

Xiang, Rui; Song, Congmin

**Article**

## CFO narcissism and audit fees: Evidence from listed companies in China

China Journal of Accounting Research

**Provided in Cooperation with:**

Sun Yat-sen University

*Suggested Citation:* Xiang, Rui; Song, Congmin (2021) : CFO narcissism and audit fees: Evidence from listed companies in China, China Journal of Accounting Research, ISSN 1755-3091, Elsevier, Amsterdam, Vol. 14, Iss. 3, pp. 257-274,  
<https://doi.org/10.1016/j.cjar.2021.05.002>

This Version is available at:

<https://hdl.handle.net/10419/241839>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



<https://creativecommons.org/licenses/by-nc-nd/4.0/>

HOSTED BY



Contents lists available at ScienceDirect

## China Journal of Accounting Research

journal homepage: [www.elsevier.com/locate/cjar](http://www.elsevier.com/locate/cjar)

## CFO narcissism and audit fees: Evidence from listed companies in China



Rui Xiang, Congmin Song\*

Business School, Sichuan University, China

## ARTICLE INFO

## Article history:

Received 16 June 2020

Accepted 17 May 2021

Available online 21 July 2021

## Keywords:

CFO Narcissism

Audit Fees

Property Rights

Fee Premium

## ABSTRACT

This paper examines the effects of CFO narcissism on audit fees in China. Using the size of CFO signatures in annual audit reports to measure individual narcissism, we find that CFO narcissism is associated with higher audit fees. We find empirical evidence that CFO narcissism significantly increases the audit fees of listed companies, and this effect is stronger in state-owned enterprises. This paper also explores the mediating effects of financial information and the engagement of prestigious Big-4 and Big-10 firms. The results show that companies with narcissistic CFOs have lower quality financial information and prefer more prestigious firms, which leads to higher audit fees. This research highlights the importance of CFO narcissism in corporate performance and provides new evidence that will be useful for listed companies that plan to hire senior executives.

© 2021 Sun Yat-sen University. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

Financial scandals are common, such as the collapse of Enron in 2001, the WorldCom scandal in 2003, and the Luckin Coffee fraud case in 2020. Fraud is a major concern in all walks of life. On February 20, 2019, China's Ministry of Finance approved the issuance of 18 auditing standards, including “No. 1101 Chinese Auditing Standards for Certified Public Accountants—The Overall Objectives of Certified Public Accountants and the Basic Requirements for Auditing Work,” which was drafted with the involvement of the Chinese Institute of Certified Public Accountants. “No. 1141 Auditing Standards for Certified Public Accountants—Responsibilities Related to Fraud in the Audit of Financial Statements”<sup>1</sup> clearly states that

\* Corresponding author at: 29 Wangjiang Road, Wuhou District, Chengdu 610064, China.

E-mail address: [Amymcson@outlook.com](mailto:Amymcson@outlook.com) (C. Song).

<sup>1</sup> “No. 1141 Auditing Standards for Certified Public Accountants—Responsibilities Related to Fraud in the Audit of Financial Statements,” revised on March 29, 2019.

if the auditee's personnel can override internal controls then opportunities for fraud will exist; such personnel include directors in important positions with a deep knowledge of the company's internal control deficiencies. The disclosure and prevention of financial fraud are linked to corporate executives. Upper echelons theory holds that due to firms' complex external environment, managers cannot comprehensively grasp all information. Because executives have different levels of cognitive competence, personal experience, and sense of worth, they may make different decisions in the same environment. By influencing executives' behavior and decision-making methods, their cognitive competence, personal experience, and sense of worth influence their corporate behavior. Ham et al. (2017) find that executive narcissism is associated with strategic positioning, strategic selection, and decisions related to personnel structure and staffing. Thus, identifying executive narcissism is important.

The Chief Executive Officer (CEO) and Chief Financial Officer (CFO) are the two most important executives in an enterprise. They are not only responsible for a firm's daily business activities, but also play a decisive role in the quality of its accounting information. Malmendier et al. (2013) find that the quality of accounting information is more related to the CEO's and CFO's characteristics than to the characteristics of the whole management team. However, CFO narcissism affects audit fees through different channels and mechanisms than CEO narcissism. First, CFOs have a more direct influence on the financial reporting process than CEOs; they are directly responsible for the financial statements, and make the key decisions on accounting policies and information disclosure. CFOs have a unique ability to perform accounting manipulation, such as restructuring transactions, using inappropriate accounting policies, and engaging in fraud (Feng et al., 2011). Therefore, CFOs have a direct impact on the quality of financial information. Financial scandals, such as those that engulfed Enron and WorldCom, show that CFOs have a crucial impact on the quality of accounting information. Scholars also believe that CFOs and their personal characteristics have significant impacts on financial reports (Jiang et al., 2010; Ham et al., 2017). To improve the quality of financial information, narcissistic CFOs prefer to pay higher audit fees in exchange for better quality audit services. Second, CFOs are directly involved in the construction and implementation of internal controls. Finally, as the person in charge of communicating with auditors, CFOs are not only involved in the appointment of auditors, but also influence the formulation of auditors' audit plans, which are related to audit fees. Therefore, in this paper we focus on CFOs' personal characteristics, narcissism, and audit fees.

Psychological studies suggest that narcissists usually show the psychological characteristics of authority, superiority, exhibitionism, and attention-seeking (Raskin and Howard, 1988; Bogart et al., 2004), which scholars frequently measure using the Narcissistic Personality Inventory (NPI). However, due to the questionnaire may expose executives' hidden characteristics to others which have potential influence on their career, they are sensitive to their own personality traits, such as narcissism, and may try to conceal them (Cyota et al., 2006). In addition, collecting corporate executives' NPI scores is time-consuming. Therefore, a more convenient and objective measurement method is needed for measuring CFOs' narcissism.

Research on the association between signatures and narcissism has a long history. Since the 1970 s, psychologists have found that individuals with larger signatures tend to be more self-aware and more narcissistic (Snyder and Fromkin, 1977). They demonstrate that signature size can be used as an approach to measure the extent of individuals' self-awareness and dominance of others, and individuals with larger signatures have tendency to exhibit control and dominance over others, both of which are associated with narcissism (Zweigenhaft and Marlowe, 1973; Zweigenhaft, 1977; Jorgenson, 1977). The signature is hard to duplicate, and people even develop unique signatures to distinguish themselves from others. The signature is a powerful symbolic representation of the individual. It may have other cultural associations or express a sense of personal style, but this is its primary purpose. To some extent, people have a strong sense of identity with their own names and associate their names with positive emotions. This strong sense of identity affects their life and career decisions (Pelham et al. 2005). Narcissists focus on themselves and over-value themselves (Zhang and Chen, 2015), which may cause them to pay more attention to their own names. In addition, using the size of

<sup>1</sup> "No. 1141 Auditing Standards for Certified Public Accountants—Responsibilities Related to Fraud in the Audit of Financial Statements," revised on March 29, 2019.

the signature to measure the degree of narcissism can effectively prevent the interviewee from hiding his own personality characteristics (Rudman et al., 2007).

Based on the psychological literature, Hambrick et al. (2018) classify those who exhibit the following four personality characteristics as narcissists. First, they have a strong desire for power, and hope to get the respect they think they deserve. Second, they show leadership and authority, and desire to be the center of attention. Third, they show a sense of superiority and arrogance, and believe they are better than anyone else. Lastly, they are conceited, believing that they have unique and extraordinary ideas. To reflect these four characteristics, Hambrick et al. delete the six questions in NPI-16 that measure self-confidence rather than narcissism, and create two new experiments for examining the association between signature size and narcissism. This paper adopts the methods of Ham et al. (2017, 2018) and Church et al. (2020). A rectangular frame is used to intercept the CFOs' signatures that are included in the annual audit report of China A-share listed companies from 2012 to 2017. Each side of the rectangular frame touches the extreme endpoints of the signature. To reduce the manual measurement error of the rectangular frame, we use the number of pixels of the intercepted rectangle instead of the rectangular area and take its natural logarithm to obtain the signature size, which is used to measure CFOs' narcissistic tendencies.

This research makes the following contributions to the literature. First, based on behavioral economics theory, we empirically analyze the impact of CFOs' narcissistic psychology and personality characteristics on corporate economic activities, avoiding the limitations of traditional corporate governance theories. Second, because CEOs have more opportunities to appear in public and gain more social attention, previous studies on executive narcissism mainly focus on CEOs (Ham et al., 2017), while the literature on CFO narcissism is much smaller. This paper enriches the research on CFO background characteristics. Finally, the literature generally describes CFO characteristics and examines the impact of executives on audit fees using explicit characteristics such as professional background, salary, and educational background (Zhang and Hu, 2013; Wang et al., 2019). This paper starts with the personality trait of CFO narcissism and measures this hard-to-capture personality trait with the effective proxy variable of CFO signature size. This paper enriches the research on the impact of executives' personality characteristics on audit fees. This paper thus provides a reference for other studies of the impact of executive narcissism in Chinese listed companies.

## 2. Literature review and hypotheses development

The psychological characteristics of narcissists include authority, superiority, exhibitionism, and attention-seeking (Raskin and Howard, 1988; Bogart et al., 2004). Narcissists believe they possess distinctive traits and have a high, non-objective sense of their intelligence, creativity, competence, and leadership (Farwell and Wohlwend-Lloyd, 1998; Rich, 2006). Geiger and North (2006) find that the CFO has independent influence over the company's financial reporting. Narcissists dominate the decision-making process and ignore feedback from others and the results of previous decisions (Wink, 1991; Morf and Rhodewalt, 1993; John and Robins, 1994; Yang et al., 2018). This leads to suboptimal organizational decisions (Nevicka et al., 2011). Therefore, from the auditor's perspective, finance departments led by narcissistic CFOs tend to be less efficient and to have poorer internal controls and financial information than those led by non-narcissistic CFOs. Yang et al. (2018) find that even if narcissists spot their mistake after making a bad decision, their ability to revise their subsequent actions is poorer than that of non-narcissistic people. Narcissists understand external feedback but still have trouble learning from it (Carlson, 2013; Jordan and Audia, 2012). This tendency may lead narcissistic CFOs to adopt more aggressive accounting policies and estimates. Narcissistic CFOs may take a positive view of situations that other executives consider risky. For example, they are less likely to recognize losses in a timely manner, which increases the likelihood of financial misstatements (Ham et al., 2017). Other studies have shown that narcissists are more likely to engage in unethical behavior, such as lying to get their way, engaging in academic dishonesty, and committing crimes (Menon and Sharland, 2011; Hales et al., 2012). Simunic (1980) finds that auditors control litigation risk and make up for the expected loss of high-risk clients by increasing audit fees. Auditors' assessment of fraud risk increases when they are confronted with narcissistic executives. In such cases, auditors will increase their audit fees and are more likely to resign (Johnson et al., 2013; Judd et al., 2017).

There are researchers who believe that CFO narcissism does not lead to negative outcomes for companies. Narcissism can be a motivational mechanism, as it includes a belief in one's own superior abilities and the need for strong and constant affirmation from others. Narcissists are driven to compete, and usually take every possible action to win (Luchner et al., 2011; Xiang and Tian, 2020). Narcissistic CFOs have extreme confidence in the financial information for which they are directly responsible (Chatterjee and Hambrick, 2007). Narcissism drives them to achieve perfect results. Therefore, they may have higher standards for internal controls, require lower financial and operational risk, and reduce unnecessary cash outflow. In this case, CFO narcissism will lead to high-quality financial information. In the short run, high-quality internal controls may require auditors to invest extra time and effort. However, audits may become simpler as the auditor becomes more familiar with the client due to continuous audit demands, thus causing a reduction in audit fees (Xing and Chen, 2013).

Because of their desire for self-expression and attention, narcissistic individuals may make their needs and interests override organizational needs and interests, and engage in extremely egoistic behaviors (Rosenthal and Pittinsky, 2015). They may not only impact audit fees through their effect on the firm's financial information quality, but may also try to show their own distinctiveness and social status by providing high quality corporate financial information. They may gain recognition and appreciation by using company resources to show their uniqueness and superiority (Maccoby, 2007; Higgs, 2009); for example, they may hire prestigious accounting firms and auditors to conduct audits, at the cost of high fees. Independent third-party audit agencies, accounting firms and auditors with good reputations and brand advantage can provide narcissistic CFOs with excellent display opportunities. However, such accounting firms earn their reputations by offering high quality auditing services. Higher audit quality usually requires more complicated and strict audit procedures and the participation of experienced senior auditors. Such audit services come at high cost, including the increase in labor costs caused by a higher level of effort and a potential cost from the loss of customers due to issuing non-standard opinions, which leads to high audit fees. At the same time, related research shows that in the auditing market in China, accounting firms with a high reputation can obtain a premium (Zheng and Zheng, 2017).

Based on the above analysis, we believe that CFO narcissism may have an impact on audit fees through two channels: the quality of accounting information, and the pursuit of self-expression and attention. Our hypotheses are as follows.

H1a: When other factors remain unchanged, CFO narcissism is positively associated with audit fees.

H1b: When other factors remain unchanged, CFO narcissism is negatively associated with audit fees.

### 3. Research design

#### 3.1. Sample selection and data sources

In this research, we exclude observations that lack details about the specific amount of audit fees, the positions of senior executives, actual controller, internal control indexes, and financial information. It extracts CFO signatures from their annual audit reports. Ultimately, we obtain 6,081 effective observations which are Chinese A-share listed companies from 2012 to 2017. The sample includes state-owned enterprises (2,470 observations) and private enterprise (3,611 observations). To avoid the effects of extreme values, all continuous variables are winsorized at the top and bottom 1% levels. The CFOs' signature information is collected manually. The comprehensive evaluation of accounting firms comes from the "Top 100 Domestic Accounting Firms (Comprehensive Evaluation) List" issued by the Chinese Institute of Certified Public Accountants. The quality of internal control is assessed using the internal control index issued by DIB which is China's first professional institution focusing on risk management, internal control and internal audit, and the other data are collected from the CSMAR database.

#### 3.2. Definitions of variables

##### 3.2.1. Dependent variable

*Lnfee* is the audit fee, which is the natural log of the fee the listed company pays to the accounting firm for the audit service. The economic transaction between the company and the accounting firm is the audit service,

and the audit fee is the final manifestation of this economic relationship between the company and the accounting firm. Audit fees charged by accounting firms often include three parts: audit costs, normal profits, and risk premiums. This paper proposes that the audit fee is the consideration paid by the client to obtain the audit service of the accounting firm. It includes not only the cost, such as time and human resources, incurred when the audit firm performs the audit service, but also the risk premium required by the audit firm due to potential litigation and other risks involved. Following Li and Wu (2004), Xing and Chen (2013), Chu et al. (2018), this paper measures audit fees as the natural logarithm of the audit fee paid by the listed company in the focal year.

### 3.2.2. Independent variable

*Narcissism* is the natural logarithm of the number of pixels in the CFO's signature image, which is a proxy for the CFOs' level of narcissism. Narcissism is the personality trait of overestimating one's own charm and ability, deliberately calling attention to oneself, and having an urgent need for attention, recognition, and approval (Campbell et al., 2011).

### 3.2.3. Control variables

To minimize the impact of other factors on audit fees and accurately measure the impact of CFO narcissism on audit fees, this paper refers to the research of Zhang and Hu (2013), Cheng et al. (2016), Liu et al. (2018). To account for the effects of audit workload, audit opinions, financial risks, operating risks, internal control risks, and corporate governance, we introduce the control variables *SIZE*, *AO*, *LEV*, *QUICK*, *REC*, *INV*, *ROA*, *LOSS*, *IC*, *IBD*, *DUAL*, *BMT*. At the same time, to control for the influence of the CEO, we add the CEO's age (*CEO\_AGE*) to the model, and finally introduce *YEAR* and *IND*. The variable definitions are shown in Table 1.

### 3.3. Model specification

We test the relation between CFO narcissism and audit fees via the following model:

$$\begin{aligned} Lnfee_{i,t} = & \alpha_0 + \alpha_1 Narcissism_{i,t} + \alpha_2 CEO\_AGE_{i,t} + \alpha_3 AO_{i,t} + \alpha_4 IC_{i,t} + \alpha_5 SIZE_{i,t} + \alpha_6 REC_{i,t} + \alpha_7 INV_{i,t} \\ & + \alpha_8 QUICK_{i,t} + \alpha_9 LEV_{i,t} + \alpha_{10} LOSS_{i,t} + \alpha_{11} ROA_{i,t} + \alpha_{12} IBD_{i,t} + \alpha_{13} DUAL_{i,t} + \alpha_{14} BMT_{i,t} \\ & + \Sigma YEAR_{i,t} + \Sigma IND_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (1)$$

Table 1  
Variable definitions.

Symbol	Definition
<i>Lnfee</i>	Audit fee: the natural logarithm of the audit fee of the listed company in that year.
<i>Narcissism</i>	CFO narcissism: natural logarithm of the number of pixels in CFO signature images.
<i>CEO_AGE</i>	The age of the CEO in the focal year.
<i>AO</i>	Audit opinion: An indicator variable equal to one if the audit opinion is an unmodified opinion in the current year, and zero otherwise.
<i>IC</i>	The quality of internal control: $IC = \ln(\text{the internal control index issued by DIB} + 1)$
<i>SIZE</i>	The size of the company: the natural logarithm of total assets at year end.
<i>REC</i>	Trade receivables divided by total assets.
<i>INV</i>	Inventory divided by total assets.
<i>QUICK</i>	Quick ratio = $[\text{Current assets} - \text{Inventory}] / \text{Current Liabilities}$
<i>LEV</i>	Leverage ratio, the ratio of short-term plus long-term debt to equity.
<i>LOSS</i>	Indicator variable, equal to one if the firm incurred a loss in the prior year, and zero otherwise.
<i>ROA</i>	Change in net income scaled by average total assets in the past year.
<i>IBD</i>	Percentage of independent board directors.
<i>DUAL</i>	Indicator variable equal to one if the manager and chairman are the same person in the current year, and zero otherwise.
<i>BMT</i>	Number of board meetings.
<i>YEAR</i>	Dummy variable for years.
<i>IND</i>	Dummy variable for industries.



## 4. Results

### 4.1. Descriptive statistics

Table 2 reports the descriptive statistics for our primary dependent and independent variables for the CFO sample. There are 1,457 listed companies in the sample and 6,081 observations. In the sample, the average *lnfee* is 13.835, around 97% of the listed companies obtain an unmodified opinion, and 8.7% of the firms incurred a loss in the prior year. Regarding CFO narcissism characteristics, there is substantial variation in signature size—the maximum is approximately 1.5 times larger than the minimum. The descriptive statistics of the main variables are shown in Table 2.

### 4.2. Correlation analysis

Table 3 presents the Pearson correlations for the main variables. CFO signature size is positively correlated with absolute discretionary accruals and negatively correlated with accrual quality, which is consistent with higher accruals-based earnings management for firms with narcissistic CFOs. Similarly, CFO narcissism is positively correlated with audit fees. The Pearson correlation coefficients between CFO narcissism and audit fees is 0.210. Except for *INV* and *IBD*, the other variables are significantly associated with *lnfee*. There are differences between the correlation of some variables and the expected association, which may be because these are the result of a simple correlation analysis without considering other factors. Further multiple regression results are needed to explore which hypothesis of this research can be verified.

### 4.3. Basic regression analysis

Table 4 reports the correlations between CFO narcissism and audit fees. Column (1) shows the effects of CEO narcissism on audit fees without considering the control variables. As predicted, the coefficient on CFO narcissism is positive for audit fees ( $\alpha_1 = 0.125$ ,  $p < 0.01$ ). As column (2) shows, after adding the control variables to Model (1), the regression coefficients for *Narcissism* are 0.070, at no less than the 1% level, which means CFO narcissism is significantly positively correlated with audit fees; the higher the level of CFO narcissism, the greater the audit fees. Therefore, H1a is supported.

The regression results for the control variables show that *CEO\_AGE* is significantly positively correlated with audit fees ( $\alpha_2 = 0.125$ ,  $p < 0.01$ ). *SIZE* is also significantly positively correlated with audit fees ( $\alpha_5 = 0.421$ ,  $p < 0.01$ ), which means the larger the enterprise, the higher the audit fee. This is consistent with the conclusion of Simunic(1980) that the size of the company's assets affects the complexity of the audit and

Table 2  
Descriptive analysis of variables.

	N	Mean	Median	Min	Max	Std. Dev.
<i>Lnfee</i>	6081	13.835	13.710	12.612	16.400	0.732
<i>Narcissism</i>	6081	8.950	8.713	7.077	11.243	1.037
<i>CEO_age</i>	6081	49.539	50.000	32.000	65.000	6.301
<i>AO</i>	6081	0.971	1.000	0.000	1.000	0.168
<i>IC</i>	6081	6.479	6.507	5.699	6.722	0.146
<i>SIZE</i>	6081	22.308	22.106	19.599	27.064	1.428
<i>REC</i>	6081	0.114	0.084	0.000	0.458	0.107
<i>INV</i>	6081	0.150	0.113	0.000	0.747	0.147
<i>Quick</i>	6081	1.719	1.116	0.000	12.294	1.906
<i>Lev</i>	6081	0.451	0.441	0.060	0.943	0.213
<i>LOSS</i>	6081	0.087	0.000	0.000	1.000	0.282
<i>ROA</i>	6081	0.044	0.038	−0.154	0.222	0.055
<i>IBD</i>	6081	0.373	0.333	0.333	0.556	0.051
<i>DUAL</i>	6081	0.239	0.000	0.000	1.000	0.426
<i>BMT</i>	6081	9.707	9.000	4.000	24.000	3.856

Table 3  
Pearson Correlation Matrices.

	<i>Lnfee</i>	<i>Narcissism</i>	<i>CEO_AGE</i>	<i>AO</i>	<i>IC</i>	<i>SIZE</i>	<i>REC</i>	<i>INV</i>	<i>Quick</i>	<i>Lev</i>	<i>LOSS</i>	<i>ROA</i>	<i>IBD</i>	<i>DUAL</i>	<i>BMT</i>
<i>Lnfee</i>	1.000														
<i>Narcissism</i>	0.210*** (0.000)	1.000													
<i>CEO_AGE</i>	0.143*** (0.000)	0.074*** (0.000)	1.000												
<i>AO</i>	0.037*** (0.003)	0.009 (0.509)	0.018 (0.162)	1.000											
<i>IC</i>	0.073*** (0.000)	0.015 (0.138)	0.034*** (0.008)	0.303*** (0.000)	1.000										
<i>SIZE</i>	0.790*** (0.000)	0.138*** (0.000)	0.127*** (0.000)	0.117*** (0.000)	0.131*** (0.000)	1.000									
<i>REC</i>	−0.155*** (0.000)	−0.031** (0.015)	−0.036** (0.005)	0.048*** (0.000)	0.039*** (0.001)	−0.226*** (0.000)	1.000								
<i>INV</i>	0.030 (0.823)	−0.011 (0.397)	−0.032** (0.013)	0.059*** (0.000)	0.059*** (0.000)	0.065*** (0.000)	−0.047*** (0.000)	1.000							
<i>Quick</i>	−0.289*** (0.000)	−0.025** (0.049)	−0.049*** (0.000)	0.038*** (0.003)	0.013 (0.295)	−0.364*** (0.000)	0.063*** (0.000)	−0.214*** (0.000)	1.000						
<i>Lev</i>	0.373*** (0.000)	0.061*** (0.000)	0.043*** (0.001)	−0.137*** (0.000)	−0.090*** (0.000)	0.503*** (0.000)	−0.043*** (0.001)	0.258*** (0.000)	−0.646*** (0.000)	1.000					
<i>LOSS</i>	−0.040*** (0.002)	−0.036*** (0.005)	−0.007 (0.595)	−0.238*** (0.000)	−0.330*** (0.000)	−0.090*** (0.000)	−0.056*** (0.000)	−0.005 (0.691)	−0.099*** (0.000)	0.181*** (0.000)	1.000				
<i>ROA</i>	−0.069*** (0.000)	0.039*** (0.002)	0.006 (0.640)	0.234*** (0.000)	0.326*** (0.000)	−0.074*** (0.000)	0.070*** (0.000)	−0.111*** (0.000)	0.286*** (0.000)	−0.410*** (0.000)	−0.582*** (0.000)	1.000			
<i>IBD</i>	0.009 (0.489)	−0.015 (0.258)	−0.005 (0.699)	0.013 (0.308)	0.019 (0.147)	−0.007 (0.591)	−0.003 (0.804)	0.032** (0.013)	0.017 (0.176)	−0.002 (0.986)	0.125 (0.331)	−0.019 (0.133)	1.000		
<i>DUAL</i>	−0.155*** (0.000)	−0.043*** (0.003)	0.119*** (0.000)	0.004 (0.756)	0.002 (0.907)	−0.193*** (0.000)	0.060*** (0.000)	−0.009 (0.477)	0.111*** (0.000)	−0.134*** (0.000)	−0.017*** (0.000)	0.082*** (0.000)	0.107*** (0.000)	1.000	
<i>BMT</i>	0.207*** (0.000)	−0.021* (0.095)	−0.042*** (0.001)	−0.013 (0.296)	−0.027** (0.035)	0.235*** (0.000)	−0.036*** (0.005)	0.133*** (0.000)	−0.133*** (0.000)	0.230*** (0.000)	0.009 (0.481)	−0.097*** (0.000)	0.037*** (0.004)	−0.025** (0.048)	1.000

Note: \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively.



Table 4  
CFO narcissism and audit fees.

	<i>Lnfee</i> (1)		<i>Lnfee</i> (1)	
	Coeff.	t-value	Coeff.	t-value
Constant	13.650	132.484***	3.846	13.501***
<i>Narcissism</i>	0.125	14.381***	0.070	12.991***
<i>CEO_AGE</i>			0.004	4.053***
<i>AO</i>			−0.235	−6.585***
<i>IC</i>			−0.054	−1.273
<i>SIZE</i>			0.421	80.290***
<i>REC</i>			0.160	2.952***
<i>INV</i>			−0.031	−0.643
<i>QUICK</i>			−0.013	−3.334***
<i>LEV</i>			−0.193	−4.634***
<i>LOSS</i>			0.073	2.943***
<i>ROA</i>			−0.087	−0.640
<i>IBD</i>			0.308	2.799***
<i>DUAL</i>			−0.016	−1.212
<i>BMT</i>			0.006	3.731***
<i>YEAR</i>		YES		YES
<i>IND</i>		YES		YES
adj.R <sup>2</sup>		0.109		0.658
F-value		67.270		488.386
N		6081		6081

Note: \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels for two-tailed tests, respectively.

thus the audit fee. *REC*, *LOSS*, *IBD*, and *BMT* are all significantly positively correlated with audit fees, at less than the 1% level, while *AO* is significantly negatively associated with audit fees ( $\alpha_3 = -0.235$ ,  $p < 0.01$ ). In other words, unmodified opinions are significantly negatively correlated with audit fees.

#### 4.4. Additional robustness tests

##### 4.4.1. Changing the measurement approach

We conduct three additional robustness tests. In the first test, we replace the natural logarithm of the number of pixels in the CFO signature images by *Narcissism\_W* and *Narcissism\_H*, which are the width and height of the CFO signature image in pixels, respectively. We also use *Narcissism\_TS* and *Narcissism\_AS*, which are the total area and the average area of each word in the CFO signature image, respectively. We re-run Model (1), and Tables 5 and 6 report the regression results. As Table 5 shows, *Narcissism\_H* and *Narcissism\_W* are both significantly positively associated with audit fees, and the regression coefficients for *Narcissism\_H* and *Narcissism\_W* are both 0.001, at no less than a 1% level. Table 6 shows that *Narcissism\_TS* and *Narcissism\_AS* are positively associated with audit fees ( $\alpha_1 = 0.006$ ,  $p < 0.01$ ;  $\alpha_1 = 0.017$ ,  $p < 0.01$ ). These results indicate that whether measured in terms of width and height or total area and average area, when the other factors remain unchanged, CFO narcissism is positively associated with audit fees. The results further support H1a, and the main research conclusions are robust.

##### 4.4.2. Lagging the dependent variable

In the second test, we use  $Lnfee_{i,t+1}$ , the listed company's audit fee in year  $t + 1$ , to address the endogeneity problem of narcissistic CFOs' selection, and we regress Model (2). As Table 7 shows, the regression coefficient is 0.120 at no less than a 1% level, which means that CFO narcissism is significantly positively associated with the audit fees of listed companies even when only the dummy year and industry variables are added to the model. After adding the control variables to Model (2) we find a significantly positive association between

Table 5  
Changing the measurement approach – Width and height.

	<i>Lnfee</i> (1)		<i>Lnfee</i> (2)	
	Coeff.	t-value	Coeff.	t-value
Constant	4.417	15.667***	4.357	15.439***
<i>Narcissism_H</i>	0.001	13.016***		
<i>Narcissism_W</i>			0.001	12.482***
<i>CEO_AGE</i>	0.004	4.034***	0.004	4.175***
<i>AO</i>	−0.232	−6.499***	−0.234	−6.552***
<i>IC</i>	−0.064	−1.505	−0.054	−1.249
<i>SIZE</i>	0.421	80.254***	0.420	79.843***
<i>REC</i>	0.155	2.861***	0.163	3.002***
<i>INV</i>	−0.023	−0.471	−0.025	−0.520
<i>QUICK</i>	−0.013	−3.349***	−0.012	−3.234***
<i>LEV</i>	−0.188	−4.514***	−0.187	−4.475***
<i>LOSS</i>	0.071	2.833***	0.075	3.030***
<i>ROA</i>	−0.089	−0.655	−0.058	−0.426
<i>IBD</i>	0.334	3.030***	0.290	2.634***
<i>DUAL</i>	−0.015	−1.085	−0.015	−1.143***
<i>BMT</i>	0.006	3.713***	0.006	3.688***
<i>YEAR</i>		YES		YES
<i>IND</i>		YES		YES
adj.R <sup>2</sup>		0.658		0.657
F-value		488.463		486.844
N		6081		6081

Table 6  
Changing the measurement approach – Total area and average area.

	<i>Lnfee</i> (1)		<i>Lnfee</i> (2)	
	Coeff.	t-value	Coeff.	t-value
Constant	4.463	15.817***	4.492	15.903***
<i>Narcissism_TS</i>	0.006	12.703***		
<i>Narcissism_AS</i>			0.017	12.376***
<i>CEO_AGE</i>	0.004	4.093***	0.004	4.039***
<i>AO</i>	−0.231	−6.494***	−0.231	−6.470***
<i>IC</i>	−0.061	−1.423	−0.062	−1.454
<i>SIZE</i>	0.420	79.896***	0.420	79.677***
<i>REC</i>	0.155	2.849***	0.157	2.881***
<i>INV</i>	−0.017	−0.357	−0.019	−0.392
<i>QUICK</i>	−0.013	−3.302***	−0.013	−3.307***
<i>LEV</i>	−0.188	−4.498***	−0.185	−4.443***
<i>LOSS</i>	0.073	2.942***	0.072	2.893***
<i>ROA</i>	−0.073	−0.533	−0.077	−0.565
<i>IBD</i>	0.317	2.882***	0.308	2.791***
<i>DUAL</i>	−0.014	−1.004	−0.013	−0.957
<i>BMT</i>	0.006	3.699***	0.006	3.666***
<i>YEAR</i>		YES		YES
<i>IND</i>		YES		YES
adj.R <sup>2</sup>		0.658		0.657
F-value		487.506		486.529
N		6081		6081

*Narcissism* and  $Lnfee_{i,t+1}$  ( $\mu_1 = 0.072$ ,  $p < 0.01$ ), which indicates that even considering the effect of endogeneity, CFO narcissism is positively associated with audit fees, and the main research conclusions are robust.

Table 7  
Lagging the dependent variable.

	<i>Lnfee<sub>t+1</sub></i> (1)		<i>Lnfee<sub>t+1</sub></i> (2)	
	Coeff.	t-value	Coeff.	t-value
Constant	13.646	136.992 ***	3.969	13.462***
<i>Narcissism</i>	0.120	14.328 ***	0.072	12.784***
<i>CEO_AGE</i>			0.003	2.717***
<i>AO</i>			−0.195	−5.279***
<i>IC</i>			−0.021	−0.485
<i>SIZE</i>			0.406	74.701***
<i>REC</i>			0.278	4.950***
<i>INV</i>			−0.007	−0.143
<i>QUICK</i>			−0.01	−2.443**
<i>LEV</i>			−0.182	−4.223***
<i>LOSS</i>			0.081	3.151***
<i>ROA</i>			0.034	0.239
<i>IBD</i>			0.4	3.514***
<i>DUAL</i>			−0.009	−0.611
<i>BMT</i>			0.009	5.771***
<i>YEAR</i>		YES		YES
<i>IND</i>		YES		YES
adj.R <sup>2</sup>		0.099		0.625
F-value		64.583		422.881
N		6081		6081

$$\begin{aligned}
 Lnfee_{i,t+1} = & \mu_0 + \mu_1 Narcissism_{i,t} + \mu_2 CEO\_AGE_{i,t} + \mu_3 AO_{i,t} + \mu_4 IC_{i,t} + \mu_5 SIZE_{i,t} + \mu_6 REC_{i,t} \\
 & + \mu_7 INV_{i,t} + \mu_8 QUICK_{i,t} + \mu_9 LEV_{i,t} + \mu_{10} LOSS_{i,t} + \mu_{11} ROA_{i,t} + \mu_{12} IBD_{i,t} + \mu_{13} DUAL_{i,t} \\
 & + \mu_{14} BMT_{i,t} + \Sigma YEAR_{i,t} + \Sigma IND_{i,t} + \varepsilon_{i,t}
 \end{aligned} \quad (2)$$

#### 4.4.3. Heckman two-step model

To alleviate the self-selection problem of CFO signatures being disclosed in the audit reports of listed companies, this paper adopts the Heckman two-step model for a further test to control for the self-selection bias. In the first stage, this paper constructs a model that affects CFO narcissism, where narcissism is measured as a dummy variable, denoted as *Narcissism\_D*, and the median of CFO narcissism is used to judge the level of CFO narcissism. CFOs with values higher than the median are recorded as 1, and otherwise 0. According to the requirements of the Heckman two-step model, we also need an exogenous variable that directly affects CFO narcissism but has no direct effect on audit fees. The leadership and decision-making behavior of executives will be affected by their experience, preferences, and personality (Hambrick and Mason, 1984). Educational level can reflect a person's cognitive ability, representing the individual's ability to cope with environmental changes and information processing (Zeng, 2014). Educational level affects people's decision-making process (Fischhoff et al., 1977). The educational background of a CFO affects his personal experience and personality characteristics, and thus guides his behavior. It may affect corporate behavior and information quality through the CFO's management decision-making behavior, such as decisions about audit fees, but the educational background of the CFO is not a direct influence on audit fees.

In China, under the influence of the traditional belief that “the only way for a low-ranking official to rise is to study high,” people with high academic qualifications are generally considered to be more intelligent and capable than others, and at the same time they receive attention and admiration. Narcissists have a high level of self-esteem, which may drive the desire for more education to earn more attention and recognition. CFOs who have more education are likely to be more narcissistic. The educational background of a CFO directly affects the CFO's narcissism, but does not directly affect audit fees, which meets the requirements of the Heckman two-step model for exogenous variables. Therefore, we use the median of a CFO's educational level as the

standard and set *EDU* equal to one if the CFO's educational level is higher than the median, and zero otherwise. The CFO education degree variable is introduced to the model of CFO narcissism. The two-step model is as follows:

The first stage: Probit model

$$\begin{aligned} Narcissism\_D_{i,t} = & \beta_0 + \beta_1 EDU_{i,t} + \beta_2 IC_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 LEV_{i,t} + \beta_5 LOSS_{i,t} + \beta_6 BSIZE_{i,t} + \beta_7 IBD_{i,t} \\ & + \beta_8 SHARE_{i,t} + \beta_9 GROWTH_{i,t} + \Sigma YEAR_{i,t} + \Sigma IND_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (3)$$

The second stage: Regression model

$$\begin{aligned} Lnfee_{i,t} = & \gamma_0 + \gamma_1 Narcissism\_D_{i,t} + \gamma_2 CEO\_AGE_{i,t} + \gamma_3 AO_{i,t} + \gamma_4 IC_{i,t} + \gamma_5 SIZE_{i,t} + \gamma_6 REC_{i,t} + \gamma_7 INV_{i,t} \\ & + \gamma_8 QUICK_{i,t} + \gamma_9 LEV_{i,t} + \gamma_{10} LOSS_{i,t} + \gamma_{11} ROA_{i,t} + \gamma_{12} IBD_{i,t} + \gamma_{13} DUAL_{i,t} + \gamma_{14} BMT_{i,t} \\ & + \gamma_{15} IMR_{i,t} + \Sigma YEAR_{i,t} + \Sigma IND_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (4)$$

where *BSIZE* is the number of directors on the board, *SHARE* refers to ownership concentration, measured by the shareholding ratio of the first majority shareholder, and *GROWTH* is the growth ability of the listed company, which is measured by the ratio of the difference between total sales revenue at year end and at the year's beginning to the total sales revenue at the year's beginning. We regress the Probit model and introduce the inverse Mills ratio (*IMR*) generated in the first stage to the main regression, Model (1), to generate the second stage regression, Model (4). Table 8 reports the regression results, which show that after introducing *IMR*, the coefficient for *Narcissism\_D* is 0.069, which means CFO narcissism is significantly positively correlated with audit fees at no less than the 1% level. The coefficient for *IMR* is significantly negative at no less than the 10% level, indicating that other unobserved factors have a significant negative impact on audit fees.

Table 8  
Heckman two-step model.

	The first stage <i>Narcissism_D</i> (1)			The second stage <i>Lnfee</i> (2)	
	Coeff.	z-value		Coeff.	t-value
Constant	−0.612	−0.750	Constant	4.040	13.377***
<i>EDU</i>	0.173	5.000***	<i>Narcissism_D</i>	0.069	12.606***
<i>IC</i>	0.045	0.400	<i>CEO_AGE</i>	0.003	3.853***
<i>SIZE</i>	0.017	1.070	<i>AO</i>	−0.238	−6.665***
<i>LEV</i>	−0.030	−0.320	<i>IC</i>	−0.057	−1.322
<i>LOSS</i>	−0.028	−0.440	<i>SIZE</i>	0.417	72.640***
<i>BSIZE</i>	0.029	2.590***	<i>REC</i>	0.162	2.984***
<i>IBD</i>	0.038	0.100	<i>INV</i>	−0.031	−0.650
<i>SHARE</i>	0.008	7.280***	<i>QUICK</i>	−0.013	−3.330***
<i>GROWTH</i>	−0.050	−1.970**	<i>LEV</i>	−0.189	−4.541
			<i>LOSS</i>	0.073	2.918***
			<i>ROA</i>	−0.105	−0.772
			<i>IBD</i>	0.333	3.009***
			<i>DUAL</i>	−0.015	−1.111
			<i>BMT</i>	0.006	3.943***
			<i>IMR</i>	−0.113	−1.937*
<i>YEAR</i>		YES	<i>YEAR</i>		YES
<i>IND</i>		YES	<i>IND</i>		YES
Pseudo.R <sup>2</sup>		0.026	adj.R <sup>2</sup>		0.660
Chi <sup>2</sup>		219.25	F-value		469.210
N		6081	N		6081

## 5. Further analysis

### 5.1. The effect of differences in property rights

Due to the peculiarities of China's institutional background, many listed companies in China's capital market are restructured from state-owned enterprises, and corporate decisions and executive appointments are susceptible to government influence (Liu and Yang, 2013). The ultimate controller of such companies is the State-owned Assets Supervision and Administration Commission (SASAC). Due to the complicated control chain in state-owned enterprises, although the government assigns the executives, it is difficult for the SASAC to effectively supervise these executives. The close connection between the management of state-owned enterprises and government not only means there are fewer legal constraints on state-owned enterprises, but also causes their managers to believe that they have a higher social status (Menglan and Minghui, 2009). This relatively loose environment with minimal supervision encourages narcissistic CFOs to engage in more aggressive behavior, which increases corporate violations. Compared with non-state-owned enterprise CFOs, state-owned enterprise CFOs are more likely to have a political identity, which makes it easy to move between the government and state-owned enterprises and between state-owned enterprises. This flow may aggravate the agency conflict between the CFO and shareholders, and thus increase internal control defects (Cheng and Wang, 2018). Auditors need to be more cautious with state-owned enterprises with narcissistic CFOs, and thus perform more complex audit procedures and take more risks, which increases audit fees. Because narcissistic executives generally favor risky strategies, they may increase internal control deficiencies, reduce organizational performance, and even induce intentional or unintentional errors (Campbell et al., 2011; Rhodewalt et al., 2006; Ham et al., 2017). Studies have shown that different property rights lead to different audit risks and different bargaining powers, which affects audit fees (Zhang and Hu, 2013). Therefore, narcissistic CFOs may have different effects on audit fees under different property rights.

We divide the sample into two groups according to property rights. There are 2,470 observations in the state-owned enterprise group and 3,611 observations in the non-state-owned enterprise group. Table 9 reports

Table 9  
Effect of different property rights.

	<i>Lnfee</i> <i>SOE</i> (1)		<i>Lnfee</i> <i>NSOE</i> (2)	
	Coeff.	t-value	Coeff.	t-value
Constant	1.408	3.296***	6.540	17.209***
<i>Narcissism</i>	0.102	11.942***	0.038	5.652***
<i>Test of difference in <math>\alpha_1</math> b0-b1</i>				−0.068***
<i>CEO_AGE</i>	0.008	4.249***	0.001	0.908
<i>AO</i>	−0.211	−3.565***	−0.196	−4.577***
<i>IC</i>	0.069	1.079	−0.172	−3.065***
<i>SIZE</i>	0.468	57.978***	0.356	48.829***
<i>REC</i>	0.307	3.248***	0.042	0.665
<i>INV</i>	0.083	1.091	−0.086	−1.442
<i>QUICK</i>	−0.011	−1.300	−0.012	−2.982***
<i>LEV</i>	−0.326	−4.739***	0.021	0.401
<i>LOSS</i>	−0.001	−0.018	0.130	4.106***
<i>ROA</i>	−0.313	−1.185	0.097	0.640
<i>IBD</i>	0.386	2.100**	0.018	0.133
<i>DUAL</i>	−0.046	−1.445	−0.002	−0.164
<i>BMT</i>	0.005	2.067**	0.007	3.735***
<i>YEAR</i>		YES		YES
<i>IND</i>		YES		YES
adj. $R^2$		0.707		0.571
F-value		248.743		201.448
N		2470		3611

the group test results. Column (1) is the regression result of the state-owned enterprise group. The regression coefficient for *Narcissism* is 0.103 ( $t = 11.972$ ,  $p < 0.01$ ). Column (2) shows the regression result of the non-state-owned enterprise group. The regression coefficient for *Narcissism* is 0.036 ( $t = 5.479$ ,  $p < 0.01$ ), indicating a significant positive correlation between CFO narcissism and audit fees. We further test the coefficient difference between the state-owned and non-state-owned enterprise groups. The coefficient difference test shows the result of  $b0-b1$  is  $-0.068$  at no less than a 1% level. In other words, the regression coefficient for CFO narcissism in non-state-owned enterprises is significantly smaller than that for state-owned enterprises, indicating that in state-owned enterprises, CFO narcissism has a stronger positive effect on audit fees.

## 5.2. The mediating effect of financial information

To further identify how narcissistic CFOs increase audit fees, we explore the relationship between CFO narcissism and the quality of corporate financial information. To some extent, earnings quality is an important indicator of the quality of financial information. The executives of listed companies may manipulate financial information to maintain the expected performance indicators, and even maliciously manipulate earnings (Wei et al., 2009). Therefore, we use the level of corporate earnings quality, *FIQ*, as mediating variable to examine the mechanism by which narcissistic CFOs affect audit fees. According to the estimated absolute value of manipulable accrued profit estimated by the modified Jones model, companies whose earnings are less than the median have a low degree of earnings manipulation, and their information quality is considered to be better; in this case, *FIQ* is equal to one, and otherwise it is zero. First, we separately construct two regression models, Models (5) and (6). Model (5) uses the dummy variable *FIQ* as the dependent variable, *Narcissism* as the explanatory variable, and performs a logistic regression. Model (6) uses *lnfee* as the dependent variable, and *FIQ* and *Narcissism* as explanatory variables. Using these two models, the mediating effect of corporate earnings quality is tested. If the regression coefficient  $k_1 \cdot v_1$  in Models (5) and (6) is significantly different from zero, this indicates a mediating effect; otherwise no mediating effect exists.

Table 10 reports the results of the regression. As shown in column (1), there is a significantly negative correlation between CFO narcissism and the financial information quality of listed companies at no less than the

Table 10  
Mediating effect of financial information.

	<i>FIQ</i> (1)			<i>Lnfee</i> (2)	
	Coeff.	z-value		Coeff.	t-value
Constant	1.558	1.180***	Constant	3.907	13.742***
<i>Narcissism</i>	−0.123	−4.680***	<i>FIQ</i>	−0.065	−5.717***
<i>CEO_AGE</i>	−0.003	−0.680	<i>Narcissism</i>	0.069	12.677***
<i>AO</i>	0.858	4.890***	<i>CEO_AGE</i>	0.004	3.993***
<i>IC</i>	−0.241	−1.210	<i>AO</i>	−0.222	−6.235
<i>SIZE</i>	0.001	−0.030	<i>IC</i>	−0.057	−1.337***
<i>REC</i>	−2.183	−8.250***	<i>SIZE</i>	0.421	80.466***
<i>INV</i>	−0.649	−2.790***	<i>REC</i>	0.129	2.365**
<i>LEV</i>	0.473	2.325***	<i>INV</i>	−0.043	−0.910
<i>BSIZE</i>	−0.025	−1.310	<i>QUICK</i>	−0.015	−3.839***
<i>IBD</i>	−1.648	−2.730***	<i>LEV</i>	−0.200	−4.811***
<i>DUAL</i>	−0.055	−0.840	<i>LOSS</i>	0.070	2.805***
<i>BMT</i>	−0.033	−4.440***	<i>ROA</i>	−0.124	−0.91
<i>SHARE</i>	0.001	0.390	<i>IBD</i>	0.289	2.634***
			<i>DUAL</i>	−0.017	−1.244
			<i>BMT</i>	0.005	3.405***
<i>YEAR</i>		YES	<i>YEAR</i>		YES
<i>IND</i>		YES	<i>IND</i>		YES
Pseudo R <sup>2</sup>		0.041	adj.R <sup>2</sup>		0.660
Chi <sup>2</sup>		343.230	F-value		472.661
N		6081	N		6081

1% level, indicating that CFO narcissism reduces financial information quality. Column (2) examines the relationship between financial information quality and audit fees. The results show a significantly negative correlation between financial information quality and audit fees at no less than the 1% level; that is, the worse the quality of the company's financial information, the higher the audit fee. The regression coefficient  $k_1 \cdot v_1$  in Models (5) and (6) is significantly different from zero, indicating that there is a mediating effect. CFO narcissism in listed companies reduces financial information quality and leads to higher audit costs. In other words, financial information quality has a partial mediating effect on how CFO narcissism increases audit fees.

$$\begin{aligned}
 FIQ_{i,t} = & k_0 + k_1 Narcissism_{i,t} + k_2 CEO\_AGE_{i,t} + k_3 AO_{i,t} + k_4 IC_{i,t} + k_5 SIZE_{i,t} + k_6 REC_{i,t} + k_7 INV_{i,t} \\
 & + k_8 LEV_{i,t} + k_9 BSIZE_{i,t} + k_{10} IBD_{i,t} + k_{11} DUAL_{i,t} + k_{12} BMT_{i,t} + k_{13} SHARE_{i,t} + \Sigma YEAR_{i,t} \\
 & + \Sigma IND_{i,t} + \varepsilon_{i,t}
 \end{aligned} \quad (5)$$

$$\begin{aligned}
 Lnfee_{i,t} = & v_0 + v_1 FIQ_{i,t} + v_2 Narcissism_{i,t} + v_3 CEO\_AGE_{i,t} + v_4 AO_{i,t} + v_5 IC_{i,t} + v_6 SIZE_{i,t} + v_7 REC_{i,t} \\
 & + v_8 INV_{i,t} + v_9 QUICK_{i,t} + v_{10} LEV_{i,t} + v_{11} LOSS_{i,t} + v_{12} ROA_{i,t} + v_{13} IBD_{i,t} + v_{14} DUAL_{i,t} \\
 & + v_{15} BMT_{i,t} + \Sigma YEAR_{i,t} + \Sigma IND_{i,t} + \varepsilon_{i,t}
 \end{aligned} \quad (6)$$

### 5.3. The mediating effect of accounting firm prestige

The above results demonstrate that CFO narcissism has a stable and significant positive correlation with the audit fees of Chinese listed companies, and that CFOs influence audit fees by affecting the quality of corporate financial information. Financial information quality has a partial mediating effect on how CFO narcissism increases audit fees. This also shows that there may be other variables that modify to influence of CFO narcissism on audit fees. We therefore conduct a test of the mechanism by which CFO narcissism affects audit fees. Narcissistic CFOs hope to obtain the support of a firm with a high reputation to gain external recognition of their business capabilities, so they usually choose a high-reputation accounting firm to provide audit services, such as an international Big 4 accounting firm or one of the top 10 accounting firms in the “List of Top 100 Domestic Accounting Firms (Comprehensive Evaluation)” issued by the Chinese Institute of Certified Public Accountants each year. On the one hand, Cai et al. (2005) point out that large-scale accounting firms tend to have more professional capabilities and independence. To maintain their reputation and independence, large-scale accounting firms are more likely to issue high-quality audit reports (Wang and Zhang, 2014). The high reputation of accounting firms with a brand effect in the audit market mean they can charge a premium (Zheng and Zheng, 2017). On the other hand, a financial department led by a narcissistic CFO is less efficient and the quality of internal control is worse. Compared with non-narcissistic CFOs, the financial risk and operating risk may be higher. As a benchmark in the industry, accounting firms with higher rankings have strict, high-standard audit procedures, which increases audit fees and reduces litigation risks. The higher audit fees compensate for the expected cost of high risks. Therefore, the company with a narcissistic CFO may choose an audit firm with a high comprehensive evaluation, which leads to an increase in audit fees. We use the methods of Sobe (1982) and Yuan et al. (2018) to test the mediating effect of high-reputation accounting firms on CFO narcissism and audit fees. We test the regression coefficient  $z_1 \cdot \delta_1$  in Models (7) and (8), and find it is significantly different from zero, which means that the mediation effect exists. First, we separately construct two regression models to test the mediation effect of high-reputation firms. Model (7) uses *BIG4* as the dependent variable, and *Narcissism* as the independent variable, and performs logistic regression. Model (8) uses *Lnfee* as the dependent variable, and *BIG4* and *Narcissism* as independent variables. *BIG4* represents whether the annual audit of a listed company is provided by one of the international Big 4 accounting firms. If it is, *BIG4* is equal to one; otherwise it is zero. The regression results are shown in Table 11.



Table 11  
Mediating effect of prestigious accounting firms – BIG4.

	<i>BIG4</i> (1)			<i>Lnfee</i> (2)	
Constant	Coeff. –40.000	z-value –12.950***	Constant	Coeff. 5.055	t-value 18.202***
<i>Narcissism</i>	0.362	6.550***	<i>BIG4</i>	0.537	23.337***
<i>CEO_AGE</i>	0.007	0.630	<i>Narcissism</i>	0.057	10.816***
<i>AO</i>	–0.845	–1.790*	<i>CEO_AGE</i>	0.003	3.694***
<i>IC</i>	1.786	3.840***	<i>AO</i>	–0.185	–5.405**
<i>SIZE</i>	1.071	17.770***	<i>IC</i>	–0.104	–2.538***
<i>REC</i>	0.93.	1.740*	<i>SIZE</i>	0.378	70.546***
<i>INV</i>	–0.565	–1.040	<i>REC</i>	0.129	2.472**
<i>LEV</i>	–2.098	–5.110***	<i>INV</i>	0.013	0.281
<i>BSIZE</i>	0.026	0.750	<i>QUICK</i>	–0.012	–3.298***
<i>IBD</i>	–0.853	–0.650	<i>LEV</i>	–0.129	–3.217***
<i>DUAL</i>	–0.298	–1.620	<i>LOSS</i>	0.063	2.626***
<i>BMT</i>	–0.028	–1.840*	<i>ROA</i>	–0.153	–1.169
<i>SHARE</i>	0.009	2.280**	<i>IBD</i>	0.223	2.113***
			<i>DUAL</i>	–0.012	–0.911
			<i>BMT</i>	0.008	5.271***
<i>YEAR</i>		YES	<i>YEAR</i>		YES
<i>IND</i>		YES	<i>IND</i>		YES
Pseudo R <sup>2</sup>		0.352	adj.R <sup>2</sup>		0.686
Chi <sup>2</sup>		1129.92	F-value		532.722
N		6081	N		6081

$$\begin{aligned}
 BIG4_{i,t} = & z_0 + z_1Narcissism_{i,t} + z_2CEO\_AGE_{i,t} + z_3AO_{i,t} + z_4IC_{i,t} + z_5SIZE_{i,t} + z_6REC_{i,t} + z_7INV_{i,t} \\
 & + z_8LEV_{i,t} + z_9BSIZE_{i,t} + z_{10}IBD_{i,t} + z_{11}DUAL_{i,t} + z_{12}BMT_{i,t} + z_{12}SHARE_{i,t} + \Sigma YEAR_{i,t} \\
 & + \Sigma IND_{i,t} + \varepsilon_{i,t}
 \end{aligned} \quad (7)$$

$$\begin{aligned}
 Lnfee_{i,t} = & \delta_0 + \delta_1BIG4_{i,t} + \delta_2Narcissism_{i,t} + \delta_3CEO\_AGE_{i,t} + \delta_4AO_{i,t} + \delta_5IC_{i,t} + \delta_6SIZE_{i,t} + \delta_7REC_{i,t} \\
 & + \delta_8INV_{i,t} + \delta_9QUICK_{i,t} + \delta_{10}LEV_{i,t} + \delta_{11}LOSS_{i,t} + \delta_{12}ROA_{i,t} + \delta_{13}IBD_{i,t} + \delta_{14}DUAL_{i,t} \\
 & + \delta_{15}BMT_{i,t} + \Sigma YEAR_{i,t} + \Sigma IND_{i,t} + \varepsilon_{i,t}
 \end{aligned} \quad (8)$$

Column (1) of Table 11 shows the regression results. There is a significantly positive correlation between CFO narcissism and whether listed companies choose a Big 4 accounting firm, indicating that narcissistic CFO choose Big 4 accounting firms.

Column (2) examines the relationship between audit fees and whether companies choose a Big 4 accounting firm. The results show a significantly positive correlation between audit fees and the choice of a Big 4 accounting firm. This means the company's choice of a Big 4 accounting firms increases audit costs. From the above, we know that the regression coefficient  $z_1 * \delta_1$  in Models (5) and (6) is significantly different from zero, indicating a partial effect; that is, the effect of CFO narcissism in listed companies is mainly due to the choice of prestigious accounting firms to provide audit services, which leads to higher audit fees. Furthermore, to improve the robustness of our identification of the mediating effect of prestigious firms on CFO narcissism and audit fees, we replace *BIG4* in Models (5) and (6) with *BIG10*. *BIG10* is a variable representing the choice of one of the first 10 accounting firms in the “Top 100 Domestic Accounting Firms (Comprehensive Evaluation) List” issued by the Chinese Institute of Certified Public Accountants every year. If the annual audit of a listed company is provided by one of the top 10 accounting firms, *BIG10* is equal to one, and otherwise is zero. Table 12 reports the regression results of the mediating effect of Big 10 accounting firms. The regression coefficient  $z_1 * \delta_1$  is still significantly different from zero, indicating a partial mediating effect. In other words, CFO narcissism leads a company to choose a high-reputation accounting firm to provide audit services, which leads to higher audit fees. The previous conclusion is robust.

Table 12  
Mediating effect of prestigious accounting firms – BIG10.

	<i>BIG10</i> (1)			<i>Lnfee</i> (2)	
	Coeff.	z-value		Coeff.	t-value
Constant	−4.109	−3.050***	Constant	3.895	13.718***
<i>Narcissism</i>	0.104	3.870***	<i>BIG10</i>	0.074	6.475***
<i>CEO_AGE</i>	0.005	0.890	<i>Narcissism</i>	0.068	12.653***
<i>AO</i>	−0.080	−1.180	<i>CEO_AGE</i>	0.004	3.939***
<i>IC</i>	−0.144	−0.470	<i>AO</i>	−0.234	−6.602***
<i>SIZE</i>	0.190	6.910***	<i>IC</i>	−0.054	−1.256
<i>REC</i>	0.184	0.700	<i>SIZE</i>	0.417	79.293***
<i>INV</i>	−0.009	−0.040	<i>REC</i>	0.158	2.917***
<i>LEV</i>	−0.467	−2.880***	<i>INV</i>	−0.031	−0.659
<i>BSIZE</i>	0.054	2.730***	<i>QUICK</i>	−0.013	−3.443***
<i>IBD</i>	0.404	0.660	<i>LEV</i>	−0.188	−4.531***
<i>DUAL</i>	0.198	3.020***	<i>LOSS</i>	0.067	2.705***
<i>BMT</i>	−0.021	−2.850***	<i>ROA</i>	−0.114	−0.837
<i>SHARE</i>	0.007	4.080***	<i>IBD</i>	0.314	2.864***
			<i>DUAL</i>	−0.019	−1.434
			<i>BMT</i>	0.006	4.025***
<i>YEAR</i>		YES	<i>YEAR</i>		YES
<i>IND</i>		YES	<i>IND</i>		YES
Pseudo R <sup>2</sup>		0.0261	adj.R <sup>2</sup>		0.660
Chi <sup>2</sup>		213.750	F-value		473.697
N		6081	N		6081

## 6. Conclusion

This paper makes use of a sample of 1,457 listed companies in China's A-share market from 2012 to 2017 to explore the relation between CFO narcissism and audit fees. It also examines how property rights modify this effect and examines the mediation effect of corporate financial information quality and accounting firm prestige. The empirical results indicate that CFO narcissism significantly increases the audit fees of listed companies, and this effect is stronger in state-owned enterprises. Further research suggests that CFO narcissism affects audit fees by reducing corporate financial information quality and inducing the company to select a high-reputation accounting firm.

The research in this paper has both theoretical and practical implications. Based on behavioral economics theory, this paper empirically analyzes the effect of CFOs' narcissistic personality characteristics on corporate economic activities. It thus goes beyond the limitations of traditional corporate governance theories, and enriches the research on the impact of background characteristics on audit fees. In terms of practice, this paper uses CFO signature size as a proxy for the difficult-to-measure personality trait of CFO narcissism. The paper's findings will be helpful for those who wish to understand the effects of executive narcissism in listed companies in China. It also provides a reference for the selection of executives and the establishment of corporate governance mechanisms.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## References

- Bogart, L.M., Benotsch, E.G., Pavlovic, J., 2004. D., Feeling Superior but Threatened: The Relation of Narcissism to Social Comparison. *Basic and Applied Social Psychology*[J].

- Cai, C., Huang, Y.J., Zhao, S., 2005. An Empirical Study on the Impact of Audit Quality on Earnings Management: Empirical Evidence from Shanghai Stock Exchange Manufacturing[J]. *Auditing Research* 2, 3–10.
- Campbell, T.C., Gallmeyer, M., Johnson, S.A., et al., 2011. CEO Optimism and Forced Turnover[J]. *Journal of Financial Economics* 3, 695–712.
- Chatterjee, A., Hambrick, D.C., 2007. It's All about Me: Narcissistic Chief Executive Officers and Their Effects on Company Strategy and Performance[J]. *Administrative Science Quarterly* 52 (3), 351–386.
- Chu, J., Qin, X., Fang, J.X., 2018. Economic Policy Uncertainty and Audit Decision: Evidence Based on Audit Fees[J]. *Auditing Research* 12, 85–91.
- Church, B.K., Dai, N.T., Kuang, X.J., et al., 2020. The Role of Auditor Narcissism in Auditor-client Negotiations: Evidence from China [J]. *Contemporary Accounting Research* 37 (3), 1756–1787.
- Farwell, L., Wohlwend-Lloyd, R., 1998. Narcissistic Processes: Optimistic Expectations, Favorable Self-Evaluations, and Self-Enhancing Attributions[J]. *Journal of Personality* 66 (1), 65–83.
- Feng, M., Ge, W., Luo, S., et al., 2011. Why Do CFOs Become Involved in Material Accounting Manipulations?[J]. *Journal of Accounting and Economics* 51 (1), 21–36.
- Fischhoff, B., Slovic, P., Lichtenstein, S., 1977. Knowing with Certainty: The Appropriateness of Extreme Confidence[J]. *Journal of Experimental Psychology* 3, 552–564.
- Geiger, M., North, D., 2006. Does Hiring a New CFO Change Things? An Investigation of Changes in Discretionary Accruals[J]. *The Accounting Review* 81, 781–809.
- Guo, M.L., Li, M.H., 2009. Corporate Governance, The Nature of Control Rights and Audit Fees[J]. *Journal of Management Science* 6, 71–83.
- Hales, J., Hobson, J.L., Resutsek, R., 2012. The Dark Side of Socially Mediated Rewards: How Narcissism and Social Status Affect Managerial Reporting[J]. *SSRN Electronic Journal*.
- Ham, C., Seybert, N., Wang, S., 2018. Narcissism is a Bad Sign: CEO Signature Size, Investment, and Performance[J]. *Review of Accounting Studies* 23, 234–264.
- Ham, C., Lang, M., Seybert, N., Wang, S., 2017. CFO Narcissism and Financial Reporting Quality[J]. *Journal of Accounting Research* 55 (5), 1089–1135.
- Hambrick, D.C., Mason, P.A., 1984. Upper echelons: The Organization as a Reflection of its Top Managers[J]. *The Academy of Management Review* 9, 193–206.
- Jiang, J.X., Peroni, K.R., Wang, I.Y., 2010. CFOs and CEOs: Who Have the Most Influence on Earnings Management[J]. *Journal of Financial Economics* 96 (3), 513–526.
- John, O., Robins, R., 1994. Accuracy and Bias in Self-Perception: Individual Differences in Self-Enhancement and the Role of Narcissism [J]. *Journal of Personality and Social Psychology* 66, 206–219.
- Johnson, E.N., Kuhn Jr., J.R., Apostolou, B.A., Hassell, J.M., 2013. Auditor Perceptions of Client Narcissism as a Fraud Attitude Risk Factor[J]. *Auditing: A Journal of Practice & Theory* 32 (1), 203–219.
- Jordan, A.H., Audia, P.G., 2012. Self-enhancement and Learning from Performance Feedback[J]. *Academy of Management Review* 37, 211–231.
- Jorgenson, D.O., 1977. Signature Size and Dominance: A Brief Note[J]. *Journal of Psychology* 97, 269–270.
- Judd, J.S., Olsen, K.J., Stelkelberg, J.M., 2017. How Do Auditors Respond to CEO Narcissism? Evidence from External Audit Fees[J]. *Accounting Horizons* 31 (4), 33–52.
- Li Shuang, Wu Xi, 2004. Characteristics and Implications of the First Disclosure of Audit and Related Service Fees of the Domestic Securities Market[J]. *The Chinese Certified Public Accountant* 2, 50–57.
- Liu, C., Yang, J.D., 2013. Social Relation and Supervision Function of Independent Directors: Evidence from Forced CEO Turnover[J]. *Journal of Finance and Economics* 7, 16–26.
- Luchner, A.F., Houston, J.M., Walker, C., Houston, M.A., 2011. Exploring the Relationship between Two Forms of Narcissism and Competitiveness[J]. *Personality and Individual Differences* 51 (6), 779–782.
- Malmendier, U., Pezone, V., Zheng, H., 2013. Managerial Duties and Managerial Biases[J]. *Social Science. Electronic Publishing*.
- Menon, M., Sharland, A., 2011. Narcissism, Exploitative Attitudes, and Academic Dishonesty: An Exploratory Investigation of Reality Versus Myth[J]. *Journal of Education for Business* 86, 50–55.
- Morf, C., Rhodewalt, F., 1993. Narcissism and Self-Evaluation Maintenance: Explorations in Object Relations[J]. *Personality and Social Psychology Bulletin* 19, 668–676.
- Pelham, B., Carvallo, M., Jones, J.T., 2005. Implicit Egotism[J]. *Current Directions in Psychological Science* 14, 106–110.
- Raskin, R., Terry, H., 1988. A Principal-Components Analysis of the Narcissistic Personality Inventory and Further Evidence of Its Construct Validity[J]. *Journal of Personality and Social Psychology* 54, 890–902.
- Rosenthal, S.A., Pittinsky, T.L., 2006. Narcissism Leadership[J]. *Leadership Quarterly* 17 (6), 617–633.
- Rudman, L.A., Dohn, M.C., Fairchild, K., 2007. Implicit Self-Esteem Compensation: Automatic Threat Defense[J]. *Journal of Personality and Social Psychology* 93 (5), 798–813.
- Simunic, D., 1980. The Pricing Of Audit Services - Theory And Evidence[J]. *Journal of Accounting Research* 18.
- Snyder, C.R., Fromkin, H., 1977. Abnormality as a Positive Characteristic: The Development and Validation of a Scale Measuring Need for Uniqueness[J]. *Journal of Abnormal Psychology* 86, 518–527.
- Wang, X.L., Wang, D., Jiang, Y., 2019. The Research on the TMT Academic Heterogeneity, Real Earnings Management and Audit Fees [J]. *China Soft Science* 9, 175–184.

- Wei, Z.H., Li, C.Q., Wang, Y.H., 2009. An Empirical Study on Market Reactions to Restatement Announcements of Annual Reporting of Chinese Listed Companies[J]. *Accounting Research* 8, 31–39.
- Xiang, R., Tian, Q., 2020. CFO Narcissism and Financial Restatement—Empirical Evidence from Chinese Listed Companies[J]. *Finance Research* 4, 80–92.
- Xing, L.Q., Chen, H.W., 2013. Product Market Competition, Competitive Position and Audit Fees—Based on the Dual Considerations of Agency Costs and Operating Risks[J]. *Auditing Research* 3, 50–58.
- Yang, Z., Sedikides, C., Gu, R., Luo, Y.L.L., Wang, Y., Cai, H., 2018. Narcissism and Risky Decisions: A Neurophysiological Approach [J]. *Social Cognitive & Affective Neuroscience* 13 (8), 889–897.
- Yuan, R.L., Li, R.J., Li, B.X., 2018. Directors' and Officers' Liability Insurance and Audit Fees[J]. *Auditing Research* 2, 55–63.
- Fang, Zeng, 2014. A Review of Research on the Heterogeneity of Corporate Top Management Team and Corporate Performance[J]. *Economic Forum* 12, 141–143.
- Zhang, B.B., Chen, C.H., 2015. A Review of Overseas Studies on Narcissistic Leadership and Its Future Prospects[J]. *Leadership Science* 17, 53–56.
- Zhang, J.M., Hu, G.Q., 2013. Top Manager's Audit Experience and Audit Pricing: From the Perspectives of Roles[J]. *Journal of Audit & Economics* 28 (2), 25–34.
- Zheng, L.L., Zheng, J.M., 2017. Institutional Environment, Audit Reputation Mechanism and Fee Premium[J]. *Auditing Research* 5, 78–86.
- Zweigenhaft, R.L., Marlowe, D., 1973. Signature Size: Studies in Expressive Movement[J]. *Journal of Consulting and Clinical Psychology* 40 (3), 469–473.
- Zweigenhaft, R.L., 1977. The Empirical Study of Signature Size[J]. *Social Behavior and Personality* 5, 177–185.

### *Further Reading*

- Fang, H.X., Zhang, Z.P., 2012. Internal Control Quality and Accounting Conservatism: Evidence from Annual Reports of A Share Listed Companies on SZSE from 2007 to 2010[J]. *Journal of Audit & Economics* 5, 3–10.
- Dai, J.M., Fang, H.X., 2010. Risk Control, Risk Premium and Auditing Fees: Empirical Evidence From the Reports of Listed Companies in Shenzhen in 2007[J]. *Journal of Audit & Economics* 25 (3), 46–53.
- Chi, Y.L., Zhang, L.F., 2019. Impacts of Legal Background of Executives on Audit Fees: Increasing or Decreasing?[J]. *The Chinese Certified Public Accountant* 1, 64–68.
- Cai, H.J., Zou, X., Feng, Y., Liu, Y.Z., Jing, Y.M., 2018. Increasing Need for Uniqueness in Contemporary China: Empirical Evidence[J]. *Frontiers in Psychology* 9, 554–560.
- Liu, X.Q., Sun, J., Yuan, R.L., 2018. M&A Compensation Commitment and Auditing Fees[J]. *Accounting Research* 12, 70–76.