

Numerological superstition and earnings management: evidence from China

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Abstract

Purpose – An emerging line of research examining the role of numerological superstition in the capital market shows that it has significant impact on investor behavior (Bhattacharya, Kuo, Lin, & Zhao, 2018; Hirshleifer, Jian, & Zhang 2018). However, to the authors' best knowledge, there is a dearth of evidence on whether numerological superstition affects corporate behavior. This study fills this void by examining the association between investors' numerological superstition and earnings management using Chinese data.

Design/methodology/approach – Chinese culture views 6 and 8 as lucky numbers. Using Chinese publicly traded firms, the authors examine the relation between investors' numerological superstition and corporate financial reporting behavior.

Findings – The results suggest that firms reporting lucky earnings-per-share (EPS) numbers ending with 6 or 8 are more likely to engage in earnings management. These firms also raise more capital through seasoned equity offerings in the following year; however, they do not have more capital investments. Instead, their controlling shareholders siphon a significant amount of capital through related party transactions. Overall, the findings suggest that managers collude with controlling shareholders to manage earnings by exploiting the superstitious beliefs of minority shareholders.

Originality/value – To the authors' best knowledge, there is a dearth of evidence on whether numerological superstition affects corporate behavior. This study fills this void by examining the association between investors' numerological superstition and earnings management using Chinese data.

Keywords Social environment, Superstition, Earnings management, Shareholder welfare

Paper type Research paper

1. Introduction

Superstition is common in many cultures and has been shown to have significant impact on human decision-making (Kramer & Block, 2008) [1]. In particular, although without any scientific ground, numerological superstition is prevalent in both Western and Chinese cultures [2], [3]. Accordingly, it is intriguing to understand the economic consequences of numerological superstitions. An emerging line of research examining the role of numerological superstition in the capital market shows that it has significant impact on *investor* behavior (Bhattacharya, Kuo, Lin, & Zhao, 2017; Hirshleifer, Jian, & Zhang, 2018; Bai, Xu, Yu, & Zurbrugg, 2020) [4]. However, to our best knowledge, there is a dearth of evidence on whether numerological superstition



affects *corporate* behavior. We fill this void by examining the association between investors' numerological superstition and earnings management using Chinese data.

Specifically, we investigate whether firms with earnings-per-share (EPS) ending with lucky numbers (i.e. our proxy for investors' numerological superstition) are more likely to engage in earnings management [5]. The Chinese stock market is characterized by heightened information asymmetry between firms and external investors. Therefore, market participants, especially individual investors, have less reliable information available when making investment decisions (Hope, Wu, & Zhao, 2017; He, Wong, & Young, 2012; Jiang, Lee, & Yue, 2010; Ke, Rui, & Yu, 2012). Instead, they have to rely more on subjective judgments (Firth, Wang, & Wong, 2015). Accordingly, we conjecture that firms reporting lucky earnings numbers could be more likely to manage earnings for two reasons. First, a superstitious manager may believe that reporting lucky earnings numbers brings good luck to herself/himself. Second, since minority shareholders in China are individual investors (Hong, Jiang, Wang, & Zhao, 2012) who are usually regarded as less rational (Fang & Peress, 2009; Gurun & Butler, 2012), a manager may collude with controlling shareholders to exploit minority shareholders' superstitious belief (Hirshleifer *et al.*, 2018). By reporting lucky earnings numbers, the manager will help control shareholders' economic benefits. Both arguments suggest that managers have incentives to manage earnings to report lucky earnings number [6].

Our empirical analyses employ a sample of 22,370 firm-year observations of publicly traded firms in China from 2007 to 2016. If a firm's earnings-per-share (EPS) reported in the annual report ends with 6 or 8, we label it as a firm reporting lucky earnings numbers. To measure earnings management, we use both discretionary accruals and the incidence of subsequent accounting restatements. Our results show that firms with lucky earnings numbers have greater unsigned discretionary accruals and a higher probability of restatements. These inferences are robust to controlling for a number of common determinants of earnings management from the prior literature as well as year, industry or firm fixed effects.

To distinguish between the two aforementioned reasons why numerological superstition is related to earnings management, we perform a cross-sectional test by dividing the sample based on CEOs' education and zodiac year. CEOs with less education are expected to be more superstitious (i.e. have more beliefs without scientific grounding). In addition, it is widely believed in Chinese culture that a person is more likely to experience bad luck during her zodiac year, which occurs every 12 years since one's birth [7]. Thus, it is possible that a manager in her zodiac year is more likely to report a lucky earning number to avoid bad luck. However, we fail to find any significant relation between lucky earnings number and earnings management in the subsample of CEOs with less education or in the one with CEOs in their zodiac years. This rules out the possibility that earnings management is due to manager's superstitious beliefs. Therefore, it is likely that managers report lucky earnings numbers to take advantage of the superstitious beliefs of minority shareholders, which contributes to the positive association between lucky EPS numbers reporting and earnings management.

Next, we examine firms' future equity financing behavior after earnings management. If reporting lucky earnings numbers positively affects investors' perception of a firm, it would be easier to raise more capital from the stock market. This is indeed what we find. Our results show that firms with lucky EPS numbers are more likely to have seasoned equity offerings in the following year. In addition, the total amount of external equity raised is also greater for these firms. However, we document that they do not have more private placements to large controlling shareholders.

We also investigate how firms utilize the raised equity capital. If the maximization of firm value is the goal, managers will increase capital investment. But we fail to find that firms with

lucky EPS numbers have more capital investment after seasoned equity offerings. Instead, our results suggest that their controlling shareholders benefit from reporting lucky EPS numbers by expropriating minority shareholders.

In China, controlling shareholders have strong influence over managers' career path (Jiang *et al.*, 2010; Bradshaw, Liao, & Ma, 2019). As a result, managers often cater to the interest of controlling shareholders at the expense of minority shareholders. Jiang *et al.* (2010) find that controlling shareholders expropriate minority shareholders' wealth by siphoning funds from listed firms through transactions between related parties. Along this line, we find that firms with lucky EPS numbers have more future-related party transactions with controlling shareholders. Therefore, our evidence shows that controlling shareholders gain significant private control benefits when firms report lucky EPS numbers, which helps to explain the reason why firm managers engage in lucky EPS number reporting.

Finally, we provide a number of robustness checks. First, we show that discretionary accruals of firms reporting lucky EPS numbers are driven by earnings-increasing activities rather than earnings-decreasing activities. This is consistent with the argument that firms report lucky EPS numbers to optimistically bias investors' perception of firm value upwards. Second, our inferences stay the same when using alternative definition of lucky EPS numbers. Third, we perform falsification tests by examining firms with cash flows per share or shareholder equity per share ending with 6 or 8. Shareholder equity and cash flows are not directly affected by accruals manipulation, and as expected, we fail to find that these *pseudo-lucky* firms are more likely to manage earnings. Thus, the relation between lucky EPS numbers and earnings management is unlikely random. This is also consistent with the role of earnings as the main resource of firm-specific accounting information (e.g. Biddle, Seow, & Siegel, 1995; Liu, Nissim, & Thomas, 2002).

Our study contributes to the emerging line of literature on the implications of culture in the capital markets by providing the first evidence that numerological superstition is related to financial reporting quality. Prior research finds that superstitious beliefs significantly affect the trading behavior of individual investors in the stock market (Hirshleifer *et al.*, 2018; Bhattacharya *et al.*, 2017). However, those studies do not test whether managers and controlling shareholders actually take advantage of individual investors' superstitious beliefs. Our findings suggest that as managers realize that minority shareholders are superstitious, they intentionally exploit minority shareholders' superstitious beliefs by reporting lucky earnings numbers and controlling shareholders' benefit as a result through tunneling. This provides an explanation for why superstition negatively affects minority shareholders' welfare.

More broadly, our study also relates to the literature on how culture and social environment affect financial reporting behavior. Prior literature focuses on the role of religiosity and suggests that strong religious beliefs significantly curb earnings management and improve financial reporting quality in both the US and Chinese settings (e.g. McGuire, Omer, & Sharp, 2011; Bjornsen, Do, & Omer, 2019; Du, Wei, Lai, Du, & Pei, 2015; Cai, Li, & Tang, 2020). Our findings suggest that superstition, a key component of social and cultural environment, leads to more opportunistic manipulation behavior that benefits controlling shareholders at the expense of minority shareholders.

Finally, our results add to the literature examining tunneling by controlling shareholders in the Chinese market. For example, Jiang *et al.* (2010) document that controlling shareholders siphon a significant amount of funds through intercorporate loans. Our findings suggest earnings management could facilitate such tunneling behavior. Firms first engage in upward earnings management to achieve lucky EPS numbers and raise external capital through seasoned equity financing. Then, controlling shareholders further siphon the raised capital from the firms for their private benefits.

The reminder of the paper proceeds as follows. [Section 2](#) reviews related literature and develops the hypothesis. We present our research design, variable definition and sample selection in [Section 3](#). [Section 4](#) and [Section 5](#) report results from our main empirical tests and additional analyses, respectively. [Section 6](#) concludes.

2. Literature review and hypothesis

2.1 Superstition and culture

Superstition is widespread in many cultures worldwide. Prior anthropology and psychology research suggest that superstition is a way people interpret uncertain events (e.g. [Vyse, 1997](#); [Burger & Lynn, 2005](#)). The outcome of these uncertain events is determined by both factors controlled by people (e.g. effort, knowledge, experience) and random factors that are uncontrollable. Based on this theory, superstitious people attribute uncontrollable factors to luck. People with desire to control uncertain events are more likely to turn to superstition ([Keinan, 2002](#)). Therefore, superstitious behavior is more prevalent in times of high uncertainty. Supporting this view, [Keinan \(1994\)](#) finds that superstitious beliefs were stronger among Israeli citizens during the Gulf War. Similarly, [Padgett and Jorgenson \(1982\)](#) document more articles related to superstition in Germany popular periodicals in periods following high economic uncertainty. Another prominent example is that US President Reagan set his schedule with guidance from an astrologer following the attempted assassination of him in March 1981 ([Vyse, 1997](#)) [8].

A common superstitious behavior is belief in lucky and unlucky numbers. In Chinese culture, 6 and 8 are viewed as lucky numbers. Previous literature shows that numerological superstition has significant impact on business behavior in areas that are heavily affected by Chinese traditions. For instance, [Simmons and Schindler \(2003\)](#) finds that Chinese companies disproportionately use 8 in their product commercials. [Block and Kramer \(2009\)](#) document that Taiwanese consumers are willing to pay more for a package of 8 tennis balls than 10 [9]. [Agarwal et al. \(2014\)](#) show that Singaporean Chinese pay a higher price for residential homes on the 8th floor [10]. Similarly, in Hong Kong where the government sells new license numbers for motor vehicles by auction, [Ng, Chong, and Du \(2010\)](#) find that the price of license numbers ending with 8 is significantly higher than that of other numbers.

Prior research finds that numerological superstition influences investors' behavior as well. For example, [Bhattacharya et al. \(2017\)](#) document that investors in the Taiwanese stock market are more likely to lose money in trading when they submit limit orders at prices ending with 8. In addition, [Hirshleifer et al. \(2018\)](#) show that many Chinese IPO firms attempt to obtain lucky listing codes containing 6 and 8; more importantly, these firms get better IPO pricing terms but have lower post-IPO stock price performance. Examining Chinese firms with unlucky listing codes, [Bai et al. \(2020\)](#) show that these firms have greater stock price crash risk [11].

Western Cultures also have superstitious behavior related to numbers. In the US, 13 is considered a symbol of bad luck. As a result, luxurious hotels in the US usually do not have the 13th floor. In contrast, many people think the number 7 is associated with good luck. Many businesses attempt to exploit such irrational beliefs. For example, on July 7, 2007, the Ritz Carlton Hotel in New York provided a wedding ceremony for the price of \$77,777. The reception offered a seven-tier wedding case, and the wedding ring had 7 diamonds from Tiffany.

2.2 Hypothesis development

Prior literature has examined the effect of superstition in the capital market. An early study, [Kolb and Rodriguez \(1987\)](#), finds that the US stock market has lower returns on Friday the

13th compared to other days. More recent studies in this area mostly focus on Asian markets. For instance, [Hirshleifer et al. \(2018\)](#) document that many Chinese IPO firms attempt to obtain lucky listing codes (i.e. those containing 6 or 8). The study shows that there is a mispricing of lucky listing codes around and after IPOs, and the results are attributable to unsophisticated investors who rely on superstition to guide their portfolio selection. [Bhattacharya et al. \(2017\)](#) identify a group of superstitious investors in the Taiwanese stock market based on their limit orders submissions. The evidence suggests that investors lose more money when they submit more limit orders at prices ending with 8. Thus, both studies imply that numerological superstition adversely affects investors.

In contrast, our study examines the relation between numerological superstition and corporate financial reporting behavior. We argue that firms have incentives to report lucky earnings numbers, as doing so may attract superstitious investors' attention and distort their perception of firm's valuation. As a result, firms can exploit investors' superstition and enjoy higher valuation in the stock market. More importantly, managers, whose career path depends on controlling shareholders to a considerable extent ([Jiang et al., 2010](#); [Bradshaw et al., 2019](#)), often cater to the interest of controlling shareholders at the expense of minority shareholders. Accordingly, our hypothesis is formulated as follows:

Hypothesis. Ceteris paribus, firms with lucky earnings numbers are more likely to engage in earnings management than other firms.

3. Data and empirical research design

3.1 Main variables

We employ two alternative measures of earnings management. The first one is the absolute values of discretionary accruals (*Abs_Dac*) calculated using the modified Jones model ([Jones, 1991](#); [Dechow, Sloan, & Sweeney, 1995](#)) [12].

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_0 \frac{1}{A_{i,t-1}} + \alpha_1 \frac{\Delta Sales_{i,t}}{A_{i,t-1}} + \alpha_2 \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t}$$

where *TA* is total accruals calculated by net income (*NI*) minus operating cash flow (*OCF*), and *A* denotes total assets. $\Delta Sales$ and $\Delta Receivables$ represent changes in total sales and changes in account receivables, respectively. In addition, *PPE* denotes property, plant and equipment. We estimate this model by industry-years and require at least 10 observations for each industry-year. The residuals represent discretionary accruals (*DAC*), while *Abs_Dac* is the absolute values of discretionary accruals. For robustness check, we also consider several alternative measures, such as signed discretionary accruals and performance-matched abnormal discretionary accruals.

In addition to discretionary accruals, we use the incidence of accounting restatements as our second proxy for earnings management. Specifically, *Restate* is a dummy variable that equals to 1 if the firm's financial statements are restated in subsequent years, and 0 otherwise.

To identify firms with lucky earnings numbers (i.e. our proxy for investors' numerological superstition), we construct a dummy variable, *Lucky EPS*, which takes the value of 1 for firms with EPS ending in 6 and 8, and 0 otherwise. As discussed earlier, 6 and 8 are viewed as lucky numbers in the Chinese culture, and the last digit of EPS numbers is especially salient [13]. We focus on the last digit of the EPS also because firms can more easily manipulate the last digit than other digits [14].

3.2 Regression model

To estimate the relation between lucky EPS numbers and earnings management, we begin by estimating model (1):

$$\begin{aligned}
 \begin{cases} Abs_Dac_{i,t} \\ Restate_{i,t} \end{cases} &= \alpha_0 + \beta_1 Lucky\ EPS_{i,t} + \gamma_1 Size_{i,t} + \gamma_2 Lev_{i,t} + \gamma_3 Age_{i,t} + \gamma_4 MB_{i,t} + \gamma_5 Grow_{i,t} \\
 &+ \gamma_6 PPE_{i,t} + \gamma_7 TopShare_{i,t} + \gamma_8 Big4_{i,t} + \gamma_9 Loss_{i,t} + \gamma_{10} Coverage_{i,t} \\
 &+ \gamma_{11} MBE_{i,t} + Fixe\ Effects + \varepsilon_{i,t}
 \end{aligned} \tag{1}$$

where i indexes firm and t indexes year. We cluster standard errors at the firm level [15]. The dependent variable is either absolute discretionary accruals (*Abs_Dac*) or restatement (*Restate*). We estimate an OLS model when using *Abs_Dac* as the dependent variable. As *Restate* is a dummy variable, we adopt a Logit model for regressions using *Restate* as the dependent variable. The primary independent variable of interest is *Lucky EPS*. Our hypothesis predicts that firms with EPS ending with 6 or 8 are more likely to manage earnings, as evidenced by higher abnormal discretionary accruals and/or a greater probability of accounting restatements. Thus, the coefficient β_1 is expected to be positive.

We also include a vector of control variables in model (1) following prior literature (e.g. Yu, 2008; Fang, Huang, & Karpoff, 2016). They include firm size (*Size*), leverage (*Lev*), firm age (*Age*), market-to-book ratio (*MB*), sales growth (*Grow*), PP&E (*PPE*), ownership by the largest shareholder (*TopShare*), big-4 auditor (*Big4Audit*), loss indicator (*Loss*), analyst coverage (*Coverage*) and an indicator for firms that meet or just beat analyst earnings forecast (*MBE*). Furthermore, model (1) also includes year-fixed effects and firm- or industry-fixed effects. We provide detailed definition of these variables in the [Appendix](#).

3.3 Sample selection

Our initial sample includes 27,877 observations of publicly traded firms in the Chinese stock markets from 2007 through 2016, excluding financial institutions defined based on the standard industry classification of the China Securities Regulatory Commission (henceforth CSRC). Our sample period starts from 2007 because China introduced a new accounting standard in 2007 to achieve convergence with the International Financial Reporting Standards (IFRS). We obtain financial data and stock return data for all listed Chinese firms from the China Stock Market & Accounting Research Database (CSMAR). We further manually collect information on restatement of financial report through the Giant Tide Information Net [16]. Next, we remove firm-year observations with missing data on variables used in model (1) and observations with missing data to estimate the modified Jones model. Our final sample for the restatement tests consists of 19,719 firm-year observations. Further, after automatically removing the collinear observations, we have 19,592 firm-year observations when we use restatement as the dependent variable in Logit model with industry-fixed effect.

4. Main empirical results

4.1 Descriptive statistics

In [Table 1](#), we report summary statistics of our sample. The mean value of *Abs_Dac* is 0.070, and its median is 0.046. The mean value of *Restate* is 0.084, indicating that around 8.4% of annual reports in our sample are restated in subsequent periods. In addition, the mean of *Lucky EPS* takes the value of 0.198, which implies that around 20% of sample firms report EPS ending with 6 or 8.

Variable	<i>N</i>	Mean	Median	Std. Dev	Q1	Q3
<i>Abs_DAC</i>	19,719	0.070	0.046	0.078	0.021	0.089
<i>Restate</i>	19,719	0.084	0	0.278	0	0
<i>Lucky EPS</i>	19,719	0.198	0	0.399	0	0
<i>Size</i>	19,719	21.773	21.620	1.299	20.862	22.491
<i>LEV</i>	19,719	0.469	0.462	0.229	0.290	0.628
<i>Age</i>	19,719	2.707	2.773	0.375	2.485	2.944
<i>MB</i>	19,719	4.212	3.103	4.529	1.966	5.043
<i>Grow</i>	19,719	0.212	0.112	0.614	-0.034	0.286
<i>PPE</i>	19,719	0.275	0.235	0.204	0.120	0.393
<i>TopShare</i>	19,719	0.353	0.333	0.152	0.232	0.461
<i>Big4</i>	19,719	0.056	0	0.230	0	0
<i>Loss</i>	19,719	0.102	0	0.303	0	0
<i>Coverage</i>	19,719	2.363	2.773	1.805	0.693	3.970
<i>MBE</i>	19,719	0.012	0	0.111	0	0
<i>CEO_Zodiac</i>	19,719	0.096	0	0.294	0	0
<i>HigherEdu</i>	19,719	0.489	0	0.500	0	1
<i>SEO</i>	19,719	0.132	0	0.339	0	0
<i>SEOScale</i>	19,719	1.505	0	3.869	0	0
<i>PrivatePlace</i>	19,719	0.061	0	0.248	0	0
<i>CapInvG</i>	19,719	0.027	0.000	0.145	-0.014	0.019
<i>MAInvG</i>	19,719	0.007	0	0.054	0	0
<i>Tunnel</i>	19,719	0.069	0.046	0.454	0.021	0.089

Note(s): This table reports summary statistics of our primary test sample, including the number of observations, mean, median, standard deviation, bottom and top quartiles, respectively. Variable definitions are provided in the [Appendix](#)

Source(s): Table by authors

Table 1.
Summary statistics

4.2 Earnings management tests

In [Table 2](#), we report the estimation results of model (1). In columns (1) and (3), we estimate the model after controlling for year- and industry-fixed effects. In column (1), where *Abs_Dac* is the dependent variable, the coefficient on *Lucky EPS* is positive (0.003) and significant at the 1% level. This indicates that, on average, firms with EPS ending with 6 or 8 have higher abnormal discretionary accruals than other firms, and thus they are more likely to engage in earnings management. In column (3), with *Restate* being the dependent variable, our Logit model estimation shows a significant and positive coefficient on *Lucky EPS* (0.260) with a marginal effect of 2.01%, implying that annual reports with EPS ending with 6 or 8 are more likely to be restated in subsequent years. These findings support our hypothesis and suggest that firms with EPS ending in 6 or 8 are more likely to manage earnings.

In columns (2) and (4), to control for firm-level time-invariant omitted factors that may affect the tendency of earnings management, we further include firm-fixed effects instead of industry-fixed effects. The sample of the Logit model in column (4) reduces to 7,176 observations, because many firms never have restatements during our sample period and thus drop from the sample. The coefficients on *Lucky EPS* are still positive and significant in both columns. These results lend further support to our hypothesis and also mitigate concerns about time-insensitive omitted variables, such as corporate governance.

The coefficients on the control variables are consistent with prior literature (e.g. [Fang et al., 2016](#)). Specifically, earnings management is positively associated with leverage, growth and firm loss, while negatively associated with PPE. There is also some suggestive evidence on that high audit quality can curtail earnings management.

	OLS		Logit		Numerological superstition
	(1) <i>Abs_DAC</i>	(2) <i>Abs_DAC</i>	(3) <i>Restate</i>	(4) <i>Restate</i>	
<i>Lucky EPS</i>	0.003** (2.21)	0.003** (2.12)	0.260*** (4.23)	0.318*** (4.01)	
<i>Size</i>	-0.012*** (-19.70)	-0.027*** (-20.07)	0.013 (0.42)	0.201*** (2.61)	
<i>LEV</i>	0.044*** (15.31)	0.054*** (11.27)	0.747*** (5.58)	0.642*** (2.34)	
<i>Age</i>	0.002 (1.12)	-0.006 (-0.73)	0.014 (0.17)	-0.929* (-1.75)	
<i>MB</i>	0.000 (1.55)	-0.000 (-0.89)	0.000 (0.08)	-0.002 (-0.29)	
<i>Grow</i>	0.017*** (19.41)	0.013*** (14.09)	-0.040 (-0.91)	-0.064 (-1.18)	
<i>PPE</i>	-0.022*** (-6.79)	-0.006 (-1.29)	-0.117 (-0.74)	0.345 (1.13)	
<i>TopShare</i>	0.009** (2.41)	0.032*** (3.68)	-1.012*** (-5.30)	-1.362*** (-2.45)	
<i>Big4</i>	0.003 (1.16)	0.005 (0.99)	-0.768*** (-4.79)	-0.483 (-1.27)	
<i>Loss</i>	0.014*** (7.55)	0.006*** (3.15)	0.359*** (4.45)	0.267** (2.57)	
<i>Coverage</i>	0.003*** (7.06)	0.004*** (8.08)	-0.039** (-2.11)	0.054* (1.66)	
<i>MBE</i>	-0.004 (-0.95)	-0.005 (-1.13)	0.202 (0.92)	0.469* (1.66)	
<i>Observations</i>	19,719	19,719	19,592	7,176	
<i>R-squared</i>	0.169	0.335			
<i>LR χ^2</i>			824.48	533.16	
<i>Industry FE</i>	YES		YES		
<i>Firm FE</i>		YES		YES	
<i>Year FE</i>	YES	YES	YES	YES	

Note(s): This table examines the earnings management behavior by firms with EPS ending with 6 or 8. All variables are as defined in [Table A1 in Appendix](#). The sample period is from 2007 to 2016. In columns (1) and (3), we include year- and industry-fixed effects. In columns (2) and (4), we include year- and firm-fixed effects. Robust standard errors clustered at the firm level are reported in parentheses. Coefficients marked with *, ** and *** are significant at 10%, 5% and 1%, respectively

Source(s): Table by authors

Table 2.
Superstition and earnings management

5. Additional analyses

5.1 CEO education and zodiac year

The results above are consistent with firms reporting a lucky EPS number are more likely to manage earnings. To shed light on possible underlying channels of our main findings, we conduct cross-sectional analyses based on several firm characteristics in this section. We report these results in [Table 3](#).

Specifically, we first test the moderating roles of CEO characteristics. One explanation for the earnings management behavior to report EPS ending with 6 or 8 is that superstitious managers think a lucky earnings number can bring good luck to them and the firms. If so, the relation between EPS ending with 6 or 8 and earnings management should be driven by firms with more superstitious CEOs. We employ two measures of CEO superstition. The first measure, *CEO_Zodiac*, is constructed based on the traditional Chinese belief that one is more likely to have bad luck in his/her “zodiac year of birth.” Zodiac year occurs every twelve years

Panel A CEO zodiac year						
	OLS		Logit		OLS	
	(1) <i>Abs_DAC</i>	(2) <i>Abs_DAC</i>	(3) <i>Restate</i>	(4) <i>Restate</i>	(5) <i>Restate</i>	(6) <i>Restate</i>
<i>Lucky EPS</i>	0.002* (1.70)	0.002* (1.76)	0.283*** (4.42)	0.346*** (4.17)	0.024*** (4.58)	0.020*** (4.08)
<i>CEO_Zodiac</i>	0.001 (0.59)	0.001 (0.65)	0.020 (0.20)	0.006 (0.05)	0.001 (0.18)	-0.000 (-0.03)
<i>Lucky EPS*CEO_Zodiac</i>	0.005 (1.12)	0.003 (0.76)	-0.273 (-1.19)	-0.257 (-0.89)	-0.022 (-1.33)	-0.014 (-0.86)
<i>Size</i>	-0.012*** (-19.45)	-0.027*** (-20.02)	0.018 (0.57)	0.208*** (2.70)	-0.002 (-0.69)	0.016*** (3.25)
<i>LEV</i>	0.043*** (14.96)	0.053*** (11.08)	0.745*** (5.54)	0.675** (2.45)	0.074*** (6.49)	0.052*** (3.04)
<i>Age</i>	0.002 (1.15)	-0.005 (-0.66)	0.016 (0.19)	-0.930* (-1.75)	0.002 (0.26)	-0.014 (-0.50)
<i>MB</i>	0.000* (1.73)	-0.000 (-0.54)	0.001 (0.13)	-0.003 (-0.32)	-0.000 (-0.59)	-0.001* (-1.82)
<i>Grow</i>	0.017*** (19.56)	0.013*** (14.34)	-0.042 (-0.94)	-0.063 (-1.15)	-0.005 (-1.49)	-0.006* (-1.85)
<i>PPE</i>	-0.022*** (-6.86)	-0.007 (-1.31)	-0.113 (-0.71)	0.322 (1.05)	-0.015 (-1.20)	0.027 (1.48)
<i>TopShare</i>	0.009** (2.51)	0.032*** (3.65)	-1.003*** (-5.24)	-1.310** (-2.34)	-0.073*** (-5.07)	-0.059* (-1.87)
<i>Big4</i>	0.003 (1.10)	0.005 (0.87)	-0.799*** (-4.94)	-0.625 (-1.56)	-0.044*** (-4.68)	-0.031 (-1.54)
<i>Loss</i>	0.013*** (7.40)	0.006*** (2.98)	0.353*** (4.36)	0.270*** (2.59)	0.037*** (5.13)	0.019*** (2.78)
<i>Coverage</i>	0.002*** (6.92)	0.004*** (8.01)	-0.040** (-2.16)	0.057* (1.74)	-0.003* (-1.86)	0.004** (2.12)
<i>MBE</i>	-0.004 (-0.96)	-0.005 (-1.14)	0.200 (0.91)	0.464 (1.64)	0.016 (0.88)	0.028* (1.66)
<i>Observations</i>	19,719	19,719	19,592	7,176	19,719	19,719
<i>R-squared</i>	0.169	0.336			0.045	0.379
<i>LR χ^2</i>			825.29	535.78		
<i>Industry FE</i>	YES		YES		YES	
<i>Firm FE</i>		YES		YES		YES
<i>Year FE</i>	YES	YES	YES	YES	YES	YES

Panel B CEO higher education						
	OLS		Logit		OLS	
	(1) <i>Abs_DAC</i>	(2) <i>Abs_DAC</i>	(3) <i>Restate</i>	(4) <i>Restate</i>	(5) <i>Restate</i>	(6) <i>Restate</i>
<i>Lucky EPS</i>	0.004** (2.35)	0.003* (1.65)	0.240*** (2.81)	0.250** (2.28)	0.021*** (2.96)	0.017*** (2.58)
<i>HigherEdu</i>	0.001 (0.70)	-0.001 (-0.69)	0.152** (2.49)	0.136 (1.02)	0.012** (2.51)	0.007 (0.93)
<i>LuckyEPS*HigherEdu</i>	-0.003 (-1.18)	-0.001 (-0.21)	0.044 (0.36)	0.162 (1.02)	0.002 (0.21)	0.004 (0.39)
<i>Size</i>	-0.012*** (-19.42)	-0.027*** (-20.01)	0.021 (0.67)	0.210*** (2.72)	-0.001 (-0.59)	0.016*** (3.24)
<i>LEV</i>	0.043*** (14.94)	0.053*** (11.09)	0.761*** (5.66)	0.665** (2.41)	0.075*** (6.58)	0.052*** (3.04)
<i>Age</i>	0.002 (1.19)	-0.006 (-0.72)	0.044 (0.53)	-0.842 (-1.57)	0.004 (0.61)	-0.013 (-0.44)
<i>MB</i>	0.000* (1.73)	-0.000 (-0.55)	0.001 (0.17)	-0.002 (-0.29)	-0.000 (-0.58)	-0.001* (-1.81)
<i>Grow</i>	0.017*** (19.58)	0.013*** (14.36)	-0.043 (-0.97)	-0.067 (-1.21)	-0.005 (-1.54)	-0.006* (-1.88)
<i>PPE</i>	-0.022*** (-6.86)	-0.007 (-1.32)	-0.109 (-0.69)	0.337 (1.10)	-0.015 (-1.16)	0.027 (1.50)

Table 3.
Roles of CEO
characteristics

(continued)

Panel B CEO higher education

	OLS		Logit		OLS	
	(1) <i>Abs_DAC</i>	(2) <i>Abs_DAC</i>	(3) <i>Restate</i>	(4) <i>Restate</i>	(5) <i>Restate</i>	(6) <i>Restate</i>
<i>TopShare</i>	0.009** (2.52)	0.032*** (3.66)	-1.002*** (-5.23)	-1.295** (-2.32)	-0.072*** (-5.05)	-0.059* (-1.89)
<i>Big4</i>	0.003 (1.08)	0.005 (0.87)	-0.826*** (-5.09)	-0.627 (-1.56)	-0.046*** (-4.85)	-0.031 (-1.54)
<i>Loss</i>	0.013*** (7.43)	0.006*** (3.00)	0.348*** (4.29)	0.274*** (2.63)	0.036*** (5.07)	0.019*** (2.77)
<i>Coverage</i>	0.002*** (6.90)	0.004*** (8.03)	-0.044** (-2.38)	0.056* (1.71)	-0.003** (-2.09)	0.004** (2.11)
<i>MBE</i>	-0.004 (-0.96)	-0.005 (-1.13)	0.205 (0.93)	0.473* (1.67)	0.016 (0.89)	0.028* (1.65)
<i>Observations</i>	19,719	19,719	19,592	7,176	19,719	19,719
<i>R-squared</i>	0.169	0.336			0.046	0.379
<i>LR χ^2</i>			832.10	537.76		
<i>Industry FE</i>	YES		YES		YES	
<i>Firm FE</i>		YES		YES		YES
<i>Year FE</i>	YES	YES	YES	YES	YES	YES

Note(s): This table estimates the cross-sectional differences in the earnings management behavior of firms reporting EPS ending with 6 or 8. All variables are as defined in the [Appendix](#). The sample period is from 2007 to 2016. In columns (1), (3) and (5), we include year- and industry-fixed effects. In columns (2), (4) and (6), we include year- and firm-fixed effects. Robust standard errors clustered at the firm level are reported in parentheses. *, ** and *** indicate significance at 10%, 5% and 1%, respectively

Source(s): Table by authors

Table 3.

from birth and corresponds to the twelve-year cycle in Chinese astrology. Therefore, CEOs in their zodiac years may have stronger incentives to report a lucky number in order to bring about good fortunes. The second measure, *HigherEdu*, is an indicator for CEOs who received higher education. CEOs with higher education are expected to make decisions based on more scientific methods and thus be less superstitious [17].

In Panel A (Panel B), we interact *Lucky EPS* with *CEO_Zodiac* (*Lucky EPS* with *HigherEdu*). The first two columns (next two columns) report OLS regressions (Logit regressions) results, with discretionary accruals (restatements) as the dependent variable. As coefficients on interaction terms may be biased in Logit models, we also report linear probability regressions for the restatement test in the last two columns. Consistent with our main findings, the coefficients on *Lucky EPS* are consistently significant and positive. However, the coefficients on the interaction terms are insignificant across all the regressions. These findings are inconsistent with the argument that the superstitious earnings reporting behavior is due to CEO superstition.

5.2 Equity financing

Another explanation for our findings is that firms report lucky EPS numbers to exploit investors' superstitious beliefs for economic benefits. To understand the potential economic benefits that firms gain by reporting lucky earnings numbers, we consider the effect of EPS ending with 6 or 8 on firms' future equity financing behavior. Firms with EPS ending with 6 or 8 can attract investment from superstitious individual investors, which will, in turn, facilitate equity financing in the following period.

We employ three measures of external equity financing activities: (1) an indicator variable for firms with seasoned equity offerings in the following year (*SEO*), (2) the natural logarithm of one plus the amount of capital raised through seasoned equity offerings in the following

year (*SEOScale*) and (3) an indicator for firms that issue additional equity stocks to one of the largest ten shareholders through private placements in the following year (*Private Place*). We estimate model (2) as follows:

$$\begin{cases} SEO_{i,t+1} \\ SEOScale_{i,t+1} \\ PrivatePlace_{i,t+1} \end{cases} = \alpha_0 + \beta_1 LuckyEPS_{i,t} + \gamma_1 Size_{i,t} + \gamma_2 Lev_{i,t} + \gamma_3 Age_{i,t} + \gamma_4 MB_{i,t} \\ + \gamma_5 Grow_{i,t} + \gamma_6 PPE_{i,t} + \gamma_7 TopShare_{i,t} + \gamma_8 Big4Audit_{i,t} + \gamma_9 Loss_{i,t} \\ + \gamma_{10} Coverage_{i,t} + \gamma_{10} MBE_{i,t} + Fixed\ Effects + \epsilon_{i,t} \quad (2)$$

The control variables in model (2) are the same as those in model (1). Logit models are used to estimate the effect of *Lucky EPS* on *SEO* and *Private Place*. An OLS model is alternatively used to analyze the effect of *Lucky EPS* on *SEOScale*. We report the regression results in Table 4. In columns (1) and (2) (columns (3) and (4)), the dependent variables are *SEO* (*SEOScale*). Our results show that there are positive and significant coefficients on *Lucky EPS* in all the four columns, indicating that firms with reported EPS ending with 6 or 8 have more seasoned equity offerings in the next year and also raise more capital.

In the last two columns, the dependent variable is *Private Place*. As discussed earlier, most Chinese firms are controlled by larger owners (i.e. controlling shareholders). Thus, managers are unlikely to use lucky EPS numbers to mislead this group of investors. Indeed, the coefficients on *Lucky EPS* in both columns are insignificant. This shows that lucky EPS numbers are associated with more seasoned equity financing activities but do not relate to private placements to controlling shareholders.

5.3 Capital investment

To investigate the intent of the seasoned equity offering, we examine how the capital raised through seasoned equity financing is used by firms. A firm with a lucky EPS number may use the raised equity capital to support a larger capital investment program. If so, firms with lucky EPS numbers are expected to have more capital investments. To test this, we estimate model (3):

$$\begin{aligned} CapInv_{i,t+1} = & \alpha_0 + \beta_0 LuckyEPS_{i,t} + \gamma_1 Size_{i,t} + \gamma_2 Lev_{i,t} + \gamma_3 Age_{i,t} + \gamma_4 MB_{i,t} + \gamma_5 Grow_{i,t} \\ & + \gamma_6 PPE_{i,t} + \gamma_7 TopShare_{i,t} + \gamma_8 Big4Audit_{i,t} + \gamma_9 Loss_{i,t} + \gamma_{10} Coverage_{i,t} \\ & + Fixed\ Effects + \epsilon_{i,t+1} \end{aligned} \quad (3)$$

In model (3), the dependent variable is change in capital investment in the following year scaled by total assets. We report the estimation results in Table 5. In the first two columns, we employ full sample, while the last two columns show the subsample of firms with seasoned equity offerings in the following year. For all the four columns, we include the same set of control variables as those in model (1). We find that the coefficients on *Lucky EPS* are insignificant in all columns. This suggests that firms with lucky EPS numbers do not seem to use the raised equity capital in their capital investments.

5.4 Controlling shareholder expropriation

Since evidence documented above shows that firms with lucky EPS numbers raise more capital in SEOs but do not have higher capital investors, in this subsection, we look into how these use the raised capital. Specifically, we examine whether controlling shareholders derive private benefits through expropriating additional capital raised in SEOs. Jiang *et al.* (2010) find that

	(1) <i>SEO</i>	(2) <i>SEO</i>	(3) <i>SEOScale</i>	(4) <i>SEOScale</i>	(5) <i>Private Place</i>	(6) <i>Private Place</i>
<i>Lucky EPS</i>	0.139*** (2.65)	0.147** (2.54)	0.176*** (2.60)	0.172** (2.37)	0.090 (1.28)	0.119 (1.53)
<i>Size</i>	-0.340*** (-12.52)	-0.585*** (-9.27)	-0.378*** (-11.13)	-0.635*** (-8.47)	0.055 (1.63)	-0.188** (-2.50)
<i>LEV</i>	1.308*** (11.00)	1.591*** (7.52)	1.658*** (10.69)	2.042*** (7.69)	1.389*** (8.73)	0.993*** (3.54)
<i>Age</i>	-0.414*** (-6.44)	0.123 (0.32)	-0.516*** (-6.15)	0.517 (1.16)	0.015 (0.16)	0.558 (1.08)
<i>MB</i>	-0.003 (-0.66)	0.014** (2.18)	0.005 (0.76)	0.028*** (3.23)	-0.001 (-0.20)	0.000 (0.03)
<i>Grow</i>	0.106*** (3.22)	-0.021 (-0.55)	0.196*** (4.17)	-0.012 (-0.24)	0.140*** (3.30)	0.081* (1.67)
<i>PPE</i>	0.450*** (3.41)	-0.185 (-0.84)	0.636*** (3.71)	0.146 (0.52)	-0.079 (-0.45)	-0.322 (-1.10)
<i>TopShare</i>	-0.586*** (-3.69)	0.593 (1.54)	-0.742*** (-3.80)	0.589 (1.21)	0.109 (0.53)	-1.609*** (-3.34)
<i>Big4</i>	-0.167 (-1.29)	0.297 (0.95)	-0.051 (-0.39)	0.308 (1.00)	-0.189 (-1.41)	-0.350 (-1.08)
<i>Loss</i>	-0.060 (-0.78)	-0.004 (-0.05)	-0.048 (-0.49)	-0.023 (-0.21)	-0.154 (-1.52)	-0.106 (-0.93)
<i>Coverage</i>	0.094*** (6.27)	-0.025 (-1.10)	0.118*** (6.13)	-0.023 (-0.80)	0.004 (0.18)	-0.052* (-1.74)
<i>MBE</i>	-0.276 (-1.17)	-0.330 (-1.27)	-0.324 (-1.31)	-0.378 (-1.44)	0.005 (0.02)	0.037 (0.13)
<i>Observations</i>	19,719	13,058	19,719	19,719	19,719	8,127
<i>R-squared</i>			0.073	0.211		
<i>LR χ^2</i>	1503.07	860.89			343.37	131.30
<i>Industry FE</i>	YES		YES		YES	
<i>Firm FE</i>		YES		YES		YES
<i>Year FE</i>	YES	YES	YES	YES	YES	YES

Note(s): This table examines firms' equity financing behavior in the following period when firms report EPS endings with 6 or 8. All variables are as defined in the Appendix. The sample period is from 2007 to 2016. In columns (1), (3) and (5), we include year- and industry-fixed effects. In columns (2), (4) and (6), we include year- and firm-fixed effects. Robust standard errors clustered at the firm level are reported in parentheses. *, ** and *** indicate significance at 10%, 5% and 1%, respectively

Source(s): Table by authors

Table 4.
Equity financing

controlling shareholders siphon a significant amount of funds through related party transactions. For example, a public firm can lend funds to a related private firm that is solely owned by the public firm's controlling shareholder. These loans are rarely paid back and often end up being written off as bad debts. These loans are usually reported as "other receivables" on the balance sheet. Therefore, firm insiders can benefit from superstitions EPS reporting through turning funds obtained from SEOs to intercorporate loans for their own usages. To explore this explanation, we estimate the following model (model 4).

$$\begin{aligned}
 Tunnel_{i,t+1} = & \alpha_0 + \beta_0 Lucky\ EPS_{i,t} + \gamma_1 Size_{i,t} + \gamma_2 Lev_{i,t} + \gamma_3 Age_{i,t} + \gamma_4 MB_{i,t} + \gamma_5 Grow_{i,t} \\
 & + \gamma_6 PPE_{i,t} + \gamma_7 TopShare_{i,t} + \gamma_8 Big4Audit_{i,t} + \gamma_9 Loss_{i,t} + \gamma_{10} Coverage_{i,t} \\
 & + Fixed\ Effects + \varepsilon_{i,t+1}
 \end{aligned}
 \tag{4}$$

	Full sample		Subsample with seasoned equity offerings in the following year	
	(1) <i>CapInvG</i>	(2) <i>CapInvG</i>	(3) <i>CapInvG</i>	(4) <i>CapInvG</i>
<i>Lucky EPS</i>	0.001 (0.20)	-0.001 (-0.19)	0.008 (1.07)	0.001 (0.11)
<i>Size</i>	-0.004*** (-2.78)	-0.015*** (-5.21)	-0.005 (-1.42)	-0.019* (-1.66)
<i>LEV</i>	-0.051*** (-8.68)	-0.045*** (-4.49)	-0.060*** (-3.63)	-0.045 (-1.21)
<i>Age</i>	0.004 (1.18)	0.029* (1.75)	0.013 (1.43)	0.012 (0.16)
<i>MB</i>	0.001*** (4.64)	0.001*** (4.44)	0.001 (0.75)	0.002** (2.03)
<i>Grow</i>	-0.001 (-0.56)	-0.005** (-2.42)	-0.000 (-0.07)	-0.007 (-1.07)
<i>PPE</i>	-0.017*** (-2.63)	-0.012 (-1.14)	-0.013 (-0.71)	0.022 (0.55)
<i>TopShare</i>	0.013* (1.78)	-0.014 (-0.75)	-0.016 (-0.75)	0.073 (1.08)
<i>Big4</i>	-0.001 (-0.11)	0.000 (0.04)	0.005 (0.26)	-0.003 (-0.04)
<i>Loss</i>	0.011*** (2.90)	0.011*** (2.75)	0.010 (0.97)	0.003 (0.18)
<i>Coverage</i>	0.003*** (4.67)	0.004*** (3.79)	0.004* (1.92)	0.002 (0.41)
<i>MBE</i>	-0.004 (-0.46)	0.002 (0.16)	-0.017 (-0.51)	-0.031 (-0.60)
<i>Observations</i>	19,719	19,719	2,749	2,749
<i>R-squared</i>	0.026	0.191	0.044	0.635
<i>Industry FE</i>	YES		YES	
<i>Firm FE</i>		YES		YES
<i>Year FE</i>	YES	YES	YES	YES

Note(s): This table examines firms' investment behavior in the following period when firms report EPS endings with 6 or 8. All variables are as defined in the Appendix. The sample period is from 2007 to 2016. In columns (1) and (3), we include year- and industry-fixed effects. In columns (2) and (4), we include year- and firm-fixed effects. Robust standard errors clustered at the firm level are reported in parentheses. *, ** and *** indicate significance at 10%, 5% and 1%, respectively

Table 5.
Corporate investment

Source(s): Table by authors

where the dependent variable *Tunnel* is calculated as other receivables resulting from transactions related to major controlling shareholders (scaled by total sales). We include the same set of control variables as those in model (1).

We report estimation results in Table 6, and they show that there are positive and significant coefficients on *Lucky EPS* in both columns. This suggests that firms with EPS endings with 6 or 8 have more intercorporate loans with related parties than other firms in the following year. Put differently, controlling shareholders benefits from reporting lucky earnings numbers by tunneling corporate resources at the cost of minority shareholders.

5.5 Robustness checks

We provide several tests to examine the robustness of our main findings in Table 7. First, our main tests show that firms with reported EPS ending with 6 or 8 have greater absolute

	Full sample		Subsample with seasoned equity offerings in the following year	
	(1) <i>Tunnel</i>	(2) <i>Tunnel</i>	(3) <i>Tunnel</i>	(4) <i>Tunnel</i>
<i>Lucky EPS</i>	0.023** (2.04)	0.027** (2.38)	0.066*** (2.75)	0.068* (1.77)
<i>Size</i>	-0.006 (-1.07)	0.008 (0.71)	0.016 (1.26)	0.043 (1.10)
<i>LEV</i>	0.103*** (3.92)	0.183*** (4.34)	0.033 (0.58)	0.016 (0.12)
<i>Age</i>	0.056*** (3.95)	0.438*** (6.16)	0.041 (1.38)	0.049 (0.19)
<i>MB</i>	0.008*** (6.50)	0.000 (0.34)	0.004* (1.70)	-0.003 (-0.86)
<i>Grow</i>	-0.009 (-1.11)	-0.026*** (-3.23)	-0.012 (-0.79)	-0.055** (-2.46)
<i>PPE</i>	-0.075** (-2.56)	0.048 (1.08)	-0.130** (-2.10)	0.122 (0.87)
<i>TopShare</i>	-0.176*** (-5.30)	-0.154** (-1.98)	-0.170** (-2.34)	0.136 (0.58)
<i>Big4</i>	0.034 (1.58)	-0.064 (-1.29)	-0.006 (-0.10)	0.037 (0.18)
<i>Loss</i>	0.036** (2.18)	0.014 (0.81)	-0.008 (-0.23)	-0.011 (-0.19)
<i>Coverage</i>	-0.013*** (-4.05)	-0.007 (-1.62)	-0.006 (-0.91)	0.005 (0.34)
<i>MBE</i>	0.007 (0.16)	0.060 (1.43)	0.135 (1.18)	0.295 (1.63)
<i>Observations</i>	19,719	19,719	2,749	2,749
<i>R-squared</i>	0.053	0.293	0.070	0.632
<i>Industry FE</i>	YES		YES	
<i>Firm FE</i>		YES		YES
<i>Year FE</i>	YES	YES	YES	YES

Note(s): This table examines the controlling shareholders' tunneling behavior when firms report EPS endings with 6 or 8. All variables are as defined in the [Appendix](#). The sample period is from 2007 to 2016. In columns (1) and (3), we include observations with positive discretionary accruals; while in columns (2) and (4), we include year- and industry-fixed effects. Robust standard errors clustered at the firm level are reported in parentheses. *, ** and *** indicate significance at 10%, 5% and 1%, respectively

Source(s): Table by authors

Table 6.
Controlling
shareholder tunneling

discretionary accruals, implying that firms intentionally manipulate earnings to mislead superstitious investors. To provide further support on this, we examine the relation between EPS ending with 6 or 8 and positive vs. negative discretionary accruals in panel A. In columns (1) and (3), we include observations with positive discretionary accruals; while in columns (2) and (4), our observations include those with negative discretionary accruals only. In columns (1) to (4), we control for year- and industry-fixed effects. In the subsample of observations with positive discretionary accruals (columns (1) and (3)), our results show that the coefficient on *Lucky EPS* is positive and significant at the 1% level. In columns (2) and (4) in which the sample contains observations with negative discretionary accruals, the coefficient on *Lucky EPS* becomes insignificant at the conventional level. This indicates that firms with EPS ending with 6 or 8 manipulate earnings upward rather than downward based on Chinese superstition. Such findings are consistent with firms using superstitious earnings management behavior to positively manipulate investors' perceptions.

	Panel A positive vs. negative accruals			
	Subsample with $DisAC > 0$		Subsample with $DisAC < 0$	
	(1) <i>DisAC</i>	(2) <i>DisAC</i>	(3) <i>DisAC</i>	(4) <i>DisAC</i>
<i>Lucky EPS</i>	0.003** (1.99)	0.003* (1.94)	-0.001 (-0.67)	-0.000 (-0.17)
<i>Size</i>	-0.012*** (-13.45)	-0.029*** (-14.39)	0.010*** (13.29)	0.016*** (9.11)
<i>LEV</i>	0.024*** (5.93)	0.004 (0.57)	-0.059*** (-17.55)	-0.083*** (-13.90)
<i>Age</i>	0.002 (1.17)	-0.016 (-1.44)	-0.001 (-0.62)	-0.019 (-1.64)
<i>MB</i>	0.000 (0.89)	-0.000 (-0.24)	-0.000** (-2.17)	0.000 (0.03)
<i>Grow</i>	0.018*** (15.45)	0.011*** (8.00)	-0.010*** (-9.95)	-0.010*** (-8.47)
<i>PPE</i>	-0.030*** (-7.06)	0.007 (0.98)	0.007* (1.76)	0.015** (2.18)
<i>TopShare</i>	0.013*** (2.80)	0.052*** (4.05)	-0.001 (-0.12)	-0.003 (-0.23)
<i>Big4</i>	-0.004 (-1.09)	0.005 (0.56)	-0.009*** (-3.13)	-0.009 (-1.29)
<i>Loss</i>	0.002 (0.61)	-0.002 (-0.49)	-0.017*** (-8.73)	-0.008*** (-3.55)
<i>Coverage</i>	0.004*** (9.33)	0.007*** (9.29)	0.001* (1.68)	-0.000 (-0.42)
<i>MBE</i>	-0.002 (-0.26)	-0.000 (-0.01)	0.004 (0.76)	0.005 (0.80)
<i>Observations</i>	10,632	10,632	9,087	9,087
<i>R-squared</i>	0.163	0.421	0.197	0.446
<i>Industry FE</i>	YES		YES	
<i>Firm FE</i>		YES		YES
<i>Year FE</i>	YES	YES	YES	YES

	Panel B alternative measure of lucky EPS					
	(1) <i>Abs_DAC</i>	(2) <i>Abs_DAC</i>	(3) <i>Restate</i>	(4) <i>Restate</i>	(5) <i>Restate</i>	(6) <i>Restate</i>
<i>Lucky EPS 869</i>	0.003** (2.44)	0.003** (2.19)	0.154*** (2.75)	0.214*** (2.99)	0.012*** (2.84)	0.012*** (2.99)
<i>Size</i>	-0.012*** (-19.70)	-0.027*** (-20.10)	0.012 (0.38)	0.200*** (2.61)	-0.002 (-0.87)	0.015*** (3.15)
<i>LEV</i>	0.044*** (15.27)	0.054*** (11.25)	0.746*** (5.57)	0.660*** (2.41)	0.074*** (6.52)	0.051*** (2.99)
<i>Age</i>	0.002 (1.13)	-0.006 (-0.74)	0.013 (0.16)	-0.918* (-1.73)	0.001 (0.22)	-0.016 (-0.54)
<i>MB</i>	0.000 (1.57)	-0.000 (-0.89)	0.001 (0.13)	-0.002 (-0.24)	-0.000 (-0.62)	-0.001* (-1.82)
<i>Grow</i>	0.017*** (19.40)	0.013*** (14.10)	-0.040 (-0.90)	-0.065 (-1.19)	-0.005 (-1.45)	-0.006* (-1.91)
<i>PPE</i>	-0.021*** (-6.75)	-0.006 (-1.27)	-0.114 (-0.72)	0.342 (1.12)	-0.015 (-1.20)	0.028 (1.57)
<i>TopShare</i>	0.009** (2.42)	0.032*** (3.68)	-1.013*** (-5.30)	-1.324*** (-2.38)	-0.073*** (-5.14)	-0.060* (-1.91)
<i>Big4</i>	0.003 (1.17)	0.006 (1.00)	-0.773*** (-4.83)	-0.452 (-1.19)	-0.043*** (-4.56)	-0.024 (-1.21)
<i>Loss</i>	0.014*** (7.58)	0.006*** (3.18)	0.358*** (4.44)	0.263** (2.53)	0.037*** (5.23)	0.019*** (2.80)
<i>Coverage</i>	0.002*** (7.04)	0.004*** (8.10)	-0.039** (-2.11)	0.054* (1.66)	-0.003* (-1.80)	0.004** (2.07)
<i>MBE</i>	-0.004 (-0.93)	-0.005 (-1.12)	0.207 (0.94)	0.471* (1.67)	0.017 (0.92)	0.028* (1.68)

Table 7.
Robustness tests

(continued)

Panel B alternative measure of lucky EPS

	(1) <i>Abs_DAC</i>	(2) <i>Abs_DAC</i>	(3) <i>Restate</i>	(4) <i>Restate</i>	(5) <i>Restate</i>	(6) <i>Restate</i>
<i>Observations</i>	19,796	19,796	19,669	7,221	19,817	19,817
<i>R-squared</i>	0.169	0.335			0.045	0.378
<i>LR χ^2</i>			814.65	526.19		
<i>Industry FE</i>	YES		YES		YES	
<i>Firm FE</i>		YES		YES		YES
<i>Year FE</i>	YES	YES	YES	YES	YES	YES

Panel C alternative measure of lucky EPS

	(1) <i>Abs_DAC</i>	(2) <i>Abs_DAC</i>	(3) <i>Restate</i>	(4) <i>Restate</i>	(5) <i>Restate</i>	(6) <i>Restate</i>
<i>Lucky EPS 8694</i>	0.002** (2.14)	0.002** (2.19)	0.105** (2.47)	0.124** (2.28)	0.008*** (2.62)	0.007** (2.32)
<i>Size</i>	-0.012*** (-19.70)	-0.027*** (-20.10)	0.012 (0.38)	0.200*** (2.61)	-0.002 (-0.87)	0.015*** (3.14)
<i>LEV</i>	0.044*** (15.27)	0.054*** (11.26)	0.747*** (5.58)	0.665** (2.42)	0.074*** (6.52)	0.051*** (3.00)
<i>Age</i>	0.002 (1.12)	-0.006 (-0.76)	0.012 (0.14)	-0.920* (-1.73)	0.001 (0.21)	-0.016 (-0.57)
<i>MB</i>	0.000 (1.56)	-0.000 (-0.89)	0.001 (0.11)	-0.002 (-0.25)	-0.000 (-0.63)	-0.001* (-1.81)
<i>Grow</i>	0.017*** (19.43)	0.013*** (14.11)	-0.039 (-0.88)	-0.064 (-1.18)	-0.005 (-1.43)	-0.006* (-1.88)
<i>PPE</i>	-0.021*** (-6.78)	-0.006 (-1.28)	-0.119 (-0.76)	0.337 (1.10)	-0.015 (-1.24)	0.028 (1.55)
<i>TopShare</i>	0.009** (2.43)	0.032*** (3.70)	-1.010*** (-5.29)	-1.293** (-2.33)	-0.073*** (-5.12)	-0.059* (-1.88)
<i>Big4</i>	0.003 (1.16)	0.006 (1.00)	-0.775*** (-4.83)	-0.447 (-1.18)	-0.043*** (-4.58)	-0.024 (-1.21)
<i>Loss</i>	0.014*** (7.56)	0.006*** (3.17)	0.355*** (4.41)	0.263** (2.53)	0.037*** (5.20)	0.019*** (2.78)
<i>Coverage</i>	0.003*** (7.07)	0.004*** (8.10)	-0.039** (-2.08)	0.055* (1.67)	-0.002* (-1.78)	0.004*** (2.09)
<i>MBE</i>	-0.004 (-0.92)	-0.005 (-1.10)	0.209 (0.95)	0.470* (1.66)	0.017 (0.94)	0.028* (1.69)
<i>Observations</i>	19,796	19,796	19,669	7,221	19,817	19,817
<i>R-squared</i>	0.169	0.335			0.045	0.378
<i>LR χ^2</i>			813.29	522.58		
<i>Industry FE</i>	YES		YES		YES	
<i>Firm FE</i>		YES		YES		YES
<i>Year FE</i>	YES	YES	YES	YES	YES	YES

Panel D falsification tests

	(1) <i>Abs_DAC</i>	(2) <i>Restate</i>	(3) <i>Restate</i>	(4) <i>Abs_DAC</i>	(5) <i>Restate</i>	(6) <i>Restate</i>
<i>Lucky Cashflow</i>	0.002 (1.07)	0.083 (0.79)	0.005 (0.93)			
<i>Lucky Equity</i>				-0.001 (-1.20)	-0.112 (-1.39)	-0.006 (-1.32)
<i>Size</i>	-0.027*** (-20.09)	0.203*** (2.64)	0.015*** (3.15)	-0.027*** (-20.09)	0.204*** (2.66)	0.015*** (3.15)
<i>LEV</i>	0.054*** (11.25)	0.673** (2.45)	0.051*** (2.99)	0.054*** (11.25)	0.667** (2.43)	0.051*** (2.99)
<i>Age</i>	-0.006 (-0.75)	-0.910* (-1.71)	-0.016 (-0.56)	-0.006 (-0.76)	-0.926* (-1.74)	-0.016 (-0.56)
<i>MB</i>	-0.000 (-0.86)	-0.002 (-0.19)	-0.001* (-1.79)	-0.000 (-0.89)	-0.002 (-0.24)	-0.001* (-1.82)

(continued)

Table 7.

Panel D falsification tests						
	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Abs_DAC</i>	<i>Restate</i>	<i>Restate</i>	<i>Abs_DAC</i>	<i>Restate</i>	<i>Restate</i>
<i>Grow</i>	0.013*** (14.14)	-0.064 (-1.17)	-0.006* (-1.85)	0.013*** (14.16)	-0.063 (-1.17)	-0.006* (-1.83)
<i>PPE</i>	-0.007 (-1.31)	0.325 (1.06)	0.027 (1.53)	-0.006 (-1.28)	0.336 (1.10)	0.028 (1.56)
<i>TopShare</i>	0.032*** (3.70)	-1.284** (-2.31)	-0.059* (-1.88)	0.032*** (3.69)	-1.288** (-2.32)	-0.059* (-1.89)
<i>big4</i>	0.005 (0.99)	-0.445 (-1.17)	-0.024 (-1.22)	0.005 (0.98)	-0.459 (-1.21)	-0.024 (-1.23)
<i>Loss</i>	0.006*** (3.15)	0.262** (2.53)	0.019*** (2.76)	0.006*** (3.16)	0.259** (2.50)	0.019*** (2.77)
<i>Coverage</i>	0.004*** (8.13)	0.056* (1.71)	0.004** (2.11)	0.004*** (8.12)	0.055* (1.68)	0.004** (2.10)
<i>MBE</i>	-0.005 (-1.10)	0.470* (1.67)	0.029* (1.70)	-0.005 (-1.11)	0.466* (1.65)	0.028* (1.69)
<i>Observations</i>	19,796	7,221	19,817	19,796	7,221	19,817
<i>R-squared</i>	0.335		0.378	0.335		0.378
<i>LR χ^2</i>		521.93			520.60	
<i>Industry FE</i>	YES		YES		YES	
<i>Firm FE</i>		YES		YES		YES
<i>Year FE</i>	YES	YES	YES	YES	YES	YES

Note(s): This table provides falsification tests by defining lucky firms based on the last digit of cash flows per share and shareholders' equity per share. All variables are as defined in the Appendix. The sample period is from 2007 to 2016. In columns (1), (3) and (5), we include year- and industry-fixed effects. In columns (2), (4) and (6), we include year- and firm-fixed effects. Robust standard errors clustered at the firm level are reported in parentheses. *, ** and *** indicate significance at 10%, 5% and 1%, respectively

Table 7.

Source(s): Table by authors

In panels B and C, we employ two alternative measures of lucky EPS numbers. As [Hirshleifer et al. \(2018\)](#) also consider 9 as a lucky number, we construct a variable, *Lucky EPS 869*, an indicator for firms with EPS ending with 6, 8 or 9. In addition, since 4 is usually considered an unlucky number in China, *Lucky EPS 8694* is set to 1 if the last digit of the EPS is 6, 8 or 9, negative 1 if the last digit of EPS is 4, and 0 otherwise. Using both measures, we find results similar to those in [Table 3](#).

In panel D, we conduct a set of falsification tests. Specifically, we consider whether other per-share measures have a similar relationship with abnormal discretionary accruals and restatement. Apart from EPS, Chinese listed firms also disclose operating cash flows and total stockholders' equity in the annual report. However, as these measures are not directly related with firms' earnings, it is less likely individual investors will rely on them to make their investment decisions. We construct the following measures: *Lucky Cashflow*, an indicator variable equals to 1 if the last digit of the year-end operating cash flows per share is 6 or 8; *Lucky Equity*, an indicator variable equals to 1 if the last digit of the year-end stockholders' equity per share is 6 or 8. We conjecture that if our story holds, we should not observe significant relationship between the last digit of per-share measures of these two variables and earnings management. This is indeed what we find. We find that *Lucky Cashflow* is negatively associated with the likelihood of restatement, and other main explanatory variables have no significant association with dependent variables. These results suggest that the reporting strategies of EPS play a prominent role in earnings manipulation, which are consistent with the view that earnings are the main resource of firm-specific accounting information (e.g. [Biddle et al., 1995](#); [Liu, Nissim, & Thomas, 2002](#)).

6. Conclusion

The Chinese culture views 6 and 8 as lucky numbers. This study examines the relation between numerological superstition and corporate financial reporting behavior using Chinese publicly traded firms. We show that firms with EPS ending with 6 or 8 are more likely to engage in earnings management, proxied by larger absolute discretionary accruals and a greater probability of accounting restatements, compared to other firms. Furthermore, our evidence suggests that firms with EPS ending with 6 or 8 raise more external equity capital in the following period, but they do not have more capital investments. We also find that these firms' controlling shareholders expropriate minority shareholders' wealth by tunneling funds through related-party transactions. Overall, our study suggests that in an environment with superstition culture and a large number of unsophisticated individual investors, firm managers, colluding with controlling shareholders, manipulate earnings to exploit minority investors' superstitious beliefs for economic benefits. Our findings can help better understand how social and cultural environment affects firms' financial reporting behavior.

Notes

1. Superstition refers to psychological biases and irrational beliefs that are not based on reason. While some superstitious beliefs are results of personal experience, most of them are culture-dependent (Bhattacharya *et al.*, 2017; Hirshleifer *et al.*, 2018).
2. For example, some Western countries view 13 as an unlucky number. The 13th day of a month falling on a Friday, i.e. Friday the 13th, is considered an unlucky day. (<https://www.telegraph.co.uk/news/picturegalleries/howaboutthat/10305590/Friday-the-13th-why-do-we-fear-it-and-how-unlucky-is-it-really.html>). The European governing body of Formula 1 auto racing, which is based in Paris and Geneva, bans the number "13" in its entry list for cars (<https://joesaward.wordpress.com/2009/12/01/why-there-is-no-number-13-in-formula-1/>).
3. In the Chinese culture, 8 is viewed as a lucky number because its pronunciation sounds similar to that of the word "prosper" – pronounced "faa," in both Mandarin and Cantonese Chinese. As evidence of such superstitious belief, the official starting time of the 2008 Beijing Summer Olympics Games is 8:08 PM on August 8, 2008 (<https://www.mercurynews.com/2008/08/07/lucky-number-inspired-china-to-start-olympics-at-808-p-m-8808/>). As another example, in 2016, a Hong Kong car license plate bearing a number ending with 8 was auctioned for a record HK\$18.1 million (US\$2.3 million) (<https://theculturetrip.com/asia/china/hong-kong/articles/7-superstitions-that-still-shape-the-lives-of-hongkongers-today/>). Similarly, 6 is also a lucky number, which means "smooth" in Chinese culture. This phenomenon has a long history. In I-Ching (易经), which was written more than 2,000 years ago and summarized the Yin-Yang knowledge in China, 6 is viewed as the symbol of yin. The hexagram of 6 yins is the symbol of "long" and "smooth" (<https://baijiahao.baidu.com/s?id=1591615806674923293&wfr=spider&for=pc>).
4. Hirshleifer *et al.* (2018) find that Chinese firms with more lucky listing codes in IPO are priced higher, but they have lower post-IPO stock price performance. In addition, Bhattacharya *et al.*, 2017 document that investors on the Taiwanese stock market lose more money when they submit more limit orders at prices ending with 8. Finally, Bai *et al.* (2020) find that Chinese firms with unlucky listing codes have greater crash risk, and argue that investors' overreaction to negative news from these firms is the mechanism through which superstition affects crash risk.
5. A stream of related literature finds that religion is negatively associated with the extent of earnings management or real earnings management using Chinese samples (Du *et al.*, 2015; Cai, Li, & Tang, 2020).
6. Either argument leads to a positive association between lucky EPS number reporting and earnings management. As shown in our empirical tests later, our inferences support the second story after ruling out the first explanation.

7. Zodiac year is derived from the twelve-year cycle in Chinese astrology, which refers to the year when a person is born, 12, 24, 36, 48, 60 and so on. In the Chinese culture, people have bad luck in their zodiac year because they believe the god of Taisui (太岁) is more likely offended every 12 years. The symbol of Taisui God is the planet Jupiter. It takes 12 years for Jupiter to orbit the sun (https://www.sohu.com/a/131058071_674519). Related to our paper, [Fisman et al. \(2022\)](#) focus on widely held beliefs in bad luck during one's "zodiac year" (which occurs on a 12-year cycle around a person's birth year) to examine the impact of superstitions on risk taking. Their findings show that when a firm's chairman is in her zodiac year, there is a reduction in the firm's risk-taking overall.
8. Professions facing greater uncertainty are also more superstitious. For instance, survey evidence by [Burger & Lynn \(2005\)](#) shows that baseball players in both US and Japan are superstitious and have strong beliefs in luck because baseball games are highly affected by chances and random factors (e.g. wind).
9. Similarly, [Westjohn, Roschk, and Magnusson \(2017\)](#) indicate that Western brands can benefit from localizing pricing practices through exploring the use of lucky number as product price and induce consumers to respond to such pricing strategies.
10. In Singapore, buyers also pay less for homes with unlucky addresses and more for homes with lucky addresses ([He, Liu, Sing, Song, & Wong, 2020](#)). In addition, in mainland China, [Shum, Sun and Wei \(2014\)](#) find secondhand apartments located on floors ending with lucky numbers (i.e. 6 or 8) are sold for a higher price. In a similar vein, houses with street address number ending with 8 sell at a premium in Chinese communities of the Greater Vancouver area and in Auckland, New Zealand ([Bourassa & Peng, 1999](#)).
11. Our study differs from [Bai et al. \(2020\)](#) in that we examine firm-level, not investor-level, behavior in response to numerological superstition.
12. In robustness tests, we also report results using measures of discretionary accruals based on several alternative models, such as performance-matched discretionary accruals measures (e.g. [Kothari, Leone, & Wasley, 2005](#); [Ashbaugh-Skaife, Collins, Kinney, & LaFond, 2008](#)). Our inferences stay the same.
13. As indicated by [Hirshleifer et al. \(2018\)](#), we expect the first or last digit of a number to be more salient than intermediate digits. For the majority of our sample, the first digit of EPS is 0, because most firm's EPS is between 0 and 1. We therefore focus on the last digit of reported EPS.
14. Our paper is silent on how firms manage earnings to obtain lucky numbers, which is a different research question. We are interested in examining whether firms with lucky EPS numbers are more likely to manipulate earnings, not the other way around.
15. All the regressions in this paper use firm-clustered standard errors when applicable.
16. Website: <http://www.cninfo.com.cn/new/index>
17. As well-educated CEOs are less superstitious, if managerial superstition is the underlying mechanism through which superstition affects earnings management, our results should be less pronounced for CEOs with higher education. Inconsistent with this, in [Table 3](#) (panel B), our findings show that CEO's education level does not play any role. Hence, this supports our argument that it is managers' opportunistic motive to take advantage of minority shareholders, not their superstitious belief, that drives our results.

References

- Agarwal, S., He, J., Liu, H., Png, I., Sing, T., Wong, W. (2014). Superstition and asset markets: Evidence from Singapore housing. Working paper. Available from: <https://courses.nus.edu.sg/course/ecswong/workingpapers/pdf/superstition2014.pdf>
- Ashbaugh-Skaife, H., Collins, D. W., Kinney, W. R. Jr., & LaFond, R. (2008). The effect of SOX internal control deficiencies and their remediation on accrual quality. *The Accounting Review*, 83, 217–250.

- Bai, M., Xu, L., Yu, C. F. J., & Zurbrugg, R. (2020). Superstition and stock price crash risk. *Pacific-Basin Finance Journal*, 60, 101287.
- Bhattacharya, U., Kuo, W. Y., Lin, T. C., & Zhao, J. (2017). Do superstitious traders lose money? *Management Science*, 64(8), 3772–3791.
- Biddle, G. C., Seow, G. S., & Siegel, A. F. (1995). Relative versus incremental information content. *Contemporary Accounting Research*, 12(1), 1–23.
- Bjornsen, M., Do, C., & Omer, T. C. (2019). The influence of country-level religiosity on accounting conservatism. *Journal of International Accounting Research*, 18(1), 1–26.
- Block, L., & Kramer, T. (2009). The effect of superstitious beliefs on performance expectations. *Journal of the Academy of Marketing Science*, 37(2), 161–169.
- Bourassa, S. C., & Peng, V. S. (1999). Hedonic prices and house numbers: The influence of feng shui. *International Real Estate Review*, 2(1), 79–93.
- Bradshaw, M., Liao, G., & Ma, M. S. (2019). Agency costs and tax planning when the government is a major shareholder. *Journal of Accounting and Economics*, 67(2-3), 255–277.
- Burger, J. M., & Lynn, A. L. (2005). Superstitious behavior among American and Japanese professional baseball players. *Basic and Applied Social Psychology*, 27(1), 71–76.
- Cai, J., Li, W., & Tang, Z. (2020). Religion and the method of earnings management: Evidence from China. *Journal of Business Ethics*, 161, 71–90.
- Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review*, 70(2), 193–225.
- Du, X., Wei, J., Lai, S., Du, Y., & Pei, H. (2015). Does religion mitigate earnings management? Evidence from China. *Journal of Business Ethics*, 131, 699–749.
- Fang, L., & Peress, J. (2009). Media coverage and the cross-section of stock returns. *Journal of Finance*, 64(5), 2023–2052.
- Fang, V. W., Huang, A. H., & Karpoff, J. M. (2016). Short selling and earnings management: A controlled experiment. *Journal of Finance*, 71(3), 1251–1294.
- Firth, M., Wang, K., & Wong, S. M. L. (2015). Corporate transparency and the impact of investor sentiment on stock prices. *Management Science*, 61(7), 1630–1647.
- Fisman, R., Huang, W., Ning, B., Pan, Y., Qiu, J., & Wang, Y. (2022). Superstition and risk taking: Evidence from “zodiac year” beliefs in China. *Management Science* (Forthcoming).
- Gurun, U. G., & Butler, A. W. (2012). Don't believe the hype: Local media slant, local advertising, and firm value. *Journal of Finance*, 67(2), 561–598.
- He, J., Liu, H., Sing, T. F., Song, C., & Wong, W. S. (2020). Conspicuous spending, and housing market: Evidence from Singapore. *Management Science*, 66(2), 783–804.
- He, X., Wong, T. J., & Young, D. (2012). Challenges for implementation of fair value accounting in emerging markets: Evidence from China. *Contemporary Accounting Research*, 29(2), 538–562.
- Hirshleifer, D., Jian, M., & Zhang, H. (2018). Superstition and financial decision making. *Management Science*, 64(1), 235–252.
- Hong, H. G., Jiang, W., & Zhao, B. (2012). Trading for status. *Review of Financial Studies*, 27(11), 3171–3212.
- Hope, O. K., Wu, H., & Zhao, W. (2017). Blockholder exit threats in the presence of private benefits of control. *Review of Accounting Studies*, 22(4), 1–30.
- Jiang, G., Lee, C. M. C., & Yue, H. (2010). Tunneling through intercorporate loans: The China experience. *Journal of Financial Economics*, 98(1), 1–20.
- Jones, J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research*, 29(2), 193–228.

- Ke, B., Rui, O., & Yu, W. (2012). Hong Kong stock listing and the sensitivity of managerial compensation to firm performance in state-controlled Chinese firms. *Review of Accounting Studies*, 17(1), 166–188.
- Keinan, G. (1994). Effects of stress and tolerance of ambiguity on magical thinking. *Journal of Personality and Social Psychology*, 67(1), 48.
- Keinan, G. (2002). The effects of stress and desire for control on superstitious behavior. *Personality and Social Psychology Bulletin*, 28(1), 102–108.
- Kolb, R. W., & Rodriguez, R. J. (1987). Friday the thirteenth: Part VII-A note. *The Journal of Finance*, 42(5), 1385–1387.
- Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39(1), 163–197.
- Kramer, T., & Block, L. (2008). Conscious and nonconscious components of superstitious beliefs in judgment and decision making. *Journal of Consumer Research*, 34(6), 783–793.
- Liu, J., Nissim, D., & Thomas, J. (2002). Equity valuation using multiples. *Journal of Accounting Research*, 40(1), 135–172.
- McGuire, S. T., Omer, T. C., & Sharp, N. Y. (2011). The impact of religion on financial reporting irregularities. *The Accounting Review*, 87(2), 645–673.
- Ng, T., Chong, T., & Du, X. (2010). The value of superstitions. *Journal of Economic Psychology*, 31(3), 293–309.
- Padgett, V. R., & Jorgenson, D. O. (1982). Superstition and economic threat: Germany, 1918-1940. *Personality and Social Psychology Bulletin*, 8(4), 736–741.
- Shum, M., Sun, W., & Ye, G. (2014). Superstition and “lucky” apartments: Evidence from transaction-level data. *Journal of Comparative Economics*, 42(1), 109–117.
- Simmons, L. C., & Schindler, R. M. (2003). Cultural superstitions and the price endings used in Chinese advertising. *Journal of International Marketing*, 11(2), 101–111.
- Vyse, S. A. (1997). *Believing in magic: The psychology of superstition*. Oxford University Press.
- Westjohn, S. A., Roschk, H., & Magnusson, P. (2017). Eastern versus western culture pricing strategy: Superstition, lucky numbers, and localization. *Journal of International Marketing*, 25(1), 72–90.
- Yu, F. (2008). Analyst coverage and earnings management. *Journal of Financial Economics*, 88(2), 245–271.

Further reading

- Andreou, P. C., Louca, C., & Petrou, A. P. (2017). CEO age and stock price crash risk. *Review of Finance*, 21(3), 1287–1325.
- 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(3), 345–381.
- Chen, Q., Goldstein, I., & Jiang, W. (2007). Price informativeness and investment sensitivity to stock price. *Review of Financial Studies*, 20(3), 619–650.
- Chen, D., Kim, J. B., Li, O. Z., & Liang, S. (2017). China's closed pyramidal managerial labor market and the stock price crash risk. *The Accounting Review*, 93(3), 105–131.
- Chen, W., Hribar, P., & Melessa, S. (2018). Incorrect inferences when using residuals as dependent variables. *Journal of Accounting Research*, 56(3), 751–796.
- Coval, J. D., & Moskowitz, T. J. (1999). Home bias at home: Local equity preference in domestic portfolios. *Journal of Finance*, 54(6), 2045–2073.
- Fang, J., Pittman, J., Zhang, Y., & Zhao, Y. (2017). Auditor choice and its implications for group-affiliated firms. *Contemporary Accounting Research*, 34(1), 39–82.

-
- Foucault, T., & Gehrig, T. (2008). Stock price informativeness, cross-listings, and investment decisions. *Journal of Financial Economics*, 88(1), 146–168.
- Gul, F. A., Kim, J. B., & Qiu, A. (2010). Ownership concentration, foreign shareholding, audit quality, and stock price synchronicity: Evidence from China. *Journal of Financial Economics*, 95(3), 425–442.
- Hutton, A. P., Marcus, A. J., & Tehranian, H. (2009). Opaque financial reports, R2, and crash risk. *Journal of Financial Economics*, 94(1), 67–86.
- Kim, J. B., & Zhang, L. (2016). Accounting conservatism and stock price crash risk: Firm-level evidence. *Contemporary Accounting Research*, 33(1), 412–441.
- Kim, J. B., Li, Y., & Zhang, L. (2011). CFOs versus CEOs: Equity incentives and crashes. *Journal of Financial Economics*, 101(3), 713–730.
- Kim, J. B., Li, Y., & Zhang, L. (2011). Corporate tax avoidance and stock price crash risk: Firm-level analysis. *Journal of Financial Economics*, 100(3), 639–662.
- Li, S., Brockman, P., & Zurbrugg, R. (2015). Cross-listing, firm-specific information, and corporate governance: Evidence from Chinese A-shares and H-shares. *Journal of Corporate Finance*, 32, 347–362.
- Li, O. Z., Liu, H., Ni, C., & Ye, K. (2017). Individual investors' dividend taxes and corporate payout policies. *Journal of Financial and Quantitative Analysis*, 52(3), 963–990.
- McLean, R. D., Zhang, T., & Zhao, M. (2012). Why does the law matter? Investor protection and its effects on investment, finance, and growth. *Journal of Finance*, 67(1), 313–350.
- Xianjie, H. E., Wong, T. J., & Young, D. (2012). Challenges for implementation of fair value accounting in emerging markets: Evidence from China. *Contemporary Accounting Research*, 29(2), 538–562.

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Variable name Definition

<i>Abs_DAC</i>	<p>Absolute values of discretionary accruals calculated as in the modified Jones model (Jones, 1991; Dechow <i>et al.</i>, 1995) for each industry-year</p> $\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_0 \frac{1}{A_{i,t-1}} + \alpha_1 \frac{\Delta Sales_{i,t}}{A_{i,t-1}} + \alpha_2 \frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t}$ <p>where <i>TA</i> denotes total accruals calculated by net income (<i>NI</i>) minus operating cash flow (<i>OCF</i>); <i>A</i> denotes total assets; $\Delta Sales$ denotes changes in total sales; <i>PPE</i> denotes property, plant and equipment. We require each industry-year to have at least five firm-year observations. Then discretionary accruals (<i>DisAC</i>) are calculated as:</p> $DisAC_{jt} = \frac{TA_{i,t}}{A_{i,t-1}} - \hat{\alpha}_0 \left(\frac{1}{A_{i,t-1}} \right) - \hat{\alpha}_1 \left(\frac{\Delta Sales_{i,t} - \Delta Receivables}{A_{i,t-1}} \right) - \hat{\alpha}_2 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right)$ <p>$\Delta Receivables$ denotes changes in account receivables. Absolute discretionary accruals are measured by the absolute values of abnormal accruals</p>
<i>Age</i>	Firm age, calculated as the natural logarithm of one plus the number of years since a firm's IPO
<i>Big4</i>	Big 4 auditor, an indicator variable which equals to 1 if the firm hires a Big-4 auditor in a given year, and 0 otherwise
<i>CapInvG</i>	Capital investment growth, which is calculated as the change of capital investment from year <i>t</i> to year <i>t+1</i> scaled by total assets in year <i>t</i>
<i>CEO_Zodiac</i>	CEO zodiac year, a dummy variable which equals to 1 if the CEO is in his or her Chinese Zodiac year according to Chinese lunar calendar, and 0 otherwise
<i>Coverage</i>	Analyst coverage, the logarithm of one plus the number of analysts following the firm
<i>Lucky_EPS</i>	An indicator variable which equals to 1 if the last digit of the year-end earnings per share (EPS) is 6 or 8, and 0 otherwise
<i>Lucky_EPS_869</i>	An indicator variable which equals to 1 if the last digit of the year-end earnings per share (EPS) is 6, 8 or 9, and 0 otherwise
<i>Lucky_EPS_8694</i>	A variable which equals to 1 if the last digit of the year-end earnings per share (EPS) is 6, 8 or 9, equals to negative 1 if the last digit of the year-end EPS is 4, and 0 otherwise
<i>Grow</i>	Sales growth, the growth rate of total sales
<i>HigherEdu</i>	CEO higher education, a variable which equal to 1 if the CEO has a bachelors', masters' or Ph.D. degree, and 0 otherwise
<i>LEV</i>	Firm leverage, calculated as the ratio of total debt to total assets
<i>Loss</i>	Loss firms, an indicator variable which equals to 1 if the net income of the previous year is below zero, and 0 otherwise
<i>MAInvG</i>	Merger and acquisition investment growth, which is calculated as the change of M&A investment from year <i>t</i> to year <i>t+1</i> , and divided by total assets in year <i>t</i>
<i>MB</i>	Market-to-book ratio, calculated as the ratio of market value of equity to book value of equity
<i>MBE</i>	An indicator equaling to 1 if EPS meets or beats analyst forecast by one cent
<i>PPE</i>	PP & E, the ratio of (cash payments for fixed assets, intangible assets and other long-term assets from the cash-flow statement, minus cash receipts from selling these assets) to total assets
<i>Restate</i>	Restatement, a dummy variable equals to 1 if the firm's annual report is restated in subsequent years, and 0 otherwise. We manually combine China Stock Market Accounting Research (CSMAR) and China Research Data Service (CNRDS) on Chinese firms' restatement to get this data set
<i>SEO</i>	An indicator variable which equals to 1 if the firm publicly issues stocks through seasoned equity offering in the following year, and 0 otherwise
<i>Private Place</i>	An indicator variable which equals to 1 if the firm issues stocks to one of the ten largest shareholders through a private placement in the following year, and 0 otherwise
<i>SEO scale</i>	The natural logarithm of one plus the amount of capital raised through seasoned equity offerings in the following
<i>Size</i>	Firm size, calculated as the natural logarithm of total assets
<i>TopShare</i>	The fraction of shares owned by the largest shareholder
<i>Tunnel</i>	Other receivables attributed to large shareholders plus related party transactions with large shareholders, scaled by total sales

Table A1.
Variable definition

Source(s): Table by authors