seeking\ CEO_{n,T} + \gamma' control\ variable_{n,T} + \alpha_y + \alpha_F + \varepsilon_{n,T} \quad (4)$$

Where $crash\ risk_{n,T+1}$ is stock price crash risk for firm n in T+1 year. Sensation-seeking CEO is a dummy variable, which equals one if CEO holds pilot licenses, and zero otherwise. $control\ variable_{n,T}$ is a vector of control variables that affect stock price crash risk: NCSKEW, Opaque, Cash, M/B, ROA, Leverage,

[4] The descriptive statistics for our stock price crash risk are a little larger than Kim et al. (2016) and a little smaller than Chen et al. (2021). The mean (standard deviation) of NCSKEW for Kim et al. (2016) is 6.8% (0.740), and for Chen et al. (2021) is 12.1% (0.71); However, the mean (standard deviation) of NCSKEW for us is 9.4% (0.785). The mean (standard deviation) of DUVOL for Kim et al. (2016) is 2.7% (0.345), and for Chen et al. (2021) is 8.6% (0.47); However, the mean (standard deviation) for us is 5.8% (0.51). there are three reasons for this difference: (1) our sample period spans from 1993 to 2020, whereas sample period for Kim et al. (2016) is 1993-2010; (2) stock price crash risk increases with firm size Chen et al. (2021); the mean firm size in our sample is 7.639, which is higher than the mean firm size in Kim et al. (2016) and lower than Chen et al. (2021); (3) we follow Li and Zeng (2019) to employ extended market index model to calculate stock price crash risk, in comparison, Kim et al. (2016) add two led and lag industry return into extended market index to calculate stock price crash risk. Our one year lagged NCSKEW and NCSKEW are similar with Andreou et al. (2016) and Li and Zeng (2019).

Ret, Sigma, Size, Dturnover. In the robustness check, we add some CEO-level control variables: age, gender, tenure, and CEO overconfidence. Sensation-seeking CEOs and all the control variables are lagged by one year, and all the continuous control variables used in our model are winsorised at the 1st and 99th level. α_y and α_F are year fixed effect and firm fixed effect, respectively. Definitions for variables are reported in Appendix A.

We report our baseline regression results in table 2. Column (1) and column (2) only include sensation-seeking CEOs, firm, and year fixed effect. Column (1) and column (2) of table 2 show that coefficients on sensation-seeking CEOs are significant and positive at the 5% level, suggesting that sensation-seeking CEOs are positively associated with stock price crash risk. Firms led by sensation-seeking CEOs are associated with an increase NCSKEW by 10.4% and DUVOL by 6.6%, respectively. In column (3) and column (4) of table 2, we add firm-level control variables. Sensation-seeking CEOs are incrementally and significantly positively associated with stock price crash risk. Firms led by sensation-seeking CEOs are associated with increase NCSKEW by 11.1% and DUVOL by 7.0%, respectively. In column (5) and column (6), we add CEO-level control variables. Consistent with the previous finding, sensation-seeking CEOs are incrementally and significantly positively associated with two stock price crash risk measurements. Firms led by sensation-seeking CEOs are more likely to have 11.8% higher NCSKEW and 7.5% higher DUVOL than firms led by non-sensation-seeking CEOs. Overall, our findings in table 2 support the hypothesis that firms

led by sensation-seeking CEOs are more likely to have higher stock price crash risk.

4.2. Robustness tests

In this subsection, we conduct several tests to check the robustness of the positive association between sensation-seeking CEOs and firms' stock price crash risk: (1) using alternative sample; (2) dropping aviation industry; (3) dropping market over-volatile periods; (4) keeping financial and utility industries; (5) controlling for CEO overconfidence; (6) controlling for high-dimensional fixed effect.

In our first robustness test, we follow Cain and McKeon (2016) to keep CEOs whose date for becoming CEOs is later than 1 January 1991. This test aims to rule out the possibility that our positive association between sensation-seeking CEOs and stock price crash risk is driven by sample selection bias. Column (1) and column (2) of table 3 report the regression results for our first robustness test. Coefficients on sensation-seeking CEOs are both significant and positive, suggesting that our positive association between sensation-seeking CEOs and stock price crash risk is unchanged when we use Cain and McKeon (2016) sample.

In our second robustness test, we follow Cain and McKeon (2016) to drop firms in the aviation industry and re-estimate our baseline regression.[5] This test aims to rule out the possibility that the aviation industry may be more likely to

[5] The SIC code for aviation industry: (1) from 3720 to 3728; (2) from 4500-4600.

hire CEOs with sensation-seeking personality trait to satisfy their corporate operating strategy, although firms are less likely to hire sensation-seeking CEOs to experience more stock price crashes. Column (3) and column (4) of table 3 report the regression results after excluding aviation industry. Coefficients on sensation-seeking CEOs are both significant and positive at the 5% level, suggesting that our finding is not affected by the aviation industry.

In our third robustness test, we follow Chen et al. (2021) to exclude the tech bubble period (2000-2001) and the global financial crisis period (2007-2008) to rule out the possibility that the positive association between sensation-seeking CEOs and firms' bankruptcy risk is driven by market over-volatile periods. Column (5) and column (6) of table 3 report the result after excluding the market over-volatile period. Coefficients on sensation-seeking CEOs are still significant and positive, suggesting that our positive relationship remains after excluding these two periods.

In our fourth robustness test, we follow Chen et al. (2021) to include financial and utility industries and re-examine our baseline result. Column (7) and column (8) of table 3 show the regression results after including financial and utility industries. Both coefficients on sensation-seeking CEOs remain significant and positive, suggesting that these two industries do not impact our baseline finding.

In our fifth robustness test, we control for CEO overconfidence to examine that our positive relationship between sensation-seeking CEOs and firms' stock price crash risk is not biased by CEO overconfidence. We follow Schrand and

Zechman (2012) and Kim et al. (2016) to construct firm-level based overconfident CEOs. CEOs who are identified as overconfident CEOs should meet at least three of the following five criteria: (1) Excess investment is in the top quartile within industry-years. Excess investment is calculated from the residual from a regression of total asset growth on sales growth; (2) Net acquisitions in the top quartile within industry-years; (3) Debt to equity ratio in the top quartile within industry-years. Debt to equity ratio is calculated by the sum of long-term debt and short-term debt divided by the sum of market equity plus long-term debt plus preference stock; (4) Either convertible debt or preferred stock is greater than zero; (5) Dividend yield is equal to zero. If firms meet at least three of these five criteria, we identify CEOs are overconfident CEOs, and non-overconfident CEOs otherwise.

Table 4 reports the results after controlling for overconfident CEOs. Both coefficients on sensation-seeking CEOs are significant and positive, while coefficients on overconfident CEOs are both insignificant, suggesting that the effect of sensation-seeking CEOs on crash risk is stronger than the effect of overconfident CEOs on crash risk.

In our last robustness test, we follow Li and Zeng (2019) to employ firm fixed effect and an interaction between industry and year fixed effect to rule out the possibility that our positive association between sensation-seeking CEOs and stock price crash risk may be affected by unobserved variables that time-varying heterogeneity across industry. Table 5 reports the regression result after including

the high-dimensional fixed effect. All coefficients on sensation-seeking CEOs are significant and positive at the 5% level, suggesting that unobserved variables that time-varying heterogeneity across industry do not affect our positive association between sensation-seeking CEOs and stock price crash risk.

4.3. Endogeneity

Our above tests show that firms led by sensation-seeking CEOs are more likely to experience future stock price crashes. Our positive association may suffer from endogeneity issues. For example, sensation-seeking CEOs may be attracted by firms with certain sensation-seeking environments. On the other hand, firms with ex-ante higher stock price crash risk may be more likely to hire sensation-seeking CEOs because they may believe that CEOs with sensation-seeking personality trait could help them reduce the high stock price crash risk. Although we drop the aviation industry in our robustness test subsection, we still need to do further tests to address this issue. Furthermore, the functional form misspecification concern and non-random selection issue may bias our positive association between sensation-seeking CEOs and stock price crash risk (Shipman et al., 2017). Therefore, in this section, we perform two tests to address the potential endogeneity issues: (1) a propensity score matching; (2) difference-in-difference tests.

4.3.1. Propensity score matching

We first perform the propensity score matching technique to address these potential endogeneity issues. This method can allow us to compare stock price crash risk between firms with sensation-seeking CEOs and similar firms with non-sensation-seeking CEOs.

To perform the propensity score matching method, we match firms led by sensation-seeking CEOs (*treatment group*) with similar firms led by non-sensation-seeking CEOs (*control group*) by using all firm-level control variables used in our baseline model. To ensure that our two groups are comparable, we use the nearest neighbour matching method, match without replacement, a caliper of 0.2 of standard deviation of propensity score, and match within the same year and industry. Finally, we follow Xu et al. (2021b) to include industry and year fixed effect when calculating the propensity score, and firm and year fixed effect when we use matched sample to re-examine our baseline regression result.

Panel A and panel B in table 6 report the covariate balance before and after performing the propensity score matching method. After performing propensity score matching method, the difference in covariate between firms led by sensation-seeking CEOs and firms led by non-sensation-seeking CEOs is insignificant. This result suggests that there is no significant difference in stock price crash risk between these two groups.

Panel C reports the baseline regression results based on propensity score matched sample. Coefficients on sensation-seeking CEOs are both significant and

positive at the 1% level in column (1) and column (2). Overall, our propensity score matching results suggest that the CEOs sensation-seeking is important in affecting firms' stock price crash risk.

4.3.2. Difference-in-difference test

Second, we follow Parrino (1997), Peters and Wagner (2014), and Chyz et al. (2019) to use unforced CEO turnovers to address the endogeneity issue that discusses in the above section.[6] Following their research, we exclude CEOs turnovers related to forced turnover and the criteria are shown below: (1) all CEOs turnovers are defined as forced in the Wall Street Journal; (2) Wall Street Journal does not report reasons for CEOs turnovers due to death, poor health, or shift to other firms or other positions within the same firms; (3) Wall Street Journal reports CEOs turnovers, however, does not disclose these turnovers events at least six months before turnover events. After excluding these forced CEO turnover events, we follow Chyz et al. (2019) to further exclude forced CEO turnover by observing the CEOs' age for CEO turnover year. We identify forced CEO turnovers in the remaining sample if turnovers happen when the CEO is below 63 or above 71, and unforced CEOs turnovers otherwise. Relying on these criteria, our sample consists of 601 unforced turnover events. Overall, our difference-in-difference research design can help us isolate turnover events due CEOs' bad performance.

[6] Data resource: https://www.florianpeters.org/data/

After identifying unforced turnover events, we use difference-in-difference tests to understand what happens to the firm's stock price crash risk after experiencing a transition from non-sensation-seeking CEO to sensation-seeking CEO, relative to a transition from non-sensation-seeking CEO to non-sensation-seeking CEO. We limit our sample to the four years before and after a CEOs transition and exclude the transition year. Our generalised difference-in-difference model specification is as below:

$$crash\ risk_{n,T+1} = \beta_0 + \beta_1 Transition\ Firm + \beta_2 Turnover + \beta_3 Transition\ Firm\ X\ Turnover + \gamma' control\ variable_{n,T} + \alpha_y + \alpha_{F/I} + \varepsilon_{n,T} \quad (5)$$

Where $Transition\ Firm$ is a dummy variable that equals to one for firms experiencing a transition from non-sensation-seeking CEOs to sensation-seeking CEOs (*treatment group*), and zero for firms experiencing a transition from non-sensation-seeking CEOs to non-sensation-seeking CEOs (*control group*). $Turnover$ is a dummy variable that equals to one for firms in the post-transition period and zero otherwise. $Control\ variable_{n,T}$ are control variables in our baseline regression model. α_y is year fixed effect, and $\alpha_{F/I}$ is firm or industry fixed effect. $Transition\ Firm\ X\ Turnover$ is our main interest variable, and we predict the sign of coefficients on this variable is positive.

Besides, we also follow Wruck and Wu (2022) to add pre-transition period effect into our generalised difference-in-difference model to keep the ex-ante

parallel trends in the stock price crash risk between firms experiencing a transition from non-sensation-seeking CEO to sensation-seeking CEO and firm experience a transition from non-sensation-seeking CEO to non-sensation-seeking CEO.

Table 7 reports the univariate difference-in-difference test results. In the pre-transition period, there is no statistically and significantly different in both two measurements of stock price crash risk between treatment group and control group, suggesting that stock price crash risk in the pre-transition period is the indistinguishable difference. By contrast, both two measurements of stock price crash risk between treatment group and control group is significantly different at the 5% and 1 % level in the post-transition period. Furthermore, the difference between post-transition and pre-transition are both significantly positive at the 5% level. Our univariate difference-in-difference test results suggest that a transition from a non-sensation-seeking CEO to a sensation-seeking CEO is associated with a significant increase in stock price crash risk compared to a transition from a non-sensation-seeking CEO to a non-sensation-seeking CEO.[7]

Table 8 reports the results for difference-in-difference tests. Column (1) to column (4) reports results for generalised difference-in-difference tests. Coefficients on Transition Firm X Turnover are significant and positive, which is consistent with our univariate tests except from column (3). Column (5) to

[7] We also investigate five years before and after a CEOs transition and exclude the transition year. The results are quite similar.

column (8) reports results for dynamic difference-in-difference tests. All the coefficients on Transition Firm X Turnover are significant and positive at the 10% level and 5% level, respectively. Pre_{t-3} is significant and negative in column (8); this could support that non-sensation-seeking CEOs could reduce firms' stock price crash risk. Overall, our difference-in-difference test results can support our baseline regression results, and suggest that stock price crash risk is increase in CEOs sensation-seeking.

4.4. Channel tests

In this section, we examine potential channels through which sensation-seeking CEOs increase firms' stock price crash risk. Our first channel test is to examine whether sensation-seeking CEOs affect firms' future stock price crash risk by avoiding using conditional accounting conservatism. Previous studies find that firms with conditional accounting conservatism restrict managers' incentives and abilities to overstate performance and hide bad news from investors, consequently reducing information asymmetries between insiders and outsiders (e.g., LaFond and Watts, 2008). Furthermore, Kim and Zhang (2016) give evidence of conditional accounting conservatism can decrease firms' future stock price risk. Inspired by this stream of studies, we predict that sensation-seeking CEOs, who are more risk-tolerant, are less likely to use conditional accounting conservatism, consequently increasing firms' stock price crash risk.

We follow Khan and Watts (2009) and Kim et al. (2021) to use firm-year conservatism measurement to proxy for conditional conservatism (C-Score). We begin the estimation of C-Score with Basu (1997) model. This model estimates the firm-year conservatism, and allow coefficients to vary across firm and time:

$$X_i = \beta_1 + \beta_2 D_i + \beta_3 R_i + \beta_4 D_i R_i + \varepsilon_i \quad (6)$$

Where i represents for firm i, X is earnings, R is returns, D is a dummy variable, which is equal to one when R<0 and zero otherwise, and ε is the residual term. β_3 represents for timeliness of good news (G-Score), and β_4 represents for conditional conservatism (C-Score), and these two parameters can be expressed as linear functions of firm-specific characteristics each year:

$$Gscore = \beta_3 = \mu_1 + \mu_2 Market\ value_i + \mu_3 M/B_i + \mu_4 Leverage_i \quad (7)$$

$$Cscore = \beta_4 = \lambda_1 + \lambda_2 Market\ value_i + \lambda_3 M/B_i + \lambda_4 Leverage_i \quad (8)$$

Where Market value is the natural logarithm of firms' market value, M/B is market-to-equity ratio, and leverage is the debt-to-equity ratio. μ_i and λ_i are constant across firm, but vary across time. We replace β_3 and β_4 with equation (7) and (8) and add additional firm control variables. Our final annual cross-sectional regression model is shown as:

$$X_i = \beta_1 + \beta_2 D_i + R_i \left(\mu_1 + \mu_2 Market\ value_i + \mu_3 \frac{M}{B}_i + \mu_4 Leverage_i\right) +$$

$$D_i R_i \left(\lambda_1 + \lambda_2 Market\ value_i + \lambda_3 \frac{M}{B}_i + \lambda_4 Leverage_i\right) + \eta_1 Market\ value_i +$$

$$\eta_2 \frac{M}{B}_i + \eta_3 Leverage_i + \eta_4 D_i Market\ value_i + \eta_5 D_i \frac{M}{B}_i + \eta_6 D_i Leverage_i + \varepsilon_i \quad (9)$$

After estimating the λ_i from equation (9), we plug it into equation (8) to get C-Score for each firm. Firms with higher C-Score are considered as more accounting conservatism.

Our second channel test is to examine whether sensation-seeking CEOs affect firms' future stock price crash risk by using real earnings management. We predict that sensation-seeking CEOs are more likely to use real earnings management to achieve short-term target and withhold bad news about firms' performance and prospects, consequently inducing future stock price crash risk.

Following Roychowdhury (2006) and Griffin et al. (2021), our real earnings management combine three components, including abnormal operating cash flow, abnormal production cost, and abnormal discretionary expenditure. We first estimate abnormal operating cash flow by running cross-sectional regression for each year and industry:

$$\frac{CFO_{it}}{AT_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{AT_{it-1}} + \beta_1 \frac{Sale_{it}}{AT_{it-1}} + \beta_2 \frac{\Delta Sale_{it}}{AT_{it-1}} + \varepsilon_{it} \quad (10)$$

Where CFO_{it} is the operating cash flow for firm i in year t, AT_{it-1} is lagged one-year total asset, $Sale_{it}$ is the sales for firms i in year t, and $\Delta Sale_{it}$ is the change in sales from the period year for firm i in year t. The abnormal operating cash flow is equal to real operating cash flow minus "normal operating cash flow" estimated from equation (10).

Second, we run equation (11) to estimate the abnormal production cost for each year and industry:

$$\frac{PROD_{it}}{AT_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{AT_{it-1}} + \beta_1 \frac{Sale_{it}}{AT_{it-1}} + \beta_2 \frac{\Delta Sale_{it}}{AT_{it-1}} + \beta_3 \frac{\Delta Sale_{it-1}}{AT_{it-1}} + \varepsilon_{it}$$

(11)

Where $PROD_{it}$ is the production cost, calculated by sum of cost of goods sold for firm i in year t and change in inventory for firm i in year t. The abnormal production cost is equal to real production cost minus "normal production cost" estimated from equation (11).

Finally, we run equation (12) to estimate the abnormal discretionary expenditure for each year and industry:

$$\frac{DIXEXP_{it}}{AT_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{AT_{it-1}} + \beta_1 \frac{Sale_{it-1}}{AT_{it-1}} + \varepsilon_{it} \quad (12)$$

Where $DIXEXP_{it}$ is discretionary expenditure. The abnormal discretionary expenditure is equal to real production cost minus "normal discretionary expenditure" estimated from equation (12).

We define the aggerate real earning managements by using following equation:

$$REM_{it} = Abnormal\ CFO_{it} - Abnormal\ PROD_{it} + Abnormal\ DIXEXP_{it}) * (-1)$$

(13)

Table 9 reports our channel test result. Consistent with our prediction, the coefficient on sensation-seeking in column (1) is significant and negative, implying that sensation-seeking CEOs are more likely to use aggressive financial

reporting practices and delay to incorporate bad news into financial report. This result is consistent with Fang et al. (2018). The coefficient on sensation-seeking CEOs in column (2) is significant and positive, suggesting that sensation-seeking CEOs are more likely to use real earnings management. Overall, our channel test results suggest that conditional accounting conservatism and real earnings management are two underlying channels in which sensation-seeking CEOs affect firms' future stock price crash risk.

5. Further tests

In this section, we examine which situations can magnify and moderate the positive relation between sensation-seeking CEOs and stock price crash risk.

5.1. The effect of financial risk and financial constraint

We first investigate whether sensation-seeking CEOs hold bad news related to excess risk-taking behaviour. Firms with ex-ante high levels of financial risk or financial constraints may worry more about investors' perception of firm true values. Therefore managers are more likely to withhold bad news in high ex-ante financial risk or financially constrained environment (Kim et al., 2011a). Previous studies have confirmed that firms led by sensation-seeking CEOs are more likely to undertake more risky projects than firms led by non-sensation-seeking CEOs (e.g., Cain and McKeon, 2016), inducing that firms are more likely to have higher ex-ante financial risk. Besides, firms led by sensation-seeking CEOs may suffer from financial constraints since outsiders (e.g., banks) consider high corporate

risk-taking behaviours made by sensation-seeking CEOs. In such higher financial risk environments and financially constrained environments, sensation-seeking CEOs are likely to hold bad news related to the bad consequence of their excess risk-taking behaviour. Therefore, in our first further test, we examine whether the positive relation between sensation-seeking CEOs and firms' stock price crash risk is more pronounced in the high ex-ante financial risk or financially constrained firms.

Unlike previous studies on stock price crash risk that use leverage to proxy for financial risk (Kim et al., 2011a), in our study, we use Altman (1968) z-score to proxy for financial risk for each firm. There are two reasons for using this proxy. First, using leverage to proxy financial risk is quite noisy. For example, higher level of leverage ratio may reflect stronger monitoring by the debtholders (Callen and Fang, 2015b). Second, Altman (1968) z-score is easier to compute compared with other financial risk measurements. We follow Kaplan and Zingales (1997) to use the KZ index to measure firms' financial constraints.

Table 10 reports the regression results for detecting whether the positive association between sensation-seeking CEOs and stock price crash risk is more pronounced in higher ex-ante financial risk. We partition the sample into two subgroups using industry median value of the Altman Z-score[8]. Our results show that coefficients on sensation-seeking CEOs are significant and positive at the 1%

[8] We also follow Oh (2018) to use median value of Altman Z-score to define firms with higher financial risk. The results are quite similar.

level in the lower than industry median group. In contrast, the corresponding coefficients are statistically insignificant in the higher than industry median group.

Table 11 reports the regression results for detecting whether the positive association between sensation-seeking CEOs and stock price crash risk is more pronounced in higher ex-ante financial constraints. We partition the sample into two subgroups using median value of the *KZ Index*. Our results show that coefficients on sensation-seeking CEOs are significant and positive at the 10% level in the higher than median group. In contrast, the corresponding coefficients are statistically insignificant in the lower than median group.

Overall, our results suggest that the effect of sensation-seeking CEOs contributes to stock price crash risk is stronger when CEOs have incentives to hide their risk-taking behaviour, which is consistent with Kim et al. (2011a).

5.2. The effect of managerial ability

We second investigate whether managerial ability could moderate the positive relation between sensation-seeking CEOs and future stock price crash risk. Sensation-seeking CEOs with higher managerial ability are less likely to trigger stock price crash risk because they can efficiently make corporate decisions and are less likely to have bad news compared with their peers (Cornaggia et al., 2017). Therefore, we predict that higher managerial ability can moderate the relationship between sensation-seeking CEOs and stock price crash risk.

Table 12 reports our regression results. We retrieve the managerial ability data from Demerjian et al. (2012) website[9]. We partition the sample into two subgroups using median value of the *managerial ability*. Our results show that coefficients on sensation-seeking CEOs are significant and positive at the 1% level in the lower than median group. In contrast, the corresponding coefficients are negative and statistically insignificant in the higher than median group. Our results suggest that the positive association between sensation-seeking CEOs and stock price crash risk is more pronounced for firms led by low managerial ability managers.

6. Conclusion

This paper investigates the association between sensation-seeking CEOs and firms' future stock price crash risk. Using CEOs' pilot licenses as a proxy for sensation-seeking personality trait, we find that firms led by sensation-seeking CEOs are more likely to experience future stock price crashes after controlling a vector of firm-level characteristics variables, firm fixed effect and year fixed effect. We perform a variety of robustness tests, including alternative samples, additional control variables of CEOs' and firms' characteristics, and high-dimensional fixed effect, our finding is consistent with our baseline finding. Additionally, our positive relation between sensation-seeking CEOs and firms'

[9] Data source: https://peterdemerjian.weebly.com/managerialability.html

stock price crash risk is still robust after using propensity score matching method and a set of difference-in-difference tests to address endogeneity issue.

In our further tests, we examine the underlying channel in which sensation-seeking CEOs affect firms' future stock price crash risk. We find that firms led by sensation-seeking CEOs are more likely to use aggressive accounting reporting policies and real earning management, supporting that sensation-seeking CEOs are more likely to hide bad news and consequently trigger future stock price crashes. Additionally, we find that the positive association between sensation-seeking CEOs and firms' stock price crash risk is more pronounced in high ex-ante financial risk and financially constrained environment, implying that sensation-seeking CEOs are more likely to hold risk-taking-related bad news. Finally, we find that managerial ability can moderate the positive relation between sensation-seeking CEOs and stock price crash risk.

Overall, our paper provides consistent results that CEOs' personality trait, particularly sensation-seeking personality trait, significantly affect firms' corporate decisions. Our paper could suggest market investors consider about the characteristics of CEOs when they want to make investments.

Table 1
Summary Statistics

This table shows the summary statistics of the variables and univariate test. Sample spans from 1993 to 2020. Sensation-seeking CEOs is a dummy variable equals to one for CEOs who hold pilot licenses, and zero otherwise. NCSKEW is the negative skewness of firm-specific weekly returns during the fiscal year. DUVOL is the natural logarithm of the ratio of standard deviation in the down weeks to the standard deviation in the up weeks. R&D is the ratio of research and development expenses to total assets. The Missing values are replaced with zero. Goodwill is the ratio of goodwill to total assets. The Missing values are replaced with zero. Opaque is the moving sum of prior three years' absolute value of discretionary accruals. Absolute value of discretionary accruals is estimated from modified jones' model. Cash is the ratio of cash and short-term investments to total assets. M/B is the ratio of market value of equity to the book value of equity. ROA is the ratio of income before extraordinary items to total assets. Leverage is the ratio of total liability to total assets. RET is the mean of firm-specific weekly stock returns during fiscal year, multiplied by 100. Sigma is the standard deviation of firm-specific weekly returns during fiscal year. Size is the natural logarithm of the firms' market value of equity. DTURNOVER is the mean monthly share turnover in the current fiscal year minus the mean monthly share turnover in the last fiscal year. Monthly share turnover equals the monthly trading volume divided by the total number of shares outstanding during that month. Age is CEOs' age. Gender is a dummy variable equals to one for CEOs who are female, and zero otherwise. Tenure is total number years for CEOs siting in his/her position plus one. Panel A reports the descriptive statistics. Panel B reports univariate test. ***, ** and * refer to the significances at 1%, 5% and 10% level.

Panel A: Descriptive Statistics

Variable	N	Mean	SD	Median	P25	P75
CEO Characteristics						
Sensation-seeking CEOs$_t$	15,135	0.073	0.26	0	0	0
Age$_t$	15,115	57.71	9.701	58	53	63
Gender$_t$	15,135	0.022	0.148	0	0	0
Tenure$_t$	15,135	9.038	8.756	6	3	12
Crash Risk Measurements						
NCSKEW$_{t+1}$	15,135	0.094	0.785	0.049	-0.36	0.488
DUVOL$_{t+1}$	15,135	0.058	0.51	0.045	-0.278	0.383
Firm's Characteristics						
NCSKEW$_t$	15,135	0.107	0.767	0.053	-0.352	0.492
R&D$_t$	15,135	0.035	0.059	0.007	0	0.046
Goodwill$_t$	15,135	0.128	0.154	0.072	0	0.204
Opaque$_t$	15,135	0.152	0.122	0.122	0.076	0.19
Cash$_t$	15,135	0.148	0.173	0.082	0.027	0.201
M/B$_t$	15,135	3.342	4.337	2.361	1.524	3.926
ROA$_t$	15,135	0.061	0.089	0.063	0.026	0.104
Leverage$_t$	15,135	0.245	0.202	0.224	0.09	0.347
RET$_t$	15,135	-0.111	0.119	-0.07	-0.137	-0.036
Sigma$_t$	15,135	0.043	0.021	0.038	0.027	0.053
Size$_t$	15,135	7.638	1.732	7.45	6.365	8.764
DTURNOVER$_t$	15,135	0.037	0.649	0.018	-0.214	0.262

Panel B: Univariate Test

Variables	Firms with Non-sensation-seeking CEOs		Firms with Sensation-seeking CEOs		Mean Diff
	NOBS	Mean	NOBS	Mean	
CEO Characteristics					
Age$_t$	14,011	57.502	1,104	60.349	-2.847***
Gender$_t$	14,030	0.024	1,105	0	0.024***
Tenure$_t$	14,030	8.671	1,105	13.694	-5.023***
Crash Risk Measurements					
NCSKEW$_{t+1}$	14,030	0.093	1,105	0.111	-0.018
DUVOL$_{t+1}$	14,030	0.056	1,105	0.083	-0.027*
Firm's Characteristics					
NCSKEW$_t$	14,030	0.105	1,105	0.133	-0.029

Variables	Firms with Non-sensation-seeking CEOs		Firms with Sensation-seeking CEOs		Mean Diff
	NOBS	Mean	NOBS	Mean	
$R\&D_t$	14,030	0.035	1,105	0.034	0.001
$Goodwill_t$	14,030	0.128	1,105	0.136	-0.008*
$Opaque_t$	14,030	0.151	1,105	0.157	-0.005
$Cash_t$	14,030	0.148	1,105	0.142	0.006
M/B_t	14,030	3.362	1,105	3.085	0.277**
ROA_t	14,030	0.061	1,105	0.069	-0.008***
$Leverage_t$	14,030	0.246	1,105	0.23	0.016***
RET_t	14,030	-0.11	1,105	-0.115	0.005
$Sigma_t$	14,030	0.043	1,105	0.044	-0.001**
$Size_t$	14,030	7.645	1,105	7.556	0.089
$DTURNOVER_t$	14,030	0.037	1,105	0.045	-0.008

Table 2

Baseline Regression Results

This table shows the baseline regression results. We employ OLS models to get these baseline regression results. Sample spans from 1993-2020. Sensation-seeking CEOs is a dummy variable equals to one for CEOs who hold pilot licenses, and zero otherwise. NCSKEW is the negative skewness of firm-specific weekly returns during the fiscal year. DUVOL is the natural logarithm of the ratio of standard deviation in the down weeks to the standard deviation in the up weeks. Opaque is the moving sum of prior three years' absolute value of discretionary accruals. Absolute value of discretionary accruals is estimated from modified jones' model. Cash is the ratio of cash and short-term investments to total assets. M/B is the ratio of market value of equity to the book value of equity. ROA is the ratio of income before extraordinary items to total assets. Leverage is the ratio of total liability to total assets. RET is the mean of firm-specific weekly stock returns during fiscal year, multiplied by 100. Sigma is the standard deviation of firm-specific weekly returns during fiscal year. Size is the natural logarithm of the firms' market value of equity. DTURNOVER is the mean monthly share turnover in the current fiscal year minus the mean monthly share turnover in the last fiscal year. Monthly share turnover equals the monthly trading volume divided by the total number of shares outstanding during that month. Age is natural logarithm of CEOs' age. Gender is a dummy variable equals to one for CEOs who are female, and zero otherwise. Tenure is the natural logarithm of years for CEOs siting in his/her position plus one. Each of the continuous variables is winsorised at 1st and 99th level. Robust standard errors are clustered by firm and p-value are reported in parentheses. ***, ** and * refer to the significances at 1%, 5% and 10% level. All the models in this table include firm fixed effect and year fixed effect.

	(1)	(2)	(3)	(4)	(5)	(6)
	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
Sensation-seeking $CEOs_t$	0.104**	0.066**	0.111**	0.070**	0.118***	0.075***
	(0.013)	(0.012)	(0.013)	(0.012)	(0.010)	(0.008)
$NCSKEW_t$			-0.078***	-0.043***	-0.081***	-0.044***
			(0.000)	(0.000)	(0.000)	(0.000)
$Opaque_t$			0.117*	0.064	0.115*	0.062
			(0.079)	(0.142)	(0.083)	(0.155)
$Cash_t$			-0.043	-0.019	-0.037	-0.018
			(0.565)	(0.686)	(0.621)	(0.704)
M/B_t			-0.001	-0.001	-0.001	-0.001
			(0.439)	(0.302)	(0.414)	(0.288)
ROA_t			0.446***	0.323***	0.427***	0.313***
			(0.000)	(0.000)	(0.000)	(0.000)
$Leverage_t$			-0.042	-0.015	-0.043	-0.016
			(0.404)	(0.642)	(0.404)	(0.617)
RET_t			0.468*	0.280	0.471*	0.299*
			(0.083)	(0.102)	(0.084)	(0.083)
$Sigma_t$			3.209*	2.057*	3.161*	2.155*
			(0.075)	(0.071)	(0.081)	(0.060)
$Size_t$			0.124***	0.080***	0.127***	0.082***
			(0.000)	(0.000)	(0.000)	(0.000)
$DTURNOVER_t$			0.034***	0.017**	0.034***	0.017**
			(0.002)	(0.019)	(0.001)	(0.020)
Age_t					1.274	1.245
					(0.750)	(0.610)
$Age\text{^}2_t$					-0.151	-0.147
					(0.761)	(0.627)
$Gender_t$					0.165**	0.113***
					(0.026)	(0.007)
$Tenure_t$					-0.071	-0.078
					(0.527)	(0.274)
$Tenure\text{^}2_t$					0.085	0.077
					(0.527)	(0.370)
$Tenure\text{^}3_t$					-0.034	-0.027
					(0.565)	(0.464)
$Tenure\text{^}4_t$					0.004	0.003
					(0.622)	(0.568)
Constant	0.078	0.031	-0.845***	-0.570***	-3.575	-3.214
	(0.264)	(0.539)	(0.000)	(0.000)	(0.658)	(0.515)
Observations	15,135	15,135	15,135	15,135	14,990	14,990
Adjusted R-squared	0.011	0.016	0.027	0.030	0.027	0.031
Fixed effect	Firm&Year	Firm&Year	Firm&Year	Firm&Year	Firm&Year	Firm&Year

Table 3
Robustness Check

This table shows the results of robustness tests. We employ OLS models to get these regression results. Sample spans from 1993-2020. Sensation-seeking CEOs is a dummy variable equals to one for CEOs who hold pilot licenses, and zero otherwise. NCSKEW is the negative skewness of firm-specific weekly returns during the fiscal year. DUVOL is the natural logarithm of the ratio of standard deviation in the down weeks to the standard deviation in the up weeks. Opaque is the moving sum of prior three years' absolute value of discretionary accruals. Absolute value of discretionary accruals is estimated from modified jones' model. Cash is the ratio of cash and short-term investments to total assets. M/B is the ratio of market value of equity to the book value of equity. ROA is the ratio of income before extraordinary items to total assets. Leverage is the ratio of total liability to total assets. RET is the mean of firm-specific weekly stock returns during fiscal year, multiplied by 100. Sigma is the standard deviation of firm-specific weekly returns during fiscal year. Size is the natural logarithm of the firms' market value of equity. DTURNOVER is the mean monthly share turnover in the current fiscal year minus the mean monthly share turnover in the last fiscal year. Monthly share turnover equals the monthly trading volume divided by the total number of shares outstanding during that month. Each of the continuous variables is winsorised at 1st and 99th level. Robust standard errors are clustered by firm and p-value are reported in parentheses. ***, ** and * refer to the significances at 1%, 5% and 10% level. All the models in this table include firm fixed effect and year fixed effect.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
	Cain and McKeon		Drop Aviation industry		Drop tech bubble and financial crisis		Keep financial and utility industries	
Sensation-seeking $CEOs_t$	0.148**	0.091***	0.102**	0.073**	0.145***	0.098***	0.100**	0.062**
	(0.011)	(0.006)	(0.030)	(0.013)	(0.004)	(0.002)	(0.017)	(0.018)
$NCSKEW_t$	-0.085***	-0.046***	-0.078***	-0.042***	-0.087***	-0.046***	-0.074***	-0.040***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Opaque_t$	0.220**	0.137**	0.111*	0.063	0.142*	0.081*	0.110*	0.067
	(0.018)	(0.019)	(0.100)	(0.156)	(0.059)	(0.091)	(0.084)	(0.112)
$Cash_t$	0.056	0.043	-0.051	-0.021	-0.093	-0.027	-0.048	-0.022
	(0.568)	(0.498)	(0.495)	(0.658)	(0.272)	(0.611)	(0.511)	(0.633)
M/B_t	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002
	(0.581)	(0.483)	(0.443)	(0.294)	(0.634)	(0.278)	(0.278)	(0.181)
ROA_t	0.435***	0.306***	0.464***	0.332***	0.505***	0.338***	0.462***	0.331***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$Leverage_t$	-0.017	0.008	-0.046	-0.016	-0.044	-0.023	-0.022	-0.005
	(0.791)	(0.838)	(0.371)	(0.622)	(0.451)	(0.541)	(0.655)	(0.875)
RET_t	0.323	0.194	0.533**	0.310*	0.373	0.191	0.362	0.167
	(0.326)	(0.345)	(0.049)	(0.071)	(0.258)	(0.359)	(0.162)	(0.316)
$Sigma_t$	1.675	1.072	3.477*	2.174*	2.559	1.434	2.362	1.260
	(0.445)	(0.432)	(0.057)	(0.059)	(0.222)	(0.279)	(0.161)	(0.245)
$Size_t$	0.136***	0.089***	0.124***	0.079***	0.134***	0.087***	0.128***	0.083***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$DTURNOVER_t$	0.028**	0.014*	0.032***	0.015**	0.032***	0.014*	0.033***	0.016**
	(0.025)	(0.094)	(0.003)	(0.036)	(0.009)	(0.079)	(0.002)	(0.025)
Constant	-0.884***	-0.629***	-0.850***	-0.567***	-0.894***	-0.603***	-0.836***	-0.557***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	11,066	11,066	14,772	14,772	12,953	12,953	16,915	16,915
Adjusted R-squared	0.028	0.032	0.027	0.030	0.025	0.028	0.027	0.030
Fixed effect	Firm&Year	Firm&Year	Firm&Year	Firm&Year	Firm&Year	Firm&Year	Firm&Year	Firm&Year

Table 4

Robustness Check - Controlling for CEO Overconfidence

This table shows the robustness tests regression results. We employ OLS models to get these regression results. Sample spans from 1993-2020. Sensation-seeking CEOs is a dummy variable equals to one for CEOs who hold pilot licenses, and zero otherwise. NCSKEW is the negative skewness of firm-specific weekly returns during the fiscal year. DUVOL is the natural logarithm of the ratio of standard deviation in the down weeks to the standard deviation in the up weeks. Opaque is the moving sum of prior three years' absolute value of discretionary accruals. Absolute value of discretionary accruals is estimated from modified jones' model. Cash is the ratio of cash and short-term investments to total assets. M/B is the ratio of market value of equity to the book value of equity. ROA is the ratio of income before extraordinary items to total assets. Leverage is the ratio of total liability to total assets. RET is the mean of firm-specific weekly stock returns during fiscal year, multiplied by 100. Sigma is the standard deviation of firm-specific weekly returns during fiscal year. Size is the natural logarithm of the firms' market value of equity. DTURNOVER is the mean monthly share turnover in the current fiscal year minus the mean monthly share turnover in the last fiscal year. Monthly share turnover equals the monthly trading volume divided by the total number of shares outstanding during that month. CEO Overconfidence (We follow Schrand and Zechman (2012) and Kim et al. (2016) to construct firm-level based overconfident CEOs). Each of the continuous variables is winsorised at 1st and 99th level. Robust standard errors are clustered by firm and p-value are reported in parentheses. ***, ** and * refer to the significances at 1%, 5% and 10% level. All the models in this table include firm fixed effect and year fixed effect.

	(1)	(2)
Dependent variable	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
Sensation-seeking CEOst	0.111**	0.069**
	(0.013)	(0.012)
$NCSKEW_t$	-0.079***	-0.043***
	(0.000)	(0.000)
$Opaque_t$	0.116*	0.064
	(0.081)	(0.143)
$Cash_t$	-0.040	-0.018
	(0.595)	(0.705)
M/B_t	-0.001	-0.001
	(0.460)	(0.313)
ROA_t	0.449***	0.324***
	(0.000)	(0.000)
$Leverage_t$	-0.053	-0.019
	(0.306)	(0.567)
RET_t	0.464*	0.278
	(0.085)	(0.104)
$Sigma_t$	3.177*	2.045*
	(0.077)	(0.073)
$Size_t$	0.123***	0.079***
	(0.000)	(0.000)
$DTURNOVER_t$	0.034***	0.017**
	(0.001)	(0.019)
$Overconfidence_t$	0.019	0.007
	(0.358)	(0.602)
Constant	-0.842***	-0.568***
	(0.000)	(0.000)
Observations	15,135	15,135
Adjusted R-squared	0.027	0.030
Fixed effect	Firm&Year	Firm&Year

Table 5

Robustness Check- High-Dimensional Fixed Effect

This table reports the subsample regression results after controlling for firm and interaction of industry and year fixed effects. We employ OLS models to get these regression results. Sample spans from 1993-2020. Sensation-seeking CEOs is a dummy variable equals to one for CEOs who hold pilot licenses, and zero otherwise. NCSKEW is the negative skewness of firm-specific weekly returns during the fiscal year. DUVOL is the natural logarithm of the ratio of standard deviation in the down weeks to the standard deviation in the up weeks. Opaque is the moving sum of prior three years' absolute value of discretionary accruals. Absolute value of discretionary accruals is estimated from modified jones' model. Cash is the ratio of cash and short-term investments to total assets. M/B is the ratio of market value of equity to the book value of equity. ROA is the ratio of income before extraordinary items to total assets. Leverage is the ratio of total liability to total assets. RET is the mean of firm-specific weekly stock returns during fiscal year, multiplied by 100. Sigma is the standard deviation of firm-specific weekly returns during fiscal year. Size is the natural logarithm of the firms' market value of equity. DTURNOVER is the mean monthly share turnover in the current fiscal year minus the mean monthly share turnover in the last fiscal year. Monthly share turnover equals the monthly trading volume divided by the total number of shares outstanding during that month. Each of the continuous variables is winsorised at 1st and 99th level. Robust standard errors are clustered by firm and p-value are reported in parentheses. ***, ** and * refer to the significances at 1%, 5% and 10% level. All the models in this table include firm fixed effect and year fixed effect.

	(1)	(2)
	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
$Sensation\text{-}seeking\ CEOs_t$	0.108**	0.062**
	(0.023)	(0.038)
$NCSKEW_t$	-0.080***	-0.043***
	(0.000)	(0.000)
$Opaque_t$	0.080	0.030
	(0.278)	(0.540)
$Cash_t$	-0.033	-0.021
	(0.684)	(0.671)
M/B_t	-0.001	-0.001
	(0.783)	(0.546)
ROA_t	0.445***	0.332***
	(0.000)	(0.000)
$Leverage_t$	-0.008	0.004
	(0.887)	(0.920)
RET_t	0.367	0.237
	(0.216)	(0.202)
$Sigma_t$	2.638	1.913
	(0.183)	(0.122)
$Size_t$	0.127***	0.081***
	(0.000)	(0.000)
$DTURNOVER_t$	0.040***	0.022***
	(0.001)	(0.005)
Constant	-0.983***	-0.640***
	(0.000)	(0.000)
Observations	14863	14863
Adjusted R-squared	0.049	0.058
Fixed effect	Firm&Industry*Year	Firm&Industry*Year

Table 6

Endogeneity Check-PSM

This table uses propensity score matching method to re-examine the impact of sensation-seeking CEOs on stock price crash risk. We regard firms with sensation-seeking CEOs as treatment group, and firms with non-sensation-seeking CEOs as control group. We estimate the probability (propensity score) by using logit regression and controlling for industry and year fixed effect. In the panel A, we report the covariate balance before PSM. In panel B, we report the covariate balance between treatment group and control group after matching. After getting propensity score in the first stage, we match firms in the treatment group with similar firms in the control group by using nearest neighbourhood matching, matching without replacement, a caliper of 0.2 of standard deviation of propensity score, and matching within same industry and same year. In the panel C, we re-estimate our baseline regression model based on the match sample. Each of the continuous variables is winsorized at the 1st and 99th level. ***, ** and * refer to the significances at 1%, 5% and 10% level. The p-values are reported below the coefficients in parenthesis. Standard error is clustered at firm level.

Panel A: differences in means in pre-PSM

	Treatment group		Control group		Difference	
	Mean	N	Mean	N	Mean	P
$NCSKEW_t$	0.133	1,105	0.105	14,030	0.028	0.232
$Opaque_t$	0.154	1,105	0.149	14,030	0.005	0.13
$Cash_t$	0.142	1,105	0.148	14,030	-0.006	0.246
M/B_t	3.085	1,105	3.362	14,030	-0.277	0.041
ROA_t	0.069	1,105	0.061	14,030	0.008	0.003
$Leverage_t$	0.23	1,105	0.246	14,030	-0.016	0.009
RET_t	-0.115	1,105	-0.11	14,030	-0.005	0.193
$Sigma_t$	0.044	1,105	0.043	14,030	0.001	0.047
$Size_t$	7.556	1,105	7.645	14,030	-0.089	0.101
$DTURNOVER_t$	0.045	1,105	0.037	14,030	0.008	0.704

Panel B: differences in means in post-PSM

	Treatment group		Control group		Difference	
	Mean	N	Mean	N	Mean	P
$NCSKEW_t$	0.128	1,052	0.143	1,052	-0.015	0.645
$Opaque_t$	0.153	1,052	0.156	1,052	-0.003	0.639
$Cash_t$	0.142	1,052	0.150	1,052	-0.008	0.316
M/B_t	3.043	1,052	3.134	1,052	-0.091	0.544
ROA_t	0.070	1,052	0.071	1,052	-0.001	0.797
$Leverage_t$	0.228	1,052	0.225	1,052	0.003	0.674
RET_t	-0.113	1,052	-0.113	1,052	0.000	0.944
$Sigma_t$	0.044	1,052	0.044	1,052	0.000	0.928
$Size_t$	7.549	1,052	7.580	1,052	-0.031	0.668
$DTURNOVER_t$	0.043	1,052	0.059	1,052	-0.016	0.576

Panel C: Regression results based on PSM sample

	(1)	(2)
	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
	PSM	PSM
Sensation-seeking $CEOs_t$	0.314***	0.173***
	(0.000)	(0.002)
$NCSKEW_t$	-0.084***	-0.046**
	(0.004)	(0.013)
$Opaque_t$	0.061	0.060
	(0.799)	(0.713)
$Cash_t$	0.162	0.013
	(0.519)	(0.945)
M/B_t	-0.014**	-0.009***
	(0.024)	(0.009)
ROA_t	0.082	0.256
	(0.831)	(0.303)
$Leverage_t$	-0.186	-0.080
	(0.155)	(0.320)
RET_t	0.542	0.553
	(0.517)	(0.309)
$Sigma_t$	2.415	3.032
	(0.656)	(0.390)
$Size_t$	0.116***	0.084***
	(0.001)	(0.001)
$DTURNOVER_t$	0.076**	0.059***
	(0.028)	(0.009)
Constant	-0.839**	-0.642***
	(0.011)	(0.008)
Observations	2,104	2,104
Adjusted R-squared	0.042	0.041
Fixed effect	Firm&Year	Firm&Year

Table 7

Endogeneity Check-Univariate Difference-in-Difference Test

This table reports the univariate results for the Difference-in-difference analysis. We use CEO unforced turnover to perform difference-in-difference test. The estimating window is (-4:-1,+1:+4). we regard firms with a transition from non-sensation-seeking CEOs to sensation-seeking CEOs as treatment group, and firms with a transition from non-sensation-seeking CEOs to non-sensation-seeking CEOs and never have sensation-seeking CEO through sample period as control group. Panel A reports the DID test for DUVOL, and Panel B reports the DID test for NCSKEW. ***, ** and * refer to the significances at 1%, 5% and 10% level.

Panel A: Univariate Difference-in-Difference Tests - Treated and Control Firms DUVOL			
Outcome variable (DUVOL)	Observation	Mean	P>|t|
Pre-transition			
Control (non-sensation-seeking CEO DUVOL)	1644	0.059	
Treated (non-sensation-seeking CEO DUVOL)	73	0.057	
Difference (Treatment minus Control)		-0.003	0.966
Post-transition			
Control (non-sensation-seeking CEO DUVOL)	1248	0.055	
Treated (sensation-seeking CEO DUVOL)	57	0.254	
Difference (Treatment minus Control)		0.200	0.004***
Difference (post-transition - pre-transition)		0.202	0.028**
Panel B: Univariate Difference-in-Difference Tests - Treated and Control Firms NCSKEW			
Outcome variable (NCSKEW)	Observation	Mean	P>|t|
Pre-transition			
Control (non-sensation-seeking CEO NCSKEW)	1644	0.096	
Treated (non-sensation-seeking CEO NCSKEW)	73	0.046	
Difference (Treatment minus Control)		-0.050	0.596
Post-transition			
Control (non-sensation-seeking CEO NCSKEW))	1248	0.093	
Treated (sensation-seeking CEO NCSKEW))	57	0.323	
Difference (Treatment minus Control)		0.230	0.030**
Difference (post-transition - pre-transition)		0.279	0.048**

Table 8

Endogeneity Check-Univariate Difference-in-Difference Test

This table reports results for the Difference-in-difference analysis using CEO unforced turnover as an exogenous shock. We use CEO unforced turnover to perform difference-in-difference test. The estimating window is (-4:-1,+1:+4). Transition firm is a dummy variable that equals to one for firms with a transition from non-sensation-seeking CEOs to sensation-seeking CEOs as treatment group, and equals to zero for firms with a transition from non-sensation-seeking CEOs to non-sensation-seeking CEOs and never have sensation-seeking CEO through sample period as control group. Turnover is a dummy variable which is equal to one for firms in the post-transition period, and zero otherwise. Transition firm *pre is a dummy variable that equals to one for transition firms whose observations are n (n=1, 2, 3, 4) before the transition. Pre_{t-4} is baseline year. . NCSKEW is the negative skewness of firm-specific weekly returns during the fiscal year. DUVOL is the natural logarithm of the ratio of standard deviation in the down weeks to the standard deviation in the up weeks. Opaque is the moving sum of prior three years' absolute value of discretionary accruals. Absolute value of discretionary accruals is estimated from modified jones' model. Cash is the ratio of cash and short-term investments to total assets. M/B is the ratio of market value of equity to the book value of equity. ROA is the ratio of income before extraordinary items to total assets. Leverage is the ratio of total liability to total assets. RET is the mean of firm-specific weekly stock returns during fiscal year, multiplied by 100. Sigma is the standard deviation of firm-specific weekly returns during fiscal year. Size is the natural logarithm of the firms' market value of equity. DTURNOVER is the mean monthly share turnover in the current fiscal year minus the mean monthly share turnover in the last fiscal year. Monthly share turnover equals the monthly trading volume divided by the total number of shares outstanding during that month. Each of the continuous variables is winsorised at 1st and 99th level. Robust standard errors are clustered by firm. The p-values are reported below the coefficients in parenthesis. ***, ** and * refer to the significances at 1%, 5% and 10% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
Transition firm * Turnover	0.220*	0.162**	0.188	0.157*	0.403*	0.296*	0.379**	0.301**
	(0.093)	(0.043)	(0.184)	(0.072)	(0.063)	(0.067)	(0.050)	(0.047)
Turnover	0.001	0.002	0.018	0.010	-0.017	-0.026	0.009	-0.014
	(0.980)	(0.926)	(0.632)	(0.690)	(0.733)	(0.412)	(0.861)	(0.679)
Transition firm	-0.025	0.015			-0.207	-0.119		
	(0.790)	(0.819)			(0.319)	(0.451)		
Transition firm * Pre_{t-1}					0.188	0.118	0.179	0.120
					(0.471)	(0.546)	(0.488)	(0.554)
Transition firm * Pre_{t-2}					0.256	0.244	0.284	0.269
					(0.314)	(0.257)	(0.269)	(0.216)
Transition firm * Pre_{t-3}					0.262	0.154	0.278	0.169
					(0.337)	(0.480)	(0.259)	(0.407)
Pre_{t-1}					-0.029	-0.037	-0.008	-0.026
					(0.620)	(0.339)	(0.893)	(0.499)
Pre_{t-2}					0.003	-0.012	0.009	-0.010
					(0.963)	(0.750)	(0.870)	(0.790)
Pre_{t-3}					-0.041	-0.059	-0.047	-0.062*
					(0.472)	(0.118)	(0.382)	(0.089)
$NCSKEW_t$	-0.008	0.000	-0.122***	-0.064***	-0.008	0.000	-0.122***	-0.064***
	(0.719)	(0.987)	(0.000)	(0.000)	(0.728)	(0.983)	(0.000)	(0.000)
$Opaque_t$	0.412***	0.206**	0.292	0.132	0.412***	0.205**	0.291	0.130
	(0.007)	(0.040)	(0.129)	(0.328)	(0.006)	(0.041)	(0.129)	(0.335)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
$Cash_t$	-0.079	-0.028	0.140	0.058	-0.075	-0.026	0.155	0.066
	(0.584)	(0.729)	(0.514)	(0.663)	(0.605)	(0.746)	(0.471)	(0.621)
M/B_t	0.000	-0.001	-0.003	-0.003	0.000	-0.001	-0.003	-0.003
	(0.909)	(0.678)	(0.454)	(0.317)	(0.908)	(0.682)	(0.442)	(0.310)
ROA_t	0.370	0.203	0.523*	0.291	0.366	0.198	0.519*	0.282
	(0.102)	(0.127)	(0.056)	(0.108)	(0.108)	(0.137)	(0.058)	(0.120)
$Leverage_t$	-0.021	0.032	0.146	0.139*	-0.022	0.031	0.142	0.134
	(0.818)	(0.577)	(0.265)	(0.094)	(0.811)	(0.590)	(0.281)	(0.107)
RET_t	0.880	0.641*	0.428	0.400	0.891	0.651*	0.452	0.419
	(0.113)	(0.089)	(0.549)	(0.395)	(0.110)	(0.085)	(0.529)	(0.376)
$Sigma_t$	7.922**	5.793**	3.820	3.121	7.975**	5.840**	3.946	3.223
	(0.020)	(0.010)	(0.352)	(0.270)	(0.020)	(0.010)	(0.338)	(0.258)
$Size_t$	0.009	0.009	0.223***	0.124***	0.009	0.009	0.224***	0.125***
	(0.414)	(0.165)	(0.000)	(0.000)	(0.417)	(0.165)	(0.000)	(0.000)
$DTURNOVER_t$	-0.035	-0.033*	-0.043	-0.036*	-0.037	-0.035**	-0.045*	-0.038**
	(0.154)	(0.055)	(0.106)	(0.053)	(0.142)	(0.047)	(0.095)	(0.045)
Constant	-0.293*	-0.282***	-1.845***	-1.092***	-0.272	-0.253**	-1.832***	-1.071***
	(0.096)	(0.009)	(0.000)	(0.000)	(0.123)	(0.020)	(0.000)	(0.000)
Observations	3,022	3,022	3,022	3,022	3,022	3,022	3,022	3,022
Adjusted R-squared	0.016	0.024	0.042	0.038	0.015	0.024	0.041	0.038
Fixed effect	Industry&Year	Industry&Year	Firm&Year	Firm&Year	Industry&Year	Industry&Year	Firm&Year	Firm&Year

Table 9
Channel Test

This table reports the channel test. We employ OLS models to get regression result. Sample spans from 1993-2020. C-Score is accounting conservatism based on Khan and Watts (2009). REM is the real earnings management based on Roychowdhury (2006) and Griffin et al. (2021). Sensation-seeking CEOs is a dummy variable equals to one for CEOs who hold pilot licenses, and zero otherwise. NCSKEW is the negative skewness of firm-specific weekly returns during the fiscal year. DUVOL is the natural logarithm of the ratio of standard deviation in the down weeks to the standard deviation in the up weeks. R&D is the ratio of research and development expenses to total assets. The Missing values are replaced with zero. Goodwill is the ratio of goodwill to total assets. The Missing values are replaced with zero. Opaque is the moving sum of prior three years' absolute value of discretionary accruals. Absolute value of discretionary accruals is estimated from modified jones' model. Cash is the ratio of cash and short-term investments to total assets. M/B is the ratio of market value of equity to the book value of equity. ROA is the ratio of income before extraordinary items to total assets. Leverage is the ratio of total liability to total assets. RET is the mean of firm-specific weekly stock returns during fiscal year, multiplied by 100. Sigma is the standard deviation of firm-specific weekly returns during fiscal year. Size is the natural logarithm of the firms' market value of equity. DTURNOVER is the mean monthly share turnover in the current fiscal year minus the mean monthly share turnover in the last fiscal year. Monthly share turnover equals the monthly trading volume divided by the total number of shares outstanding during that month. Each of the continuous variables is winsorised at 1st and 99th level. Robust standard errors are clustered by firm and p-value are reported in parentheses. ***, ** and * refer to the significances at 1%, 5% and 10% level. All the models in this table include firm fixed effect and year fixed effect.

	(1)	(2)
	$C\text{-}Score_{t+1}$	REM_{t+1}
$Sensation\text{-}seeking\ CEOs_t$	-0.016**	0.042***
	(0.025)	(0.004)
$NCSKEW_t$	0.001	0.005**
	(0.599)	(0.018)
$Opaque_t$	-0.003	-0.006
	(0.819)	(0.823)
$Cash_t$	-0.026**	0.137***
	(0.022)	(0.000)
M/B_t	-0.002**	-0.005***
	(0.028)	(0.000)
ROA_t	-0.079***	-0.389***
	(0.000)	(0.000)
$Leverage_t$	0.016	0.209***
	(0.253)	(0.000)
RET_t	0.087	-0.121
	(0.135)	(0.152)
$Sigma_t$	0.906**	-0.486
	(0.014)	(0.378)
$Size_t$	-0.023***	0.059***
	(0.000)	(0.000)
$DTURNOVER_t$	-0.003	-0.002
	(0.262)	(0.479)
Constant	0.092***	-0.523***
	(0.000)	(0.000)
Observations	14,471	14,204
Adjusted R-squared	0.267	0.096
Fixed effect	Firm&Year	Firm&Year

Table 10
Cross-sectional Test-Financial Risk

This table reports the regression results for subsample based on industry median value of Altman Z-score. We employ OLS models to get these regression results. Sample spans from 1993-2020. Sensation-seeking CEOs is a dummy variable equals to one for CEOs who hold pilot licenses, and zero otherwise. NCSKEW is the negative skewness of firm-specific weekly returns during the fiscal year. DUVOL is the natural logarithm of the ratio of standard deviation in the down weeks to the standard deviation in the up weeks. Opaque is the moving sum of prior three years' absolute value of discretionary accruals. Absolute value of discretionary accruals is estimated from modified jones' model. Cash is the ratio of cash and short-term investments to total assets. M/B is the ratio of market value of equity to the book value of equity. ROA is the ratio of income before extraordinary items to total assets. Leverage is the ratio of total liability to total assets. RET is the mean of firm-specific weekly stock returns during fiscal year, multiplied by 100. Sigma is the standard deviation of firm-specific weekly returns during fiscal year. Size is the natural logarithm of the firms' market value of equity. DTURNOVER is the mean monthly share turnover in the current fiscal year minus the mean monthly share turnover in the last fiscal year. Monthly share turnover equals the monthly trading volume divided by the total number of shares outstanding during that month. Each of the continuous variables is winsorised at 1st and 99th level. Robust standard errors are clustered by firm and p-value are reported in parentheses. ***, ** and * refer to the significances at 1%, 5% and 10% level. All models in this table include firm fixed effect and year fixed effect.

	(1)	(2)	(3)	(4)
	Below than median	High than median	Below than median	High than median
	$NCSKEW_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$DUVOL_{t+1}$
$Sensation\text{-}seeking\ CEOs_t$	0.176***	0.058	0.097***	0.042
	(0.001)	(0.460)	(0.009)	(0.337)
$NCSKEW_t$	-0.098***	-0.094***	-0.054***	-0.053***
	(0.000)	(0.000)	(0.000)	(0.000)
$Opaque_t$	0.099	0.145*	0.045	0.082
	(0.431)	(0.076)	(0.580)	(0.144)
$Cash_t$	-0.303**	0.004	-0.159*	0.007
	(0.019)	(0.963)	(0.069)	(0.907)
M/B_t	0.000	-0.002	0.000	-0.002
	(0.853)	(0.304)	(0.887)	(0.116)
ROA_t	0.676***	0.571***	0.399***	0.448***
	(0.000)	(0.000)	(0.002)	(0.000)
$Leverage_t$	-0.092	0.008	-0.049	0.026
	(0.270)	(0.916)	(0.373)	(0.600)
RET_t	0.590	0.324	0.426	0.082
	(0.137)	(0.437)	(0.100)	(0.758)
$Sigma_t$	5.187**	1.166	3.625**	0.239
	(0.049)	(0.672)	(0.038)	(0.890)
$Size_t$	0.169***	0.110***	0.106***	0.077***
	(0.000)	(0.000)	(0.000)	(0.000)
$DTURNOVER_t$	0.026	0.044***	0.005	0.028***
	(0.111)	(0.004)	(0.611)	(0.005)
Constant	-1.254***	-0.665***	-0.803***	-0.487***
	(0.000)	(0.001)	(0.000)	(0.000)
Adjusted R-squared	0.033	0.026	0.034	0.031
Fixed Effect	Firm&Year	Firm&Year	Firm&Year	Firm&Year
Observations	7,582	7,552	7,582	7,552

Table 11

Cross-Sectional Test-Financially Constraint

This table reports the regression results for subsample based on median value of KZ-index. We employ OLS models to get these regression results. Sample spans from 1993-2020. Sensation-seeking CEOs is a dummy variable equals to one for CEOs who hold pilot licenses, and zero otherwise. Sensation-seeking CEOs* KZ-index is an interaction variable. NCSKEW is the negative skewness of firm-specific weekly returns during the fiscal year. DUVOL is the natural logarithm of the ratio of standard deviation in the down weeks to the standard deviation in the up weeks. Opaque is the moving sum of prior three years' absolute value of discretionary accruals. Absolute value of discretionary accruals is estimated from modified jones' model. Cash is the ratio of cash and short-term investments to total assets. M/B is the ratio of market value of equity to the book value of equity. ROA is the ratio of income before extraordinary items to total assets. Leverage is the ratio of total liability to total assets. RET is the mean of firm-specific weekly stock returns during fiscal year, multiplied by 100. Sigma is the standard deviation of firm-specific weekly returns during fiscal year. Size is the natural logarithm of the firms' market value of equity. DTURNOVER is the mean monthly share turnover in the current fiscal year minus the mean monthly share turnover in the last fiscal year. Monthly share turnover equals the monthly trading volume divided by the total number of shares outstanding during that month. Each of the continuous variables is winsorised at 1st and 99th level. Robust standard errors are clustered by firm and p-value are reported in parentheses. ***, ** and * refer to the significances at 1%, 5% and 10% level. All the models in this table include firm fixed effect and year fixed effect.

	(1)	(2)	(3)	(4)
	Below than median	High than median	Below than median	High than median
	$NCSKEW_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$DUVOL_{t+1}$
Sensation-seeking $CEOs_t$	0.093	0.130*	0.046	0.081**
	(0.185)	(0.055)	(0.311)	(0.046)
$NCSKEW_t$	-0.083***	-0.120***	-0.050***	-0.064***
	(0.000)	(0.000)	(0.000)	(0.000)
$Opaque_t$	0.165*	0.059	0.059	0.006
	(0.098)	(0.584)	(0.344)	(0.940)
$Cash_t$	-0.014	-0.049	-0.011	0.006
	(0.891)	(0.754)	(0.871)	(0.951)
M/B_t	-0.003	0.004	-0.002	0.001
	(0.236)	(0.170)	(0.150)	(0.451)
ROA_t	0.574***	0.411***	0.433***	0.322***
	(0.001)	(0.004)	(0.000)	(0.001)
$Leverage_t$	-0.037	-0.032	-0.033	0.010
	(0.687)	(0.691)	(0.561)	(0.848)
RET_t	0.771	0.736*	0.467	0.430*
	(0.106)	(0.068)	(0.125)	(0.095)
$Sigma_t$	5.105*	4.297	3.732**	2.235
	(0.078)	(0.113)	(0.044)	(0.204)
$Size_t$	0.147***	0.113***	0.096***	0.067***
	(0.000)	(0.000)	(0.000)	(0.000)
$DTURNOVER_t$	0.014	0.040**	0.007	0.017*
	(0.445)	(0.011)	(0.561)	(0.093)
Constant	-1.059***	-0.809***	-0.734***	-0.459***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	6,911	6,911	6,911	6,911
Adjusted R-squared	0.025	0.033	0.034	0.032
Fixed Effect	Firm&Year	Firm&Year	Firm&Year	Firm&Year

Table 12
Moderation Test-Managerial Ability

This table reports the regression results for subsample based on median value of managerial ability. We employ OLS models to get these regression results. Sample spans from 1993-2020. Sensation-seeking CEOs is a dummy variable equals to one for CEOs who hold pilot licenses, and zero otherwise. NCSKEW is the negative skewness of firm-specific weekly returns during the fiscal year. DUVOL is the natural logarithm of the ratio of standard deviation in the down weeks to the standard deviation in the up weeks. Opaque is the moving sum of prior three years' absolute value of discretionary accruals. Absolute value of discretionary accruals is estimated from modified jones' model. Cash is the ratio of cash and short-term investments to total assets. M/B is the ratio of market value of equity to the book value of equity. ROA is the ratio of income before extraordinary items to total assets. Leverage is the ratio of total liability to total assets. RET is the mean of firm-specific weekly stock returns during fiscal year, multiplied by 100. Sigma is the standard deviation of firm-specific weekly returns during fiscal year. Size is the natural logarithm of the firms' market value of equity. DTURNOVER is the mean monthly share turnover in the current fiscal year minus the mean monthly share turnover in the last fiscal year. Monthly share turnover equals the monthly trading volume divided by the total number of shares outstanding during that month. Each of the continuous variables is winsorised at 1st and 99th level. Robust standard errors are clustered by firm and p-value are reported in parentheses. ***, ** and * refer to the significances at 1%, 5% and 10% level. All the models in this table include firm fixed effect and year fixed effect.

	(1)	(2)	(3)	(4)
	Below than median	High than median	Below than median	High than median
	$NCSKEW_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$DUVOL_{t+1}$
Sensation-seeking $CEOs_t$	0.201***	-0.015	0.111***	0.008
	(0.002)	(0.849)	(0.006)	(0.871)
$NCSKEW_t$	-0.076***	-0.102***	-0.047***	-0.056***
	(0.000)	(0.000)	(0.000)	(0.000)
$Opaque_t$	0.117	0.072	0.037	0.052
	(0.380)	(0.410)	(0.670)	(0.395)
$Cash_t$	-0.117	-0.042	-0.037	-0.012
	(0.358)	(0.676)	(0.677)	(0.854)
M/B_t	-0.000	0.000	-0.001	0.000
	(0.934)	(0.878)	(0.728)	(0.956)
ROA_t	0.631***	0.439***	0.397***	0.355***
	(0.001)	(0.004)	(0.002)	(0.001)
$Leverage_t$	0.054	-0.038	0.054	-0.009
	(0.572)	(0.648)	(0.341)	(0.861)
RET_t	0.575	0.177	0.326	0.199
	(0.199)	(0.653)	(0.248)	(0.437)
$Sigma_t$	4.481	0.949	2.591	1.486
	(0.115)	(0.725)	(0.151)	(0.386)
$Size_t$	0.108***	0.112***	0.075***	0.073***
	(0.000)	(0.000)	(0.000)	(0.000)
$DTURNOVER_t$	0.034**	0.043***	0.019*	0.026**
	(0.041)	(0.009)	(0.093)	(0.019)
Constant	-0.945***	-0.741***	-0.617***	-0.556***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	6,933	6,933	6,933	6,933
Adjusted R-squared	0.023	0.029	0.027	0.032
Fixed Effect	Firm&Year	Firm&Year	Firm&Year	Firm&Year

Appendix A

This table reports definitions of variables used in our study. Each of the continuous variables is winsorized at the 1st and 99th level.

Variables	Definition
CEO Characteristics	
Sensation-seeking CEOs	A dummy variable equals to one for CEOs who hold pilot licenses, and zero otherwise.
Age	The natural logarithm of CEOs' age.
Gender	A dummy variable equals to one for CEOs who are female, and zero otherwise.
Tenure	The natural logarithm of years for CEOs siting in his/her position plus one.
CEO Overconfidence	We follow Schrand and Zechman (2012) and Kim et al. (2016) to construct firm-level based overconfident CEOs. CEOs who are identified as overconfident CEOs should meet at least three of five criteria
Managerial Ability	The proxy for managerial ability is managerial ability score which is based on Demerjian et al. (2012). High-ability managers have higher managerial ability score. We obtain managerial ability score from author's website.
Crash Risk Measurements	
NCSKEW	The negative skewness of firm-specific weekly returns during the fiscal year.
DUVOL	The natural logarithm of the ratio of standard deviation in the down weeks to the standard deviation in the up weeks.
Firm's Characteristics	
R&D	The ratio of research and development expenses to total assets. The Missing values are replaced with zero.
Goodwill	The ratio of goodwill to total assets. The Missing values are replaced with zero.
Opaque	The moving sum of prior three years' absolute value of discretionary accruals. Absolute value of discretionary accruals is estimated from modified jones' model based on Dechow et al. (1995).
Cash	The ratio of cash and short-term investments to total assets.
M/B	The ratio of market value of equity to the book value of equity.
ROA	The ratio of income before extraordinary items to total assets.
Leverage	The ratio of total liability to total assets.
RET	The mean of firm-specific weekly stock returns during fiscal year, multiplied by 100.
Sigma	Standard deviation of firm-specific weekly returns during fiscal year.
Size	The natural logarithm of the firms' market value of equity.
DTURNOVER	The mean monthly share turnover in the current fiscal year minus the mean monthly share turnover in the last fiscal year. Monthly share turnover equals the monthly trading volume divided by the total number of shares outstanding during that month.
C-Score	Conditional accounting conservatism based on Khan and Watts (2009).
REM	Real earnings management based on Roychowdhury (2006) and Griffin et al. (2021).
PIN	An estimate probability of informed trading. This data is retrieved from https://terpconnect.umd.edu/~stephenb/pinsdatanew.html.
KZ-Index	-1.001909*cashflow+0.2826389*q+3.139193*debt-39.3678*dividend-1.314759*cash
Altman Z-score	3.3*(net income + interest and related expense + income taxes)/total assets + 1.4*retained earnings/total assets + 1.2* (current assets − current liabilities)/total assets + 0.999*sales/total assets + 0.6*market capitalization/total liabilities.

Online Appendix A1
Correlation matrix

This table shows the correlation matrix of the variables used in our baseline regression models. Sample spans from 1993-2020. NCSKEW is the negative skewness of firm-specific weekly returns during the fiscal year. DUVOL is the natural logarithm of the ratio of standard deviation in the down weeks to the standard deviation in the up weeks. R&D is the ratio of research and development expenses to total assets. The Missing values are replaced with zero. Goodwill is the ratio of goodwill to total assets. The Missing values are replaced with zero. Opaque is the moving sum of prior three years' absolute value of discretionary accruals. Absolute value of discretionary accruals is estimated from modified jones' model. Cash is the ratio of cash and short-term investments to total assets. M/B is the ratio of market value of equity to the book value of equity. ROA is the ratio of income before extraordinary items to total assets. Leverage is the ratio of total liability to total assets. RET is the mean of firm-specific weekly stock returns during fiscal year, multiplied by 100. Sigma is the standard deviation of firm-specific weekly returns during fiscal year. Size is the natural logarithm of the firms' market value of equity. DTURNOVER is the mean monthly share turnover in the current fiscal year minus the mean monthly share turnover in the last fiscal year. Monthly share turnover equals the monthly trading volume divided by the total number of shares outstanding during that month. Age is CEOs' age. Gender is a dummy variable equals to one for CEOs who are female, and zero otherwise. Tenure is the natural logarithm of years for CEOs siting in his/her position plus one. * refer to the significances at 5% level.

	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)	$NCSKEW_{t+1}$	1																
(2)	$DUVOL_{t+1}$	0.8950*	1															
(3)	$NCSKEW_t$	0.0292*	0.0328*	1														
(4)	$R\&D_t$	0.0009	0.0047	-0.002	1													
(5)	$Goodwill_t$	0.0154	0.0119	0.0123	-0.0839*	1												
(6)	$Opaque_t$	0.0284*	0.0277*	0.0215*	0.1332*	-0.1194*	1											
(7)	$Cash_t$	0.0187*	0.0219*	-0.0128	0.5617*	-0.1856*	0.1673*	1										
(8)	M/B_t	0.0222*	0.0199*	0.0289*	0.1428*	-0.0121	0.0387*	0.1162*	1									
(9)	ROA_t	0.0545*	0.0529*	-0.0232*	-0.1309*	0.0182*	-0.0390*	0.0867*	0.1649*	1								
(10)	$Leverage_t$	-0.0200*	-0.0164*	-0.0107	-0.1697*	0.2625*	-0.0536*	-0.2807*	0.0186*	-0.1361*	1							
(11)	RET_t	-0.0225*	-0.0330*	-0.0907*	-0.2533*	0.2117*	-0.2458*	-0.2078*	0.0354*	0.3004*	0.0192*	1						
(12)	$Sigma_t$	0.0316*	0.0410*	0.1169*	0.2545*	-0.2452*	0.2714*	0.2177*	-0.0547*	-0.2957*	-0.0314*	-0.9661*	1					
(13)	$Size_t$	0.0255*	0.0325*	0.0381*	-0.0059	0.1778*	-0.2006*	-0.0384*	0.2841*	0.2673*	0.1054*	0.3996*	-0.4682*	1				
(14)	$DTURNOVER_t$	0.0332*	0.0292*	0.0696*	-0.0001	0.009	-0.0053	-0.0114	0.0489*	0.0523*	0.0606*	-0.1689*	0.1713*	0.012	1			
(15)	Age_t	0.0017	0.0015	0.0027	-0.1380*	0.0151	-0.1062*	-0.1042*	-0.0201*	0.0330*	0.001	0.1474*	-0.1566*	0.0984*	-0.0031	1		
(16)	$gender_t$	0.0057	0.009	0.0069	-0.0397*	-0.0208*	-0.0005	0.0482*	0.0253*	-0.0003	-0.0182*	-0.012	0.0063	0.0029	-0.0066	-0.0532*	1	
(17)	$Tenure_t$	0.0008	-0.0017	0.0016	0.0014	-0.0139	-0.012	0.0669*	0.0073	0.0731*	-0.0820*	0.0182*	-0.0093	-0.0239*	-0.0208*	0.4001*	-0.0562*	1

Reference

Al Mamun, M., Balachandran, B. & Duong, H. N. 2020. Powerful CEOs and stock price crash risk. *Journal of Corporate Finance,* 62**,** 101582.

Altman, E. I. 1968. Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance,* 23**,** 589-609.

Andreou, C. K., Andreou, P. C. & Lambertides, N. 2021. Financial distress risk and stock price crashes. *Journal of Corporate Finance,* 67**,** 101870.

Andreou, P. C., Louca, C. & Petrou, A. P. 2016. CEO Age and Stock Price Crash Risk*. *Review of Finance,* 21**,** 1287-1325.

Baghdadi, G., Podolski, E. & Veeraraghavan, M. 2021. CEO endowed trait and corporate tax avoidance: Evidence from pilot ceos. *Available at ssrn 3785578*.

Basu, S. 1997. The conservatism principle and the asymmetric timeliness of earnings1. *Journal of Accounting and Economics,* 24**,** 3-37.

Cain, M. D. & Mckeon, S. B. 2016. CEO personal risk-taking and corporate policies. *Journal of financial and quantitative analysis,* 51**,** 139-164.

Callen, J. L. & Fang, X. 2015a. Religion and stock price crash risk. *Journal of Financial and Quantitative Analysis,* 50**,** 169-195.

Callen, J. L. & Fang, X. 2015b. Short interest and stock price crash risk. *Journal of Banking & Finance,* 60**,** 181-194.

Cao, Z., Kim, J.-B., Zhang, E. X. & Zhang, R. 2019. Managerial risk tolerance and corporate credit ratings.

Chen, J., Hong, H. & Stein, J. C. 2001. Forecasting crashes: trading volume, past returns, and conditional skewness in stock prices. *Journal of Financial Economics,* 61**,** 345-381.

Chen, Y., Fan, Q., Yang, X. & Zolotoy, L. 2021. CEO early-life disaster experience and stock price crash risk. *Journal of Corporate Finance,* 68**,** 101928.

Chyz, J. A., Gaertner, F. B., Kausar, A. & Watson, L. 2019. Overconfidence and corporate tax policy. *Review of Accounting Studies,* 24**,** 1114-1145.

Cornaggia, K. J., Krishnan, G. V. & Wang, C. 2017. Managerial ability and credit ratings. *Contemporary Accounting Research,* 34**,** 2094-2122.

Demerjian, P., Lev, B. & Mcvay, S. 2012. Quantifying managerial ability: A new measure and validity tests. *Management Science,* 58**,** 1229-1248.

Dimson, E. 1979. Risk measurement when shares are subject to infrequent trading. *Journal of Financial Economics,* 7**,** 197-226.

Fang, X., Luo, L., Pittman, J. & Xie, H. 2018. CEO sensation seeking and accounting conservatism. *Available at SSRN 3260855*.

Ferreira, D., Ferreira, M. A. & Raposo, C. C. 2011. Board structure and price informativeness. *Journal of Financial Economics,* 99**,** 523-545.

Franken, R. E., Gibson, K. J. & Rowland, G. L. 1992. Sensation seeking and the tendency to view the world as threatening. *Personality and Individual Differences,* 13**,** 31-38.

Fu, X. & Zhang, Z. 2019. CFO cultural background and stock price crash risk. *Journal of International Financial Markets, Institutions and Money,* 62**,** 74-93.

Gao, L., Shi, Y. & Xu, H. 2022. Pilot CEOs and management earnings forecasts. *Journal of corporate accounting & finance,* 33**,** 31-48.

Griffin, P. A., Hong, H. A., Liu, Y. & Ryou, J. W. 2021. The dark side of CEO social capital: Evidence from real earnings management and future operating performance. *Journal of Corporate Finance,* 68**,** 101920.

Hong, H. & Stein, J. C. 2003. Differences of opinion, short-sales constraints, and market crashes. *The Review of Financial Studies,* 16**,** 487-525.

Hutton, A. P., Marcus, A. J. & Tehranian, H. 2009. Opaque financial reports, R2, and crash risk. *Journal of Financial Economics,* 94**,** 67-86.

Jebran, K., Chen, S. & Zhang, R. 2022. Board social capital and stock price crash risk. *Review of Quantitative Finance and Accounting,* 58**,** 499-540.

Jin, L. & Myers, S. C. 2006. R2 around the world: New theory and new tests. *Journal of Financial Economics,* 79**,** 257-292.

Kaplan, S. N. & Zingales, L. 1997. Do investment-cash flow sensitivities provide useful measures of financing constraints? *The quarterly journal of economics,* 112**,** 169-215.

Khan, M. & Watts, R. L. 2009. Estimation and empirical properties of a firm-year measure of accounting conservatism. *Journal of accounting and Economics,* 48**,** 132-150.

Kim, J.-B., Li, Y. & Zhang, L. 2011a. CFOs versus CEOs: Equity incentives and crashes. *Journal of financial economics,* 101**,** 713-730.

Kim, J.-B., Li, Y. & Zhang, L. 2011b. Corporate tax avoidance and stock price crash risk: Firm-level analysis. *Journal of financial economics,* 100**,** 639-662.

Kim, J. B., Liao, S. & Liu, Y. 2021. Married CEOs and stock price crash risk. *European Financial Management*.

Kim, J. B., Wang, Z. & Zhang, L. 2016. CEO overconfidence and stock price crash risk. *Contemporary accounting research,* 33**,** 1720-1749.

Kim, J. B. & Zhang, L. 2016. Accounting conservatism and stock price crash risk: Firm-level evidence. *Contemporary accounting research,* 33**,** 412-441.

Kim, Y., Li, H. & Li, S. 2014. Corporate social responsibility and stock price crash risk. *Journal of Banking & Finance,* 43**,** 1-13.

Lafond, R. & Watts, R. L. 2008. The information role of conservatism. *The accounting review,* 83**,** 447-478.

Li, Y. & Zeng, Y. 2019. The impact of top executive gender on asset prices: Evidence from stock price crash risk. *Journal of Corporate Finance,* 58**,** 528-550.

Liu, L., Xu, H., Dao, M. & Sun, H. 2021. Pilot CEOs and tax avoidance: Evidence from machine learning methods. *Asia-pacific journal of accounting & economics***,** 1-16.

Lobo, G., Ouyang, B., Wang, C. & Zhou, J. 2018. CEO sensation seeking and financial reporting quality.

Ouyang, B., Tang, Y., Wang, C. & Zhou, J. 2021. No-fly zone in the loan office: How chief executive officers' risky hobbies affect credit stakeholders' evaluation of firms. *Organization science*.

Parrino, R. 1997. CEO turnover and outside succession a cross-sectional analysis. *Journal of financial Economics,* 46**,** 165-197.

Peters, F. S. & Wagner, A. F. 2014. The executive turnover risk premium. *The Journal of Finance,* 69**,** 1529-1563.

Roychowdhury, S. 2006. Earnings management through real activities manipulation. *Journal of accounting and economics,* 42**,** 335-370.

Schrand, C. M. & Zechman, S. L. 2012. Executive overconfidence and the slippery slope to financial misreporting. *Journal of accounting and economics,* 53**,** 311-329.

Shipman, J. E., Swanquist, Q. T. & Whited, R. L. 2017. Propensity score matching in accounting research. *The Accounting Review,* 92**,** 213-244.

Slanger, E. & Rudestam, K. E. 1997. Motivation and disinhibition in high risk sports: Sensation seeking and self-efficacy. *Journal of Research in Personality,* 31**,** 355-374.

Sunder, J., Sunder, S. V. & Zhang, J. 2017. Pilot CEOs and corporate innovation. *Journal of financial economics,* 123**,** 209-224.

Wruck, K. H. & Wu, Y. 2022. Relative Versus Absolute Performance Evaluation and CEO Decision-Making. *Journal of Financial and Quantitative Analysis***,** 1-36.

Xu, H., Nguyen, D. & Dao, M. 2021a. Pilot CEOs and trade credit. *The european journal of finance,* 27**,** 486-509.

Xu, Y., Xuan, Y. & Zheng, G. 2021b. Internet searching and stock price crash risk: Evidence from a quasi-natural experiment. *Journal of Financial Economics,* 141**,** 255-275.

Zuckerman, M. 2007. *Sensation seeking and risky behavior*, American Psychological Association.