SUPERSTITION AND IPO INITIAL RETURN

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ABSTRACT

In Chinese culture, people refer to the Chinese Almanac (or "Huang Li") when they decide whether it is a lucky or unlucky day for many important events, including wedding ceremonies, funerals, and business decisions. I examine the effect of the Chinese Almanac on financial markets. More specifically, I test whether an Initial Public Offering (IPO) listed on an unlucky date has a lower IPO initial return. Using 1,799 China IPOs during the period 1996-2012, I find that IPOs listed on unlucky days experience significantly lower IPO initial returns compared to IPOs listed on all the other days. I use placebo tests, propensity score matching, and Heckman selection model to address the endogeneity concerns. I find that the finding is robust across different robustness checks and endogeneity tests. The negative effect of unlucky is not explained by the reason that IPOs listed on an unlucky day has bad future accounting performances. Besides, I show that managers do not avoid listing on an unlucky day, implying that the negative effect of unlucky is mainly caused by investor's superstition rather than manager's superstition. I find that the effect of superstition on IPO initial return is more pronounced when investors have a perception of high investment risk, strong superstitious beliefs, and are highly irrational. Further analysis shows that there is no statistically significant difference in the long-run one-, two- and three- year buy holding (abnormal) return between IPOs listed on unlucky days and IPOs listed on all other days, which means that investors in the financial market gradually correct the mispricing caused by superstition. Overall, this paper sheds new insight into how the folk model, more specifically calendar superstition, affects investors' trading behavior in financial markets with a high participation rate of retail investors and a long history of superstition.

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CHAPTER 1. INTRODUCTION

Superstition, although considered irrational or supernatural, remains a globally pervasive phenomenon (Foster and Kokko, 2009).[1] For example, India's independence day falls a day after Pakistan's because astrologers in India insisted that August 14, 1947, was an inauspicious day to become independent.[2] During the Taiwanese ghost month, which is a period believed to increase the likelihood of bad outcomes, there is a substantial reduction in marriages, mortality, hospital admissions, and births (Halla, Liu, and Liu, 2019). Consistent with superstition, people buying new apartments have a stronger preference for lucky addresses in Singapore (He et al., 2020), especially older people and those who suffered from more traffic accidents. China has a very long history of electional astrology. The Chinese Almanac ("Huang li") is the most popular reference when people decide whether it is a lucky or unlucky day for some important events. For example, households pick a lucky day to host wedding ceremonies or to move to new apartments. Drama or film production companies avoid unlucky days for their boot ceremonies. Although anecdotal evidence shows that superstition can affect people's information processing and decision-making, little is known about how superstition affects investors' risk perception and investment decisions. This is the first paper to discuss how the Chinese Almanac — an under-discovered type of superstitious belief — affects investors' financial decisions using China's IPO setting.

China's IPO market provides an ideal setting for testing this question. First, China has a very long history of employing electional astrology, and "Huang Li" has existed for more than 2000 years (Smith, 1992). Second, as the second-largest economy, China's retail investors

[1] Superstition is a belief or practice that arises from the incorrect assignment of cause and effect, a positive belief in fate or magic, or fear of the unknown (Campbell, 1996).

[2] Neville, B. (2015, Aug 14). How Astrology Influenced The Date Of India's Independence. Retrieved from https://homegrown.co.in/article/34289/how-astrology-played-a-major-role-in-choosing-the-date-of-indias-independence.

contribute more than 80% of the trading volume.[3] Retail investors, who are expected to be especially prone to superstition because they are less knowledgeable and scientific compared to institutional investors (McCleary and Barro, 2006), participate heavily in IPOs. Third, China has the second-highest IPO underpricing around the world (Ritter's website).[4] High uncertainty about IPOs' long-run fundamentals and high speculation in an immature market both maximize room for superstition to play a role. Fourth, the IPO listing date is mainly decided by the Committee of the China Securities Regulatory Commission (CSRC) and managers do not avoid the unlucky listing day. By using this unique setting focusing on the China IPO market, I can differentiate the effect of investors' superstition from that of managers' superstition. Overall, the China stock market provides an ideal breeding ground for testing superstitious belief, because China has a long history on studying electional astrology, there is a large representation of individual investors, and Chinese IPOs' long-run performance is highly uncertain. The Chinses Almanac and exogenous IPO listing day provide a quasi-natural experiment to study how superstition affects asset prices by affecting investors' financial decisions. In this thesis, I examine whether firm listed on an unlucky day has a lower initial day return[5].

Our empirical investigation is important because, ex-ante, there are no clear predictions on the average relation between unlucky listing date and IPO initial day return. On one hand, one might expect that unlucky listing day lowers IPO initial day return because investors may consider stock listed on an unlucky day as bad investments or less valuable and thus avoid investing in such stocks completely or decrease the demand in the secondary market. It is also likely that investors who hold the shares increase the supply to the market because of high

[3] Alex, C. (2019. March). China's retail investment market: Implications for minimum variance. Retrieved from https://www.ftserussell.com/blogs/chinas-retail-investment-market-implications-minimum-variance.

[4] Retrieved from https://site.warrington.ufl.edu/ritter/ipo-data/.

[5] IPO first day return, IPO initial return, and IPO underpricing are used interchangeably in this paper.

investment risk related to unlucky IPO. Academic literature documents how superstitious beliefs affect people's risk perception (Darke and Freedman, 1997; Jiang, Cho, and Adaval, 2009). Jiang, Cho, and Adaval (2009) conduct experiments to test how luck-related concepts affect consumer risk-taking behavior and they find that when participant's perception of the chances of winning a lottery changes accordingly when they are exposed to lucky or unlucky related concepts. The initial day return of IPOs is negatively related to investor's risk perception of IPOs according to Ritter (1984) and Loughran and Ritter (2002). There are also some pieces of anecdotal evidence collected from the China Stock Forum on which investors express that market will crash at unlucky day according to the Chinese Almanac (See Appendix B). On the other hand, it is likely that investors do not care about the unlucky listing day because trading decision is highly frequent and profitable in IPO market. If participants' trading profits are very high, investors will care less about superstition (Ke, Chen, Lin, and Liu, 2017). Besides, the government has initiated different proposals and programs to educate market participants to reduce investors' superstitious beliefs. Thus, the effect of unlucky listing day may be very small.

Collectively, the above hypotheses highlight the ex-ante tension in the research question about the net impact of unlucky listing day on IPO initial day return. To test the relation between superstition and IPO initial day returns empirically, I first collect the Chinese Almanac data using the web crawler technology from "http://www.laohuangli.net/" and financial data from CSMAR. I define the unlucky listed day if the IPO listed on a day in which Chinese Almanac refers the day as "nothing suitable" (See Appendix C). Using 1,799 IPO stocks listed in the Shenzhen Stock Exchange and Shanghai Stock Exchange of China, I find that the initial market-adjusted return of IPOs listed on unlucky days is, on average, 6.3% lower than that of IPOs listed on all the other days, representing a decrease of about 9.389% (-0.063/0.671) in the

median initial market-adjusted return of 67.1%.[6]

I adopt different robustness tests and address the endogeneity issues that could arise in the baseline analysis of the relation between unlucky listing day and IPO initial day return. The baseline result is robust when I recalculate the IPO initial return after 2013 following Jia, Ritter, Xie, and Zhang (2018), exclude IPOs with H shares, cluster the standard error at IPO listing days, and exclude samples in the SARS and financial crisis periods.

Although the reverse causality that IPO initial returns affect unlucky listing dates is not a concern in this setting, it is likely that selection of listing on an unlucky day and IPO initial returns are both correlated with some omitted variables. To mitigate the potential endogenous concern about omitted variables, first, I control for year, month, and day of week fixed effects, as well as some time-invariant factors. Second, I conduct three placebo tests by using three different *pseudo* unlucky dates. These sanity tests verify that the baseline result is not a coincidence. The first *pseudo* date is defined according to a randomly assigned date. Specifically, I count the number of unlucky dates each year and randomly assign the same number of counterfactual unlucky dates. The second *pseudo* date is defined as the same date next month. The third *pseudo* date is defined as the last date of the listing day. I find that the IPO initial return on the *pseudo* unlucky date is not significantly different from that on other days across three different designs. Further, to control for the unobservable omitted variable, I adopt a Heckman selection model. By using the total number of unlucky days at the listing month as the exclusion restriction variable, I estimate a first-stage probit model predicting the likelihood of the IPO listing on an unlucky day by adding the instrument variable in the first stage (Certo, Busenbark, Woo, and Semadeni, 2016). In the second stage, I add the inverse mill ratio and re-examine the baseline model. I find that our result is still robust. Finally, I adopt a

[6] The first-day raw return of IPOs listed on an unlucky day is, on average, 6.8% lower than that of IPOs listed on all the other days, representing a decrease of about 10.241% (-0.068/0.664) in the median first-day return of 66.4%.

propensity matching method (PSM) to mitigate the concern of the potential impact of nonlinearities because PSM does not rely on a specific functional form (Li and Prabhala, 2007). Furthermore, I test whether the mispricing caused by superstition is corrected by the market and whether firms listed on unlucky days have bad future accounting prospects. I find that there are no differences in means for covariates between the treatment and control groups in the balance check, I further use multivariate analyses to further control for any remaining characteristic imbalances between the two groups (Dehejia and Wahba 2002). I find a negative relation between unlucky listing day and IPO initial day return.

Next, I conduct several cross-sectional analyses to further the understanding of the effects of unlucky listing day and IPO initial day return. I first investigate whether the impact of unlucky listing day is affected by the risk of IPOs. Because when the investment is more risker, investors are more likely to be affected by superpower (Fisman et al., 2019). Fisman et al. (2019) find that risky investments, such as R&D and corporate acquisitions – decline in a chairman's zodiac year, and insurance purchases increases in a customer's zodiac year. I test this idea by using the pre-IPO industry ROE standard deviation, pre-IPO intangible ratio, and pre-IPO two-month market return volatility to capture investment risk (Megna, and Klock, 1993; Ragozzino and Reuer, 2011). Investment risk increases when pre-IPO industry ROE standard deviation is high, when the pre-IPO intangible ratio is high, and when the pre-IPO two-month market return volatility is high. My findings are as predicted. Across all three investment risk proxies, I find that unlucky listing day has a stronger effect in reducing IPO initial day return when the investment risk is high.

Chinese Almanac is especially prevalent among superstitious investors because they are more likely to pay attention and follow the instructions by Chinses Almanac. Hence, I expect any attenuation of IPO initial day return due to unlucky listing day to be especially pronounced for superstitious investors. To proxy for investors' level of superstition, I use the survey result

from the 2017 Chinese National Survey on people's superstitious beliefs. The mean scores for each province are calculated on the question: "Do you believe in divination, palm reading, or feng shui? (Strongly disagree = -2, disagree = -1, neutral = 0, agree = 1, strongly agree = 2)". I also use the Baidu "Huang li" searching index for each province and the total number of Buddhist temples in each province to capture investors' superstitious level. One assumption behind is that investors are more likely to buy local IPOs due to home bias (Kang, 1997; Coval and Moskowitz, 1999; Van Nieuwerburgh and Veldkamp, 2009; Schumacher, 2017). I find that my results are indeed stronger for firms located in provinces where are likely to have more superstitious investors.

I expect that if an IPO attracts a more speculative clientele or is located in a place with many speculators, the effect of superstition on IPO initial returns is more pronounced (Dennis and Strickland, 2002; Feng and Seasholes, 2005; Dhar and Zhu, 2006). I carry out additional analyses to examine whether my findings vary systematically based on the level of investor speculation. The results indicate that the unlucky day effect is also stronger for penny stocks, and firms that are located in provinces with high lottery sales.

I examine whether IPO listed on an unlucky day has a lower initial return has bad future accounting performance. By comparing the mean of one-, two- and three- year post-IPO *ROA*, *EPS*, *NI*, *ROI*, and *Sales Growth*, I find that there is no statistically significant difference between IPOs listed in unlucky days and IPOs listed on all other days in terms of all the long-run accounting performance proxies. In sum, I find that lower initial returns in the unlucky days are not driven by fundamental factors given that IPOs listed on unlucky days have similar future accounting prospects compared to IPOs listed on all the other days.

I also examine whether the market corrects this mispricing caused by unlucky listing day. I find that 1-year, 2-year, and 3-year buy-and-hold (abnormal) returns (excluding the IPO initial day return) are not significantly different from those of firms listed on all the other days. This

evidence is consistent with the view that the effect of a superstitious belief is temporary and investors correct their mispricing as the feeling of "unlucky" fades away and new information arrives. Further, I test the timing when the market correction begins. I plot the coefficients of *Unlucky* for each month. I change the dependent variable from the baseline model into buy holding return (BHR) from the offer day to the k_{th} month of post-IPO (k =1, 2…60).

My paper has several contributions to the literature. First, this paper contributes to the broader behavior finance literature (e.g. Hirshleifer and Shumway, 2003; Jacobs, and Hillert, 2016; Bernile, Bhagwat, and Rau, 2017; Beshears, Choi, Laibson, and Madrian, 2018), and more specifically to studies on the role of superstition in financial markets (e.g. Kolb and Rodriguez, 1987; Dyl, and Maberly, 1988; Fudenberg and Levine, 2006; Hirshleifer, Jian, and Zhang, 2018). This paper is closely related to the pioneering work by Hirshleifer, Jian, and Zhang (2018) (HJZ), who focus on the long-run underperformance of IPOs with lucky numbers (6, 8, or 9) in their listing codes. While HJZ find out a particular venue where firms may take advantage of naive and superstitious investors, this paper differs from theirs by focusing on the perspective of investors. As HJZ point out, it is challenging to distinguish whether the negative association between lucky numbers in listing codes and post-IPO performance is due to investors' overreaction to lucky numbers on the IPO day or due to weakly monitored firm managers exploiting unsophisticated investors on the IPO day. In this setting, managers usually do not avoid unlucky listing dates, thus making it possible to focus on the perspective of investors only. Further, as the unlucky listed date does not carry on as a lucky listing code, the effect of calendar superstition is corrected shortly after new information arrives. It is important to isolate the effect of investors' superstition from managers' superstition. More importantly, my focus is on calendar superstition—a specific kind of belief in supernatural causality. There are only very few studies focusing on calendar superstition in capital markets. Kolb and Rodriguez (1987) report that the Center for Research in Security Prices (CRSP) market returns

are lower on Friday the 13th than on other Fridays because Friday the 13th is viewed by many as an inauspicious day, but subsequent literature (Dyl, and Maberly, 1988) has not confirmed this finding. Given limited evidence and mixed evidence on calendar superstition as reference points, I provide the first attempt to show that investors make their trading decisions based on calendar superstition. I also provide some evidence related to the heterogeneity of the effect of superstition on IPO underpricing across different conditions.

This study also adds to the literature on the determinants of IPO underpricing from the aspect of informal institutions. The "Underpricing puzzle" has drawn large attention around the world (Rock, 1986; Allen and Faulhaber, 1989; Banerjee, Dai, and Shrestha, 2011; Boulton, Smart, and Zutter, 2011; Chan, Wang, and Wei, 2004; Hirshleifer, Jian, and Zhang, 2018; Chen, Goyal, Veeraraghavan, and Zolotoy, 2019). Several explanations for the underpricing phenomenon have been proposed in the literature, including information asymmetry (Rock, 1986), signaling (Allen and Faulhaber, 1989), and investor attention (Da, Engelberg, and Gao, 2011). Researchers have worked to explain why initial public offerings (IPOs) are underpriced and many of the determinants are formal institutions, including ownership structure (Chen, Wang, Li, Sun, and Tong, 2015) and political connections (Chen, Guan, Zhang, and Zhao, 2017). Studies on informal institutions show that trust (Li, Wang, and Wang, 2019) and lucky numbers (Hirshleifer, Jian, and Zhang, 2018) can also affect IPO pricing. This study firstly recognizes the unlucky listing day as a pricing factor in the IPO market.

The paper proceeds as follows. The next section introduces the background of the regulatory rule governing the listing date in the China IPO market, Chinese Almanac, and hypothesis development. In section 3, I discuss the sample, research design, and summary statistics. Section 4 provides the empirical results on the relation between unlucky listing day and IPO initial returns, and some robustness checks. Section 5 conducts several endogeneity tests. Section 6 provides several cross-sectional analyses. Section 7 includes several additional

tests. For example. I examine whether IPOs listed on unlucky dates have bad future accounting performance and whether managers avoid listing on an unlucky day. Section 8 concludes.

CHAPTER 2. INSTITUTIONAL BACKGROUND AND HYPOTHESIS

2.1 The Chinese Almanac

The Chinese Almanac, also known as the "Huang Li", contains daily predictions of which days are auspicious or inauspicious for a wide range of activities (See the examples of the Almanac calendar in Appendix C). The information in the "Huang Li" involves complex systems of calculation. It would require an expert in "Huang Li" studies to explain the intricacies. The calculations for the Chinese Almanac are based on the traditional "Feng Shui" principles of heavenly branches and earthly stems. Monthly lunar and solar cycles jointly determine the best time to plant and harvest crops. The system is more complicated than just using the stem and branch, and some of the calculations follow lunar mansions and other forms of divination theories. The Chinese regard the Chinese Almanac as an indispensable aid to daily planning. Today, it is still widely used by many giant corporations in the selection of appropriate days for almost every important activity, such as groundbreaking ceremonies, signing new agreements, launching of new products, opening a new office, holding wedding ceremonies, and moving houses. For example, on May 17, 2017 (a lucky day), four listed companies (000557, 000615, 600136, and 000557) chose to change their companies' names on the same day.[7]

People can know the unlucky days for any given date in advance and the inauspicious calendar does not depend on personal characteristics and is time-invariant. The number of unlucky days fluctuates from year to year. To determine the unlucky day, I use the advice for items that nothing is suitable (In Chinese 诸事不宜). However, there is no advice in "Huang Li" that suggests a lucky day for "everything suitable". This is why I only focus on days of "nothing suitable". More importantly, "nothing suitable" is the most important guidance to

[7] *Investment Express* (May 26, 2016). Lucky day? Four listed companies change their company names on the same day. Retrieved from http://stock.eastmoney.com/news/1406,20160526627419786.html.

which people pay attention because this day is the worst day for investment. Another reason why I focus on days of "nothing suitable" rather than other business-related guidance is that there is no stock market in ancient times until recent years. Thus, it is difficult to classify the business-related guidance on financial decision-making in stock trading activities.

2.2 The selection of IPO listing date

The Initial Public Offering (IPO) refers to the process that a previously private company sells new or existing securities to the public for the first time. In China, an IPO can list on either the Shanghai Stock Exchange (the "SHSE") or Shenzhen Stock Exchange (the "SZSE") but it requires the approval of the CSRC (the Chinese equivalence of the U.S. SEC).

There are three key dates for Chinese IPOs: the filing date, the offer date, and the listing date. In practice, applicants may face long waiting periods from application to the listing day (sometimes two to three years or even more), due to the administrative backlog and repeated requests for information from the CSRC (Yang and Bin, 2018). IPO listing date is decided by both the issuer and the exchange, but the listing date should be within seven working days after the issuance of the shares. According to the Shanghai Stock Exchange's Initial Public Offerings and Issuance Guidelines (revised in 2017), "under normal circumstances, new shares are scheduled to be listed within seven working days after the issuance of the shares (in case of major events, the situation shall be postponed)." Shenzhen Stock Exchange's Listing Rules (Amendment of 2014) stipulate that "the decision of whether or not to approve the listing shall be made within seven trading days after receiving the full set of listing application documents. In the event of special circumstances, the Stock Exchange may suspend the decision." Although the listing date is decided through communication between managers of the listing firm and the CSRC according to the regulation, in reality, managers do not change the listing date because it is an unlucky date, as some experts working on the IPO application process claimed in my interviews with them.

2.3 Hypothesis development

2.3.1 The relation between unlucky listing day and IPO initial day return

In this thesis, I argue that concerns over investment on IPO listed on an unlucky day potentially affect investor's trading decisions. People by nature are risk-averse and often draw on advantages and avoid disadvantages (Kahneman and Tversky, 1979). Most traditional models are based on the assumption that individuals can obtain all of the available information and process information rationally to maximize utility. However, recent research suggests that psychological factors cause investors to deviate from rational strategies. Behavioral literature shows that time-varying mood and emotions affect stock prices (Hirshleifer and Shumway, 2003; Edmans, Garcia, and Norli, 2007; Goetzmann, Kim, Kumar, and Wang, 2014). These factors are in different forms, including overconfidence (Barber and Odean 2000; Daniel, Hirshleifer, and Subrahmanyam, 2001; Kuo and Lin, 2013), cognitive limitations (Grinblatt, Keloharju, and Linnainmaa, 2012; Kuo, Lin, and Zhao, 2015), limited attention (Klibanoff, Lamont and Wizman, 1998; Cohen and Lou, 2012; Gargano and Rossi, 2018; Bui, Lin, and Lin, 2018), individualism (Eun, Wang, and Xiao, 2015), culture (Niessen-Ruenzi, and Spalt, 2015), and numerological superstition (Hirshleifer, Jian, and Zhang, 2018; Bhattacharya, Kuo, Lin, and Zhao, 2018).

Superstition is one kind of psychological factors and previous studies provide evidence that investors are affected by different kinds of psychological bias. Superstition belongs to folk-economic beliefs, which constitute an understanding of how the world works—internal representation of external reality (Denzau and North, 1994; Hoff and Stiglitz, 2016; Shiller 2017, 2020). Many distinguished scholars believe that folk-economic beliefs are key drivers of human behavior (Hirshleifer, 2020). People often use superstition when processing information and making decisions (Fudenberg and Levine, 2006). Block and Kramer (2009) indicate that Taiwanese consumers make purchase decisions according to positive superstitious associations

based on product's "lucky" color and "lucky" number of units although the decision runs counter to economic rationality. Jiang, Cho, and Adaval (2009) find that participant's perception of the chances of winning a lottery changes when they are exposed to lucky or unlucky related concepts. Fisman et al. (2019) find that risky investments, such as R&D and corporate acquisitions – decline in a chairman's zodiac year, and insurance purchases increases in a customer's zodiac year. Similarly, Hirshleifer, Jian, and Zhang (2018) show that firm with lucky listing code has a high long-run IPO performance. Besides, there are also many anecdotal pieces of evidence supporting the argument that superstition affects financial decisions. For example, in 2003-04, an additional taboo day was associated with a decrease of 6 percent in per capita consumption and a decrease of 5 percent in rice productivity.[8] Even in modern times, many people believe in lucky and unlucky signals (Melamed and Tamarkin, 1996; Burger and Lynn, 2005). Superstitious beliefs persist if they are not exposed as untrue (Fudenberg and Levine, 2006). Risen (2016) argues that even if people recognize that their magical thinking does not make sense, people (even smart, and educated individuals) may still believe in the superstition. Sometimes, if there is always some chance of a bad outcome when following superstition and some chance of a good outcome when not following superstition, the individual might never realize that the belief is untrue, and persists in the superstition.

For firms listed on unlucky days, investors may tend to believe that there is a high probability of bad outcomes in an unlucky day and thus reduce the demand for the newly issued shares. Investors may assess investment in IPOs listed on unlucky days as high risk. Kolb and Rodriguez (1987) report that the Center for Research in Security Prices (CRSP) market returns are lower on Friday the 13th than on other Fridays because Friday the 13th is viewed by many as an inauspicious day. Ritter (1984) shows that the initial day return of IPOs is lower if

[8] People are prone to superstition—daily newspapers publish horoscopes to guide their readers, most high-rise U.S. hotels skip "13" in numbering their floors (*USA Today*, 2007), and experimental subjects behaved more cautiously in making decisions on Friday the thirteenth as compared with Tuesday the nineteenth (Kramer and Block, 2008).

investors' risk perception of IPOs is high. Investors express their concern that stock price will decline dramatically at unlucky day according to the Chinese Almanac and people should sell their stock. Due to the rising concern of high investment risk in the unlucky listing day, the supply side of IPO shares increases, and the demand side of IPO shares decreases. Therefore, I propose the first hypothesis in this thesis as follow:

Hypothesis 1: All else being equal, firms listed on unlucky days have lower initial returns.

However, it is likely that investors do not care about the unlucky listing day because trading decision is highly frequent and they can correct their superstition bias through time to time. Moreover, the IPO market is highly profitable in China, investors will care less about superstition due to high trading profits (Ke, Chen, Lin, and Liu, 2017). Further, there are more and more educated investors who participate in the financial market and knowledgable investors are more critical towards superstition (Barro and McCleary, 2002; Pelzer, 2003).

2.3.2 The effect of investment risk

My primary hypothesis posits investor's propensity to invest IPO to be lower when IPO listed on an unlucky day. I conjecture that when investors have more information regarding the underlying asset value, the degree of uncertainty/risk decreases. Accordingly, the influence of superstition on the stock prices will decrease. Using investor-level data, Kumar (2009) show that investors are more prone to subject to behavioral bias and investment mistakes when risk or uncertainty is high, and when stocks value are hard to justify. Investors are less likely to consider superstition when they are more certain to earn money. Similary, Whitson and Galinsky (2008) indicate that when times are economically uncertain and risky, the impact of how much impact superstition has on people increases. People avoid risky investments more when primed with unlucky day, especially under conditions of high risk (Kramer and Block, 2008). Thus, the effect of superstition becomes more significant in an uncertain/high-risk status. This indicates that higher investment risk amplifies the effect of unlucky listing day on IPO

underpricing. I phrase this prediction as our second hypothesis.

Hypothesis 2: The relation between unlucky listing days and IPO underpricing is more salient when investors' risk perception is higher.

2.3.3 The effect of investors' superstition intensity

The rationale for the effect of superstition is rooted in the assumption that some investors believe in Chinese Almanac and follow its instructions. The effectiveness of superstition is a function of investors' superstition level. Having a stronger belief in superstition goes in line with the intensive usage of Chinses Almanac. For IPO firms in regions with a highly superstitious environment and with a high proportion of superstitious investors, investors are more likely to be affected by unlucky listing days according to the home bias theory (Kang, 1997; Coval and Moskowitz, 1999; Van Nieuwerburgh and Veldkamp, 2009; Schumacher, 2017). I expect that the effect of unlucky listing day is stronger when investors' superstition intensity is high. This leads to my third hypothesis.

Hypothesis 3: The relation between unlucky listing days and IPO underpricing is more salient when investors are more superstitious.

CHAPTER 3. DATA AND SUMMARY STATISTICS

3.1 Sample formation

I first collect unlucky dates from the Chinese Almanac using web crawler technology from http://www.laohuangli.net/. Financial data from the China Stock Market & Accounting Research (CSMAR) database. CSMAR is a leading database in China and is widely used in academic research (e.g., Lennox, Wu, and Zhang, 2016; Liu, Shu, and Wei, 2017; Chen, Ke, Wu, and Yang, 2018; Liu, Stambaugh, and Yuan, 2019). After eliminating missing data, I end up obtaining 1,799 IPOs between 1996 and 2012. The sample period begins in 1996 because there was no IPO listed on an unlucky day before 1996, and it ends in 2012 because after 2012, the IPO initial return is capped at 44%. To mitigate the effect of potential outliers, I winsorize all continuous variables by removing both the upper and lower 1 percentiles.

3.2 Research design

To test how superstition affects IPO initial returns, I employ the regression model as follows:

$$\begin{aligned} IPO\ Initial\ Return_{it} = {} & \beta_0 + \beta_1 Unlucky_{it} + \beta_2\ Lottery_{it} + \beta_3\ Ln\ Issue_{it} + \beta_4\ Lagday_{it} \\ & + \beta_5\ Overhang_{it} + \beta_6\ FirmSize_{it} + \beta_7\ FirmAge_{it} + \beta_8\ ROE_{it} \\ & + \beta_9\ Ln\ Leverage_{it} + \beta_{10}\ Top1\_state_{it} + \beta_{11} Turnover_{it} \\ & + \beta_{12}\ Market\ Return_{it} + \beta_{13}\ SD\ Return_{it} + YearFE + MonthFE \\ & + WeekFE + \mathcal{E}_{it} \end{aligned} \quad (1)$$

Following prior studies (e.g., Ellul and Pagano, 2006; Ljungqvist, 2007; Colak, Durnev, and Qian, 2017), I calculate the *IPO Initial Return*$_{it}$ as (first-day closing price – offer price)/offer price. I also use the IPO market-adjusted initial return, calculated as (first-day closing price –offer price)/offer price – (M1−M0)/M0, where M1 is the market price at the listing date and M0 is the market closing price at the offering date.

The main explanatory variable of interest is *Unlucky.* In constructing this variable, I collect the Chinese Almanac and extract all the days containing the most inauspicious meaning: nothing suitable (in Chinese "诸事不宜"). I measure *Unlucky* as a dummy variable equal to 1 if the firm was listed on a date that "nothing is suitable", and 0 otherwise. I focus on *Unlucky* rather than *Lucky* because there are no exact expressions for "everything is suitable" in the Chinese Almanac. Other categories, such as holding weddings or funerals and buying livestock/poultry, are not directly related to stock trading.

Following existing research (e.g., Ellul and Pagano, 2006; Boulton, Smart, and, Zutter 2010; Lin, Pukthuanthong, and Walker, 2013; Hirshleifer, Jian, and Zhang, 2018; Boulton, Smart, and Zutter, 2011; Colak, Durnev, and Qian, 2017), I control for deal-specific variables, some firm characteristics, and market conditions. *Lottery* is the lottery ratio of IPO allocation. *Ln Issue* is measured as the logarithm of the number of outstanding shares measured in millions (Su, and Fleisher, 1999; Chan, Wang, and Wei, 2004; Chi and Padgett, 2005). *Lagday* is the number of days between the IPO offering date and the listing date. The time lag between offering and listing is a relevant factor in explaining initial returns in prior studies (Mok and Hui, 1998; Su and Fleisher, 1999; Chan, Wang, and Wei, 2004). *Overhang* is measured as the number of pre-IPO shares owned by the owners divided by the total number of outstanding shares after the IPO. *FirmSize* is the natural logarithm of total assets, measured at the time of the IPO (Field and Karpoff, 2002). *FirmAge* is the number of years since the firm was founded, measured at the time of the IPO (Loughran and Ritter, 1995). *ROE* is the firm's return on equity, calculated by dividing net income by shareholders' equity for the latest fiscal year before the IPO. *Ln_Leverage* is the firm's total debt (short-term debt plus long-term liabilities due within one year plus long-term debt) divided by its total assets for the latest fiscal year before the IPO. *Top1_state* is a dummy variable that equals 1 if the firm's largest direct shareholder is a state-owned asset management bureau/company, and 0 otherwise (Chen et al., 2015). *Turnover* is

the first-day stock trading volume as a percentage of total tradable shares. *Market Return* is the cumulative return of market index in the three months leading up to the offer day. *SD Return* is the standard deviation of first-year post-IPO returns, defined as trading day +6 to trading day +260 relative to the IPO (Lowry and Shu, 2002). Moreover, I include year, month, and day of the week fixed effects, and adopt a two-way cluster at both year and month levels.

3.3 Sample distribution of IPO initial return

In this section, I would like to understand the pattern of the distribution of IPO initial returns by year, month, and day of the week. Panels A and B of Table 1 present the sample distribution of IPO initial raw returns and market-adjusted returns by unlucky days and all the other days across each year, month, and week, respectively. In the year distribution of *IR_r*, during the period 1996–2012, there are 10 years in which the initial raw return of IPOs listed on unlucky dates is lower than that of IPOs listed on all the other dates. In 2003, the initial raw return of unlucky IPOs is significantly higher than that of IPOs listed on all the other days. One possible explanation is that the SARS epidemic caused a huge decrease in market return since June 2003. In the month distribution of *IR_r*, I find that from January to December, IPOs listed on unlucky days see the lowest initial return in September and the highest initial return in August. The return gap between unlucky and all the other days is largest in April, followed by September. In the day of week distribution of *IR_r*, I find that unlucky IPOs have the highest return on Mondays, followed by Wednesdays. As for the IPO initial market-adjusted return, the results are very similar to the distribution of IPO initial raw returns. To save space, I do not discuss it in the text. Overall, most of the time, the initial return of unlucky IPOs is lower than that of IPOs listed on all the other days. There is no clear pattern found in the distribution of initial return across each year, month, and day of the week, implying that unlucky day is exogenous.

[Table 1 Here]

3.4 Summary statistics and correlation table

Table 2 shows the summary statistics and correlation table for the sample used in the baseline regression. In Panel A, I find that the average initial raw return is 0.882, and the mean of the initial market-adjusted return is 0.878. A high average initial return in China is in line with prior studies on Chinese IPOs (e.g., Tian, 2011; Chen et al., 2015; Feng and Johansson, 2015). Tian (2011) points to regulatory intervention in IPO pricing and government control of IPO share supplies as potential drivers of high initial returns of Chinese IPOs. There are a total of 1,799 IPOs in the sample, of which 282 IPOs listed on an unlucky day.

Upon the time of listing, the average IPO firm in the sample has *FirmAge* of 3.711, and *ROE* of 25.910, indicating that IPO firms on average go public after 4 years of establishment and have a higher return on equity. These statistics are comparable with those of prior studies (e.g., Feng and Johansson, 2015; Hirshleifer, Jian, and Zhang, 2018). The highest Variance Inflation Factor (VIF) among the explanatory variables (untabulated) is 1.47, which is well below the commonly used threshold of 5 (O'Brien 2007), suggesting that multicollinearity is not a concern in the analysis.

I commence the analysis with the Pearson correlation matrix for the main variables of interest used in our regression models. Panel B of Table 2 shows the pairwise correlation table. *Unlucky* and IPO initial returns are negatively correlated with each other, -0.075 for the initial raw return and -0.071 for the initial market-adjusted return at the 5% significance level.

[Table 2 Here]

3.5 Univariate t-test

Table 3 provides a univariate t-test comparing the initial return and IPO characteristics of IPOs listed on unlucky days and all the other days. I have two objectives here. First, I investigate whether firms listed on an unlucky date have a lower initial return than IPOs listed on all the other dates. Second, I investigate whether there are differences in other characteristics

between IPOs listed on unlucky days and those on all the other days. I find statistically significant differences in both IPO initial raw and market-adjusted return between IPOs listed on unlucky days and those on all the other days. Specifically, the raw initial market return, *IR_r*, averages 0.731 for firms listed on an unlucky date, and 0.910 for firms listed on all the other days, indicating an IPO initial raw return gap of 17.8%. Similarly, the raw initial market return, *IR_a*, averages 0.739 for firms listed on an unlucky date, and 0.904 for firms listed on all the other days, indicating an IPO initial market-adjusted return difference of 16.5%. In terms of IPO characteristics, there are statistical differences between IPOs listed on unlucky days and those on all other days in terms of *ROE*, *Top1 state*, and *SD Return.* Other controls do not show statistical differences between these two groups. Overall, these results provide preliminary pieces of evidence on the negative relation between unlucky days and IPO initial returns.

[Table 3 Here]

CHAPTER 4. SUPERSTITION AND IPO INITIAL RETURN

4.1 Baseline regression

Previously, I find that unlucky listing day is negatively related to IPO raw/market-adjusted initial returns using both correlation matrix and univariate t-test. I explore whether this phenomenon persists in a multivariate framework. Table 4 reports the result of the baseline regression testing the effect of superstition on IPO initial returns. From model (1) to model (2), the dependent variable is the initial raw return (*IR_r*), and from model (3) to model (4), the dependent variable is the initial market-adjusted return (*IR_a*). In column 1 of Table 4, the significant and negative coefficient of *Unlucky* suggests that superstitious beliefs in *Unlucky* lead to a decrease in IPO initial returns by controlling fixed effect only. Similarly, column 2 shows that the coefficient on *Unlucky* is negative and statistically significant ($p<0.01$) after controlling for all the controls, and year, month, and day of week fixed effects. In terms of economic magnitude, the coefficient of *Unlucky* in column (2) suggests that if the firm is listed on an unlucky date, the initial raw return is decreased by roughly 6.8%, representing a decrease of about 10.241% (-0.068/0.664) in the median initial raw return of 66.4%. Similarly, column (4) suggests that the initial market-adjusted return of IPOs listed on an unlucky day is, on average, 6.3% lower than that of IPOs listed on all the other days, representing a decrease of about 9.389% (-0.063/0.671) in the median initial market-adjusted return of 67.1%. Hence, I conclude that the effect of superstition on IPO initial returns is not only statistically significant but also economically meaningful.

The coefficients of the control variables are generally consistent with those reported in the literature (e.g., Ellul and Pagano, 2006; Boulton, Smart, and Zutter, 2010; Doidge, Karolyi, and Stulz, 2013; Hirshleifer, Jian, and Zhang, 2018; Colak, Durnev, and Qian, 2017). As for deal-specific characteristics, I control for the lottery ratio of IPO allocation, issuing size, lag of day, and overhang (Ritter, 1991; Mok and Hui, 1998; Ritter, 2002; Chi and Padgett, 2005).

Overhang is significantly positively related to IPO initial returns. A high number of shares offered relative to the number of existing shares (i.e., low overhang) implies that dilution costs are very high and the IPO initial return is positively related to overhang (Bradley and Jordan, 2002). China's investors usually bid for IPO shares with a high retention rate, leading to higher initial returns. Consistent with previous studies, I find similar evidence that the lottery rate is negatively related to IPO returns. As for issuing size, underwriters have less information about smaller offerings and have more difficulties in valuing such issues (Ritter, 1991; Carter, Dark, and Singh, 1998). Thus *Lagday* is positively related to IPO initial returns. The logic is that the longer the time lag, the more valuation uncertainty is involved, and thus greater underpricing is required as compensation on average (Mok and Hui, 1998). Ritter (2002) concludes that the longer the time that elapses between the setting of an offer price and the beginning of trading, the higher is the probability that market conditions will deteriorate and the offering will fail. To reduce the probability of a failed offering, a lower offer price is set and the higher initial return is obtained. I argue that the CSRC decides the annual quota of IPOs, IPO offering dates, and listing dates. In particular, the CSRC selects the listing dates when the market performs soundly. The longer the time elapses, the greater the chances that the IPO shares have high first-day returns.

As for firm characteristics, I control for firm size, firm age, return on equity, leverage ratio, state-owned dummy, and the largest ownership (Chen et al. 2015; Boulton, Smart, and Zutter 2010). *FirmSize* is significantly negatively related to IPO initial returns because of uncertainties in small firms (e.g., Baron, 1982; Rock, 1986; Beatty and Ritter, 1986; Carter and Manaster, 1990; Megginson and Weiss, 1991). *FirmAge* is significantly negatively related to IPO underpricing because young firms usually face high levels of information asymmetry. Young firms' returns tend to be more positively skewed than older firms' returns. *ROE* is significantly negatively related to IPO initial returns because the more profitable firm is less risky and has

less underpricing. Similarly, a highly leveraged firm is a high-risk firm and suffers higher underpricing. As for *Top1_state*, state owners focus more on wealth gain after the IPO, and positive relationships imply the wealth maximization hypothesis.

As for market conditions, I control for *Turnover*, *Market Return*, and *SD Return*. If the market return is higher, the initial return tends to be higher too. The rationale behind is that when the market return is high, more investors participate in the "hot" markets and issuers can sell their stocks at will and get 'reasonable' prices (e.g., Logue, 1973; Hanley, 1993; Loughran and Ritter, 2002; Loughran and Ritter, 2004; Lowry and Schwert, 2004). *Turnover* is an adequate indicator of individual investor behavior since China's market is still largely driven by individual investors. Ofek and Richardson (2003) show that high initial returns occur when institutions sell IPO shares to retail investors on the first day. I control for the standard deviation of first-year post-IPO returns, defined as trading day +6 to trading day +260 relative to the IPO (Carter et al. 1998; Lowry and Shu, 2002). The coefficient of *Turnover* is positively significant, and the signs of all other variables are consistent with previous literature. Although some of the controls are not statistically significant, their signs are consistent with the prediction.

[Table 4 Here]

4.2 Robustness check

4.2.1 Recalculating IPO initial return after 2013

To ensure the robustness of the findings, I do several robustness checks. In my baseline regression, the sample ends in 2012 due to the price cap. Previously, for IPOs after 2013 (inclusive), the price increase of an IPO is capped at 44% and at 10% afterward (this 10% cap applies to all seasoned stocks), so I restrict the sample period to before 2013. As a robustness check, I use a new proxy for the initial return according to Jia, Ritter, Xie, and Zhang (2018) to recalculate the initial return after 2013. I track each IPO until the day when its price increase is no longer subject to the price cap, and the market closing price on that day is used as the

ending price for initial returns.[9] In columns (1) and (2) of Table 5, I extend the sample period to 2017. I find that the baseline results are robust for both treatments.

4.2.2 Excluding IPOs with H shares

Further, I exclude IPOs with H shares because these firms may leak IPO information in the other markets already. And as those firms are usually large, I want to make sure that the results are not driven by those firms. In columns (3) and (4) of Table 5, I find that the coefficients of *Unlucky* are negative and significantly related to the initial return. The conclusion is unaffected by this change.

4.2.3 Clustering the standard error at IPO listing date

In the baseline test, I assume that the distribution of the error term is clustered at the year and month levels. However, it is possible that IPOs listed on the same day are mutually determined by some omitted variables. If the standard errors for the same-date IPOs are auto-correlated, the standard error will be underestimated. As a robust test, I assume that the standard error is correlated in certain groups/clusters, such as at the same date. Thus, I cluster the baseline regression on the basis of the listing date. In columns (5) and (6) of Table 5, the coefficients of *unlucky* are negative and significantly related to the initial return, implying that the results are still robust by clustering at the listing date.

4.2.4 Excluding sample in the SARS period or financial crisis period

During the SARS period and financial crisis period, the China stock market return saw a dramatic decrease and high volatility. To ensure that the results are not driven by these special periods, I exclude 2003 (SARS) and 2008 (financial crisis period) in columns (7)-(8) and columns (9)-(10) of Table 5, respectively. I find that results are still robust and the coefficients

[9] The longest time for an IPO to be no longer subject to the price cap is 30 trading days.

of *Unlucky* are statistically significant and negatively related to IPO initial returns.

[Table 5 Here]

CHAPTER 5. ENDOGENEITY TESTS

5.1 Placebo tests

The main objective of this section is to address the endogeneity concern. It is still doubtful whether the relation between unlucky and IPO initial return is indeed causal. Although reversal causality is not a concern in this setting because IPO initial returns cannot affect the Chinese Almanac, omitted variables that affect both the selection of unlucky listing dates and IPO initial returns may bias the findings.

To ensure the exclusive explanation for the effect of superstition on IPO initial returns, this paper uses three placebo tests. First, I begin by counting how many unlucky dates for each year and randomly assigning the number of counterfactual unlucky dates to the other day. I then define a *pseudo unlucky* IPO listing date according to this randomly assigned date. Second, I assign the same date in the next month of the IPO listing date as the *pseudo unlucky* date. Third, I define the *pseudo unlucky* date as the last listing date. If superstition is indeed what drives IPO initial returns, then I predict that statistically significant effect on *pseudo unlucky* dates should not be observed. In Table 6, I find that the estimated coefficients on *pseudo unlucky* are not significant across all dependent variables measuring IPO initial returns.[10] Overall, I show that unlucky listing day is not a consequence of coincidence by using different placebo tests.

[Table 6 Here]

5.2 Propensity score matching

I employ the propensity score matching procedure which allows me to identify a control sample of firms listed on unlucky days exhibiting no *observable* differences in characteristics relative to the firms listed on all the other days. Thus, each pair of matched firms is virtually

[10] Moreover, in untabulated results, the random assignment tests are conducted 1,000 times, and the coefficients are statistically different from the baseline coefficient.

indistinguishable from one another except for one key characteristic: the listing date of the IPO. Matching based on other observable characteristics mitigates (but does not eliminate) concerns related to non-random selection. The main advantage of the propensity matching method is that this method does not rely on a specific functional form and mitigates the concern of the potential impact of nonlinearities (Li and Prabhala, 2007).

To implement this methodology, I first calculate the probability (i.e., the propensity score) that a firm with given characteristics is listed on an unlucky day. I start by calculating this probability as a function of control variables. The propensity score is estimated as a function of all the controls in the baseline regression and the year fixed effect. I identify a subsample of approximately 408 observations. Panels A and B of Table 6 show the univariate t-test for the matched sample and regression results, respectively. In Panel A of Table 6, there are no significant differences in IPO characteristics between the two groups (unlucky vs. all other IPOs), which assures the success of the propensity matching process. I further use multivariate analyses to further control for any remaining characteristic imbalances between the two groups (Dehejia and Wahba 2002). In Panel B of Table 6, I find that the estimated coefficients of *Unlucky* are -0.105, and -0.100 at the 5% level. Overall, the coefficients on *Unlucky* are significantly negative in both columns (1) and (2), supporting the main hypothesis that *Unlucky* is negatively associated with IPO initial returns.

[Table 7 Here]

5.3 Heckman selection

The CSRC decides the annual quota of IPOs depending on the market performance. As a result, the sample is not a result of random selection. To control for the unobservable omitted variable related to the selection issue, I adopt a Heckman two-stage model. In the first stage, I estimate a probit model predicting the likelihood of the IPO listing on an unlucky day by adding the instrument variable (Certo, Busenbark, Woo, and Semadeni, 2016). The instrument variable

is the total number of unlucky days in the listing month. The total number of unlucky days affects the IPO initial return only through affecting the supply of the unlucky listing day. This instrument, thus, severs as a good exclusion restriction variable. In the second stage, I add the inverse mill ratio and re-examine the baseline model.

Table 8 shows the result of the Heckman two-stage regression. In column (1), the dependent variable is *Unlucky*. I include *Lottery*, *Lagday*, *Overhang*, *FirmSize*, *FirmAge*, *ROE*, *Ln_Leverage*, *Top1_state*, *Turnover*, *Market Return*, and *SD Return*. I include the year, month, and day of the week fixed effects. As predicted, I find that the coefficient of *Number of Unlucky days in the listed month* is statistically significantly positive (coeff= 0.198, t=9.02), implying that this instrument is not weak. In contrast, other controls have very limited explanatory power for unlucky listing days. These results indicate that the selection of unlucky listing day is exogenous and not related to firm characteristics. In the second stage, I run OLS regressions and include the inverse Mills' ratio (*Lambda*) which is obtained from the first stage. The dependent variables in columns (2) and (3) are *initial raw return* and *initial market-adjusted return*, respectively. I find that the estimated coefficients of *Unlucky* are -0.066, and -0.062 at the 5% level. Overall, the coefficients on *Unlucky* are significantly negative, supporting the main hypothesis that superstition is negatively associated with IPO initial returns.

[Table 8 Here]

CHAPTER 6. CROSS-SECTIONAL TESTS

6.1 The role of investment risk

The primary hypothesis posits investor's propensity to buy IPO shares on the initial day is lower when the IPO is listed on an unlucky day because investors are concerned about the risk of their investment outcome. In H2, I conjecture that higher investment risk amplifies the effect of superstition. Prior literature indicates that when uncertainty/risk is high, investors are more likely to be subjected to behavior bias and more likely to consider superstition (Whitson and Galinsky, 2008; Kramer and Block, 2008; Kumar, 2009). Thus, I expect that if the firm's risk is lower, the impact of unlucky listing dates on IPO initial returns should be attenuated. I use pre-IPO industry ROE standard deviation,[11] intangible ratio, and pre-IPO two-month market return volatility to measure the perception of investment risk (Megna, and Klock, 1993; Ragozzino and Reuer, 2011). The results are presented in Table 9, the coefficient on *Unlucky* is negative and statistically significant for the high-risk group but not for the low-risk group. Namely, the relation between unlucky listing days and IPO underpricing is more salient when investors' risk perception is higher. Thus, Hypothesis 2 is supported. Overall, Table 9 provides evidence that the effect of unlucky days on IPO initial returns is stronger for high-risk firms.

[Table 9 Here]

6.2 The level of investors' superstition

My baseline result shows that superstition affects investors' risk perception and investment decisions. In the baseline test, I have a hinted assumption that some investors believe in Chinese Almanac and follow its instructions. To test the mechanism, I directly test how the relation between unlucky listing day and IPO initial day return varies with the degree of investor's

[11] Specifically, to capture industry-wide uncertainty, we use the standard deviation of the ROE of firms in the same industry one year before a firm's IPO. More uniformly distributed industry-wide profitability may indicate less uncertainty, while more heterogeneous performances will make information more important to investors.

superstition level. If investor superstition indeed causes lower IPO initial return, then the baseline results should be stronger when the extent of superstition is prevalent within the local population.

Since I cannot directly observe the level of people's superstition, I use different data sources to construct the proxy for investors' level of superstition. The first one is the survey result from the 2017 Chinese National Survey Data Archive,[12] and another one is the Baidu "Huang li" searching index across different provinces in China.[13] To proxy for investors' level of superstition, I use the survey result from the 2017 Chinese National Survey on people's superstitious beliefs. The mean scores for each province are calculated on the question: "Do you believe in divination, palm reading, or feng shui? (Strongly disagree = -2, disagree = -1, neutral = 0, agree = 1, strongly agree = 2)". I also use the Baidu "Huang li" searching index for each province and the total number of Buddhist temples in each province to capture investors' superstitious level. The intuition behind is that investors are more likely to buy local IPOs due to home bias (Kang, 1997; Coval and Moskowitz, 1999; Van Nieuwerburgh and Veldkamp, 2009; Schumacher, 2017), and if local investors are more superstitious, the effect of superstition on IPO initial returns is more pronounced.[14]

I estimate the main regression on two categories of IPOs, that is, IPOs located in more superstitious provinces and those located in less superstitious provinces. In Panel A of Table 10, I differentiate the high superstitious group if an IPO firm is located in a province that belongs to the top 10 based on the superstition scores calculated from one of the questions

[12] Chinese National Survey Data Archive. Website address: http://www.cnsda.org/index.php?r=projects/view&id=69084413

[13] Website address: http://index.baidu.com/v2/main/index.html#/crowd/%E9%BB%84%E5%8E%86?words=%E9%BB%84%E5%8E%86

[14] I acknowledge that the investor base for each IPO may comprise different places and cannot fully capture the local people's perception of superstition in each province.

related to the superstition perception in the 2017 Chinese National Survey.[15] In Panel B of Table 10, I use the Baidu "Huang li" searching index. I define a province as highly superstitious if the province's search volume is among the top 10. The last one is the total number of Buddhist temples. I use the median high and median low to cut off the sample and find that the effect of unlucky days is more pronounced if an IPO is located in a province with a high level of superstition among investors. As we expect, the estimated coefficient of *Unlucky* is negative and significant only for firms headquartered in a region with a high superstitious level both in the *IR_r* and *IR_a* equations. In summation, the results in Table 10 confirm hypothesis 3 that the relation between unlucky listing days and IPO underpricing is more salient when investors are more superstitious.

[Table 10 Here]

[15] Do you believe in divination, palm reading, or Feng Shui? (Strongly disagree = -2, disagree = -1, neutral = 0, agree = 1, strongly agree = 2).

CHAPTER 7. ADDITIONAL ANALYSIS

7.1 Comparison of the expected and actual proportion of unlucky days

In Section 2, I discuss the institutional background of selecting an IPO listing date. I find that an IPO firm has a short window (within seven days after CSRC gives the listing permission) to choose the IPO listing date, and managers do not avoid listing on an unlucky date according to my filed interviews. Besides, in the first stage of the Heckman two-stage model, firm characteristics are not statistically significantly related to the decision of the unlucky listing day, which further managers do not avoid listing on an unlucky day. In this section, I want to further check whether managers avoid an unlucky listing date by comparing the expected proportion of unlucky IPOs and the actual proportion of unlucky IPOs. I calculate the expected proportion of unlucky IPOs as the number of unlucky trading days divided by the total number of trading days. I calculate the actual proportion of unlucky IPOs as the total number of IPOs listed on an unlucky date divided by the total number of IPOs.

Column 1 of Table 11 shows the number of trading days and column 2 shows the expected proportion of unlucky trading days for each year. The year 2005 has the lowest proportion of unlucky days (1.24%), while the year 2011 has the highest proportion of unlucky days (20.90%), followed by the year 1999 (18.41%). There is no clear time trend in the distribution of percentages of unlucky days over the sample period. In columns 3 and 4, I present the total number of IPOs and the proportion of unlucky IPOs over the total number of IPOs. In history, regulators would freeze IPOs to stop the rapid stock market decline.[16] The big drop in the

[16] The Chinese regulators suspended the IPO process nine times. The First time: July 1994–December 1994, empty window period: 5 months; The second time: January 1995–June 1995, empty window period: 5 months; The third time: July 1995–January 1996, empty window period: 6 months; Fourth time: July 2001–November 2001, empty window period: 3 months; The fifth time: August 2004–January 2005, empty window period: 5 months; The Sixth time: May 2005–June 2006, empty window period: 1 year; The Seventh time: December 2008–June 2009, empty window period: 8 months; The Eighth time: October 2012–January 2014, empty window period: 15 months. The Ninth time: July 2015–November 2015, empty window period: 4 months.

number of IPOs in 2005 is due to the suspension of IPOs by the CSRC. In column 4, I find that 2010 has the highest proportion of the number of unlucky IPOs (24.069%). In 2005, no IPOs were listed on an unlucky date. In columns 5 and 6, I present the number of IPOs and the proportion of unlucky IPOs used in the main regression. In the final rows of Table 11, I find that on average, the expected proportion of unlucky days is 11.61%. The actual proportion of IPOs listed on an unlucky date is 11.71%, which is higher than the expected percentage of unlucky days (11.61%). In the sample, unlucky IPOs account for 12.33%, which is also higher than the expected percentage of unlucky days (11.61%).

Overall, I argue that the actual proportion of IPOs listed on unlucky days is higher than the expected value, implying that managers do not avoid listing on an unlucky date. If the manager can avoid an unlucky date, I would expect that the actual proportion of unlucky IPOs is lower than the expected proportion of unlucky IPOs.

[Table 11 Here]

7.2. Does firm listed on an unlucky day have a bad post- IPO accounting performance?

Someone may concern that firm listed unlucky day is bad firm and the lower initial returns in the unlucky days are driven by fundamental factors. In this section, I examine whether IPO listed on an unlucky day has bad future accounting performance.

In Table 12, I show that the results are not driven by fundamental factors. I provide the univariate t-test for long-term performance proxies of IPOs listed on unlucky days and all other days. I select the one-, two-, and three-year accounting performance proxies, including *ROA*, *EPS*, *NI*, *ROI*, and *Sales Growth*. By comparing the mean of one-, two- and three- year post-IPO *ROA*, *EPS*, *NI*, *ROI*, and *Sales Growth*, I find that in the long run, there is no statistically significant difference between unlucky IPOs and IPOs listed on all other days for all the accounting long-run proxies. In sum, I find that lower initial returns in the unlucky days are not driven by fundamental factors given that IPOs listed on unlucky days have similar future

accounting prospects compared to IPOs listed on all the other days.

[Table 12 Here]

7.3 Does unlucky offer day affect IPO initial day return?

In this section, I would like to test whether an unlucky offer day affects the IPO initial day return. If investors indeed avoid the unlucky days, then the stocks issued on such days may also influence the initial day return. I include the unlucky offer day as one additional control which equals 1 if the IPO's offer day is unlucky, and 0 otherwise. By including the unlucky offer day, I find that the coefficients of *Unlucky* are still negative and statistically significant for both *IR_r* and *IR_a*. However, the coefficients of *Unlucky offer day* are not significant but negative for *IR_r* and *IR_a*. I conclude that unlucky offer days do not affect my result.

[Table 13 Here]

7.4 The relation between unlucky listing day and first-day trading volume

After examining the effect of unlucky listing day on IPO initial return, I then turn to first-day trading volume. If investors are inclined to avoid investing in such IPOs listed on unlucky days completely or decrease the demand in the secondary market, I would expect that the first-day trading volume shrinks due to the decline of the demand side. As for the supply side, it is likely that investors are more likely to sell shares listed on IPO day if they perceived those stocks as high-risk investments.[17] I use a multivariate regression approach and report our results in Table 14. The dependent variable is *Trading Volume*, measured as stock's first-day trading volume. I find that trading volume is lower for the firm listed on unlucky day than for firm listed on all the other day. Overall, as proxied for investor enthusiasm, trading volume declines, implying that investors are less enthusiastic about firms with unlucky listing day. This

[17] It is also possible that investors reduce the supply on the secondary market if they do not make any investment decision if it is an unlucky day. In this case, whether the equilibrium trading volume decreases or increases, is not clear.

finding is consistent with the results based on stock returns.

[Table 14 Here]

7.5 The relation between unlucky listing day and post-IPO stock performance

In this section, I would like to test the market correction timing and the relation between unlucky and post-IPO stock performance.

Figure 1 plots the monthly buy-and-hold return (BHR) for IPOs listed on unlucky days and on all the other days. On the x-axis, "0" represents the return window starting from the IPO month. I find that in the first month, the average return of IPOs listed on all the other days is much higher than that of unlucky IPOs. I find that this gap is diminishing and becomes closer. Overall, Figure 1 provides evidence that investors underreact to the unlucky IPOs, and this mispricing is corrected by the market gradually.

[Figure 1 here]

Figure 2 plots the coefficients of "Unlucky" from regressions between unlucky listing day and IPO monthly buy-and-hold return. On the x-axis, "0" represents the return window starting from the IPO month. I find that in the first month, the coefficient of "*Unlucky*" is negative when the dependent variable is IPO first month buy holding return. In the multivariate context, the coefficient of unlucky turns to reverse. In the 26th month after IPO, the coefficient of unlucky is close to 0, implying that the market corrects superstition-induced mispricing. Similarly, Figure 2 also indicates that investors underreact to the unlucky IPOs, and this mispricing is corrected by the market gradually.

[Figure 2 here]

In Table 15, I further show the relation between superstition and one-, two-, and three-year IPO buy-and-hold raw/market-adjusted returns. I find that there is no statistically significant difference in long-run returns between unlucky IPOs and IPOs listed on all other days. The

coefficients of *Unlucky* are not statistically significant. This is consistent with the prediction that mispricing led by superstition will be adjusted/corrected by the market.

Overall, by plotting the average monthly post-buy- and hold return (BHR) from the listing month for two groups (unlucky IPO and all the other IPOs). I find that in the first month, the average return of IPOs listed on all the other days is much higher than that of unlucky IPOs. I find that this gap is diminishing and becomes closer. From figure 1, the return gap persists until the 20th month and become revise since on. In the 34th month, the return gap is zero. Further, I control for the same set of variables as the baseline regression and change the dependent variable to buy holding returns for different windows. For example, the window value equals 1, 2, 3, k,…, 60. If k=2, the dependent variable is the long-term buy-and-hold return after IPO (including IPO first-day return) within two months. I find that after controlling other characteristics, the coefficients of unlucky become revise in the 8th month. Although later on, coefficients have some fluctuations, it gradually becomes positive in figure 2. Finally, I present the regression results between unlucky listing day and one-, two-, and three-year IPO buy-and-hold raw/market-adjusted returns. I find that there is no statistically significant difference in long-run returns between unlucky IPOs and IPOs listed on all other days. The coefficients of *Unlucky* are not statistically significant. It implies that within one year, the return gap is not statistically significant.

[Table 15 Here]

7.6 Other sensitivity tests

Investors' reaction to unlucky listing days depends on investors' characteristics. If investors are more irrational, they are more prone to superstitious beliefs. I conjecture that investors are more likely to buy less IPO shares or sell more shares when they are more irrational and superstitious(Bhattacharya et al., 2017; Chen et al., 2019). I further test how

investors' irrationality plays a moderator role in the relation between superstition and IPO initial returns. I expect that if an IPO attracts a more speculative clientele or is located in a place with many speculators, the effect of superstition on IPO initial returns is more pronounced (Dennis and Strickland, 2002; Feng and Seasholes, 2005; Dhar and Zhu, 2006). I use *Penny stock* and *Lottery sales* to capture investors' irrationality (Bradley et al., 2006). *Penny stock* equals 1 (Yes) if the offer price is below 5 RMB, and 0 otherwise (No). *Lottery sales* refer to the sales value of total lottery in each province. An IPO belongs to the high group if the IPO is located in a province where *Lottery sales* are among the top 10, and 0 otherwise. I also use the number of shareholders who own more than 1,000 shares at the end of the IPO listing day as an alternative proxy for investor irrationality. An IPO is in the high group if the value percentage of institutional ownership and the number of shareholders who own more than 1,000 shares are larger than the sample median, and 0 otherwise. I assume that the larger the number of shareholders owning more than 1,000 shares, the lower the investor irrationality.

The results are presented in Table 16. In Panel A of Table 16, the coefficient of *Unlucky* is -1.161 in the penny stock group (Yes), statistically different from the coefficient of *Unlucky* in the left 0.007 for *IR_r*. In Panel B of Table 16, the coefficient of *Unlucky* in the Low group for lottery sales is -0.049, statistically different from the coefficient of *Unlucky* in the High group, -0.077 for *IR_r*. In Panel C of Table 16, the coefficient of *Unlucky* in the Low group for *Number of Shareholders with more than 1000 shares* is -0.312, statistically different from the coefficient of *Unlucky* in the High group, -0.020 for *IR_r*. When the dependent variable is *IR_a*, the results are very similar. Overall, Table 16 provides evidence that the relation between unlucky listing days and IPO underpricing is more salient when investors are more irrational.

[Table 17 Here]

CHAPTER 8. CONCLUSION

China has the highest IPO underpricing. Previous literature provides mixed explanations for IPO underpricing and limited evidence for the effect of superstition on underpricing. This paper presents evidence on how investors' superstitious beliefs affect IPO underpricing. Using 1,799 IPO firms between 1992 and 2012 in China, I find that firms listed on unlucky days have lower initial returns. I conduct a number of robustness checks and show that the main results are robust to alternative proxies for initial returns, alternative sampling, and different model specifications.

I further show that findings are not driven by managers' superstition or firms' choice of the listing date. I find that the proportion of firms going public on an unlucky day is greater than would be expected by chance. These findings suggest that there is no intentional effort by IPO firms to avoid unlucky days either because managers have limited discretionary power to select the listing date or because they ignore investor superstition. Besides, in the long run, there is no statistically significant difference between IPOs listed on unlucky days and those on all other days in terms of future performance, proxied by return on asset, earnings per share, net income, return on investment, sales growth, and PE ratio. The post-IPO long-term abnormal returns of the firms listed on inauspicious days are not significantly different from those of IPOs listed on all other days, indicating that the market corrects itself over time. I further find that the negative effect of unlucky days on initial returns is stronger if the role of investment risk perception is higher, if investors' level of superstition is higher, and if the clientele is more irrational. Taken together, my findings are consistent with the notion that superstitious beliefs affect investors' financial decisions.

This thesis also has some policy implications for both practitioners and researchers. For investors, they may form a portfolio strategy to extract profit from those superstitious investors. As for researchers, future works can examine the effect of unlucky earnings announcement day.

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Appendix A: Variable definitions

Variable	**Definition**	*Source*
IR_r	*IR_r*, IPO initial return, is measured as (first-day closing price − offer price)/offer price.	CSMAR
IR_a	*IR_a*, IPO market-adjusted initial return, is measured as *IR_r* – (M1−M0)/M0; M1 and M0 are the closing A-share market index prices on the first trading day and the IPO offering day, respectively.	CSMAR
Unlucky	*Unlucky* is a dummy variable equal to 1 if the IPO listing date contains "诸事不宜", meaning not good for doing anything important, or nothing suitable, according to the Chinese Almanac, and 0 otherwise.	Hand Collected
Size	*Size* is measured as the natural logarithm of the total assets for the latest fiscal year before the IPO.	CSMAR
FirmAge	*FirmAge* is the number of years since the firm was founded, measured at the time of the IPO.	CSMAR
ROE	*ROE* is measured as the firm's net income divided by its total equity for the latest fiscal year before the IPO.	CSMAR
Ln_Leverage	*Ln_Leverage* is measured as the natural logarithm of the firm's total debt (short-term debt plus long-term liabilities due within one year plus long-term debt) divided by its total assets for the latest fiscal year before the IPO.	CSMAR
Top1_state	*Top1_state* is a dummy variable that equals 1 if the firm's largest direct shareholder is a state-owned asset management bureau/company, and 0 otherwise.	CSMAR
Lottery	*Lottery* is the lottery ratio of IPO allocation.	CSMAR
Ln Issue	*Ln Issue* is measured as the logarithm of the number of outstanding shares measured in millions.	CSMAR
Lagday	*Lagday* is the number of days between the IPO issuing date and the listing date.	CSMAR
Overhang	*Overhang* is measured as the number of pre-IPO shares owned by the owners divided by the total number of outstanding shares after the IPO.	CSMAR
Market Return	*Market Return* is the compounded daily percentage return on an equally weighted index over three months, ending on the day prior to the offering date.	CSMAR
Turnover	*Turnover* is calculated as the percentage of the total number of shares traded on the first day divided by the total number of shares outstanding.	CSMAR
SD Returns	*SD Returns* is the standard deviation of stock returns for the first year of trading, defined as trading day +6 to trading day +260 relative to the IPO.	CSMAR
ROA	*ROA* equal to net income over total assets. F1_ROA refers to one-year Post-IPO ROA, F2_ROA refers to two-year Post-IPO ROA, and F3_ROA refers to three-year Post-IPO ROA.	CSMAR
ROI	*ROI* equals net Profit/total investment * 100. F1_ROI refers to one-year Post-IPO ROI, F2_ROI refers to two-year Post-IPO ROI, and F3_ROI refers to three-year Post-IPO ROI.	CSMAR
EPS	*EPS* equals to the amount of net income earned per share of stock outstanding. F1_EPS refers to one-year Post-IPO EPS, F2_EPS refers to two-year Post-IPO EPS, and F3_EPS refers to three-year Post-IPO EPS.	CSMAR

NI	*NI* equals net income over total assets. F1_NI refers to one-year Post-IPO NI, F2_NI refers to two-year Post-IPO NI, and F3_NI refers to three-year Post-IPO NI.	CSMAR
Sales Growth	The difference in sales between the current and previous years, divided by sales in the previous year. F1_Sales Growth refers to one-year Post-IPO Sales Growth, F2_Sales Growth refers to two-year Post-IPO Sales Growth, and F3_Sales Growth refers to three-year Post-IPO Sales Growth.	CSMAR
BHR_1y	*BHR_1y* refers to the long-term buy-and-hold return after IPO (including IPO first-day return) within one year.	CSMAR
BHR_2y	*BHR_2y* refers to the long-term buy-and-hold return after IPO (including IPO first-day return) within two years.	CSMAR
BHR_3y	*BHR_3y* refers to the long-term return after IPO (including IPO first-day return) within three years.	CSMAR
BHAR_1y	*BHAR_1y* refers to the long-term buy-and-hold abnormal return after IPO (including IPO first-day return) within one year.	CSMAR
BHAR_2y	*BHAR_2y* refers to the long-term buy-and-hold abnormal return after IPO (including IPO first-day return) within two years.	CSMAR
BHAR_3y	*BHAR_3y* refers to the long-term buy-and-hold abnormal return after IPO (including IPO first-day return) within three years.	CSMAR
Unlucky offer day	*Unlucky offer day* equals 1 if the IPO's offer day is unlucky, 0 otherwise.	Hand Collected
Number of Unlucky days in listed month	The total number of unlucky days in the listed month for each IPO.	Hand Collected
Penny stock	*Penny stock* equals 1(Yes) if the offer price is below 5 RMB, and 0 otherwise (No).	CSMAR
Lottery sales	*Lottery sales* refer to the sales value of total lottery in each province.	CNRDS
Number of Shareholders with more than 1000 shares	*Number of Shareholders with more than 1000 shares* refer to the number of shareholders who own more than 1,000 shares at the end of the IPO listing day.	CSMAR
SD_ROE	*SD_ROE* is defined as pre-IPO industry-level ROE standard deviation.	CAMR
Intangible ratio	*Intangible ratio* is defined as pre-IPO intangible assets divided by total assets.	CSMAR
SD market return	*SD market return* is defined as pre-IPO two-month market daily volatility, i.e., the standard deviation of market return within two months before the IPO date.	CSMAR
Superstitious belief	*Superstitious belief* is defined according to the 2017 Chinese National Survey on people's superstitious beliefs. The mean scores for each province are calculated on the question: "Do you believe in divination, palm reading, or feng shui? (Strongly disagree = -2, disagree = -1, neutral = 0, agree = 1, strongly agree = 2)".	Chinese National Survey
"Huang li" searching index	*"Huang li" searching index* refers to the Baidu "Huang li" searching index for each province.	Baidu
Number of Buddhist Temple	*Number of Buddhist Temple* is the total number of Buddhist temples in each province.	CNRDS

Appendix B: Investor discussions on "Huang Li" in the stock forum

Sample 1:

Name: 富贵花开 168 (3.1 years at the platform)
Chinese: 感觉周一有股灾，大家看看老黄历
English Translation: I feel there will be a stock crash on Monday. People can check from the Chinese Almanac.
Published Time: 2018-06-22 13:37:08 East Money Information Co-Android

Sample 2:

Name: 大恐慌中捡便宜货(2.5 years at the platform)
Chinese: 跑的都是看老黄历的，哈哈
English Translation: Those people who sell stocks all look it up in the Chinese Almanac. Ha Ha.
Published Time: 2018-06-22 13:37:08 East Money Information Co-Android

Sample 3:

Name: 股友 X9Qw27 (6 months at the platform)
Chinese: 查了一下黄历，6 月 22 日是本月的大吉日，也是夏至后第一天希望能在这一天复牌
English Translation: I have checked the Chinese Almanac. June 22th is a Lucky day, which is also the first day after the Summer Solstice. I hope the stock can resume trading on that day.
Published Time: 2018-06-18 19:02:18 East Money Information Co –Web

Sources: http://guba.eastmoney.com/news,603917,764977420.html

Appendix C: Two examples of Chinese Almanac

Thu. August 1, 2019

Lunar Date

July 1, Ji Hai (Pig) Year (2019)

Geng Wu Day, Xin Wei Month

Clash Rat | Evil North

Auspicious

Weaving Fishing Net | Encoffining | Funeral | Avoid anything else

Inauspicious

Nothing Suitable

See Details

Auspicious Times

23:00-00:59 | 01:00-02:59 | 05:00-06:59 | 11:00-12:59 | 15:00-16:59 | 17:00-18:59

Thu. June 13, 2019

Lunar Date

May 11, Ji Hai (Pig) Year (2019)

Xin Si Day, Geng Wu Month

Clash Pig | Evil East

Auspicious

Wedding | Coming-of-age ceremony | Decorating House | Break Ground for Building | Stove Installation | Moving | Residence Relocation | Buy Livestock/Pets | Laying the Foundation Stone | Build a Ship

Inauspicious

Pray for Good Luck | Consecration Ceremony | Digging a Well | Grand Opening | Funeral

Source: https://www.yourchineseastrology.com/calendar/2019/

Figure 1: IPO monthly buy-and-hold return for IPOs listed on unlucky and all the other days

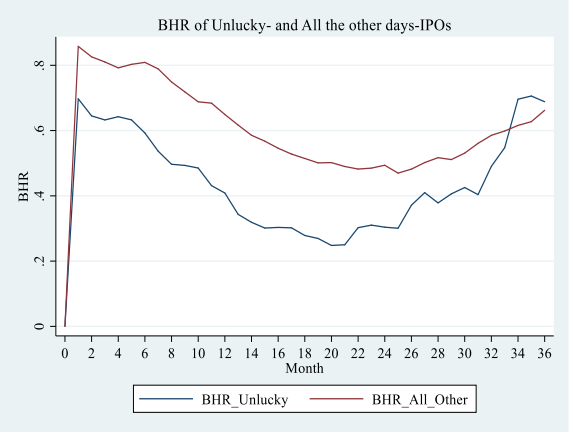

Figure 2: Coefficients of "*Unlucky*" from regressions between unlucky listing day and IPO monthly buy-and-hold return

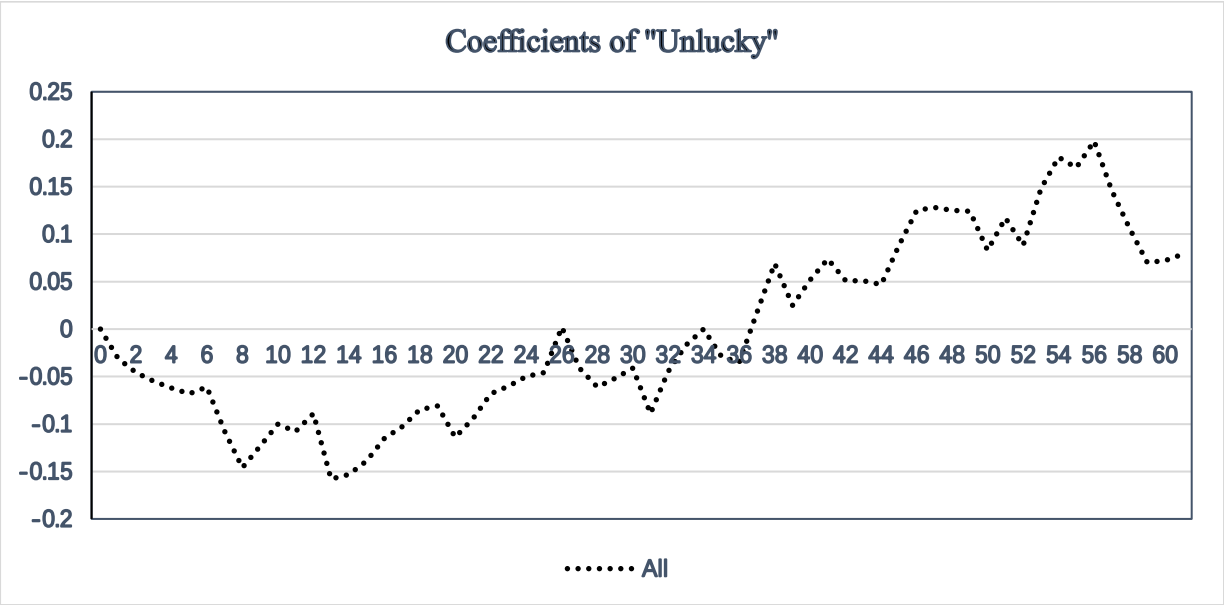

Table 1: Year, month, and the day of week distribution of IPO initial returns

Table 1 shows the year, month, and day of the week distribution of IPO initial raw/market-adjusted returns of IPOs listed on unlucky and all the other days. The sample consists of 1,799 IPOs in the A-share market spanning the period 1996-2012. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Panel A: IR_r

Panel A: Year distribution of IR_r

Year	*Unlucky*	*All-other day*	*Difference*
1996	1.452	1.166	0.286
1997	1.189	1.461	-0.272
1998	1.208	1.39	-0.182
1999	1.039	1.131	-0.092
2000	1.567	1.546	0.021
2001	1.495	1.312	0.183
2002	1.048	1.331	-0.283
2003	1.15	0.675	0.475**
2004	/	/	/
2005	/	/	/
2006	0.835	0.849	-0.014
2007	1.605	2.055	-0.45
2008	0.658	1.161	-0.503
2009	0.398	0.764	-0.366**
2010	0.44	0.404	0.036
2011	0.205	0.222	-0.017
2012	0.265	0.288	-0.023

Panel B: Month distribution of IR_r

Month	*Unlucky*	*All-other day*	*Difference*
Jan	0.576	0.913	-0.337
Feb	0.681	0.631	0.049
Mar	0.822	0.674	0.145
Apr	0.536	1.152	-0.616***
May	0.743	0.701	0.043
Jun	0.777	0.941	-0.168
Jul	0.872	0.805	0.067
Aug	1.017	1.033	-0.016
Sep	0.512	0.986	-0.474**
Oct	0.986	0.870	0.116
Nov	0.795	1.180	-0.385**
Dec	0.779	0.962	-0.184

Panel C: Week distribution of IR_r

Week	*Unlucky*	*All-other day*	*Difference*
Mon	1.082	1.208	0.126
Tue	0.668	0.730	-0.062
Wed	0.849	0.974	0.126
Thu	0.670	0.986	-0.316***
Fri	0.582	0.984	-0.402***

Panel B: IR_a

Panel A: Year distribution of IR_a

Year	*Unlucky*	*All-other day*	*Difference*
1996	1.377	1.118	0.258
1997	1.208	1.444	-0.236
1998	1.210	1.395	-0.186
1999	0.999	1.090	-0.090
2000	1.557	1.527	0.030
2001	1.521	1.333	0.188
2002	1.034	1.334	-0.300
2003	0.674	0.674	0.467**
2004	/	/	/
2005	/	/	/
2006	0.815	0.786	0.029
2007	1.569	2.004	-0.436
2008	0.796	1.221	-0.425
2009	0.417	0.766	-0.350**
2010	0.457	0.413	0.044
2011	0.218	0.233	-0.014
2012	0.268	0.297	-0.029

Panel B: Month distribution of IR_a

Month	*Unlucky*	*All-other day*	*Difference*
Jan	0.573	0.952	-0.378
Feb	0.766	0.626	0.140
Mar	0.798	0.667	0.131
Apr	0.556	1.102	-0.546***
May	0.749	0.718	0.031
Jun	0.756	0.935	-0.179
Jul	0.860	0.792	0.068
Aug	1.035	1.041	-0.005
Sep	0.542	1.001	-0.459***
Oct	0.909	0.830	0.080
Nov	0.788	1.173	-0.385**
Dec	0.794	0.967	-0.174

Panel C: Week distribution of IR_a

Week	*Unlucky*	*All-other day*	*Difference*
Mon	1.208	1.083	0.125
Tue	0.671	0.723	-0.051
Wed	0.961	0.842	0.120
Thu	0.679	0.988	-0.308***
Fri	0.603	0.972	-0.370***

Table 2: Summary statistics and correlation table

Table 2 shows the summary statistics and correlation table for the variables used in this study. Panel A shows the summary statistics. Panel B shows the correlation table. The sample consists of 1,799 IPOs in the A-share market spanning the period 1996-2012. * denote statistical significance at 5% and 10% levels to save space in the correlation matrix. Variable definitions are presented in Appendix A

Panel A: Summary statistics

Variable	N	Mean	Sd	Min	Median	Max
IR r	1,799	0.882	0.860	-0.232	0.664	6.267
IR a	1,799	0.878	0.842	-0.194	0.671	6.253
Unlucky	1,799	0.157	0.364	0.000	0.000	1.000
Lottery	1,799	6.265	5.077	0.000	5.000	28.000
Ln Issue	1,799	0.255	0.107	-0.079	0.238	1.287
Lagday	1,799	-0.722	0.384	-2.775	-0.628	-0.019
Overhang	1,799	0.406	0.491	0.000	0.000	1.000
Firm Size	1,799	1.335	3.356	0.016	0.631	73.930
FirmAge	1,799	3.711	0.946	2.303	3.555	9.473
ROE	1,799	25.910	14.620	11.000	21.000	167.000
Ln Leverage	1,799	3.054	2.069	0.000	2.973	33.770
Top1 state	1,799	20.210	1.258	17.900	19.960	29.500
Turnover	1,799	0.056	0.136	-0.349	0.030	0.647
Market Return	1,799	66.910	16.960	16.620	69.190	95.070
SD Return	1,799	0.029	0.008	0.011	0.028	0.079

Panel B: Correlation table

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
IR r	1.000													
IR a	0.996*	1.000												
Unlucky	**-0.075***	**-0.071***	1.000											
Firm Size	-0.206*	-0.207*	0.008	1.000										
FirmAge	-0.293*	-0.291*	0.035	0.103*	1.000									
ROE	-0.134*	-0.132*	0.057*	-0.168*	-0.053*	1.000								
Ln Leverage	0.119*	0.118*	-0.037	0.368*	-0.170*	-0.107*	1.000							
Top1 state	0.257*	0.255*	-0.042	0.223*	-0.373*	-0.188*	0.274*	1.000						
Lottery	-0.184*	-0.190*	-0.016	0.139*	0.036	0.057*	0.035	0.002	1.000					
Ln Issue	-0.088*	-0.089*	0.017	0.837*	-0.119*	-0.147*	0.263*	0.386*	0.082*	1.000				
Lagday	0.153*	0.154*	-0.017	-0.043	-0.260*	-0.000	0.117*	0.248*	0.008	0.108*	1.000			
Overhang	-0.029	-0.032	-0.020	0.448*	0.083*	-0.022	-0.016	0.033	0.047*	0.217*	-0.099*	1.000		
Market Return	0.164*	0.160*	-0.014	0.088*	0.046*	-0.073*	0.029	0.017	-0.021	0.047*	-0.068*	0.042	1.000	
Turnover	0.197*	0.196*	0.016	-0.142*	0.085*	-0.015	-0.094*	-0.167*	-0.167*	-0.197*	-0.083*	-0.023	-0.060*	1.000
SD Return	0.196*	0.194*	-0.052*	-0.144*	0.034	0.016	-0.037	-0.144*	0.009	-0.267*	-0.077*	0.062*	0.111*	0.301*

Table 3: Univariate t-test

Table 3 shows univariate t-tests for the variables used in this study. The sample consists of 1,799 IPOs in the A-share market spanning the period 1996-2012. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Variable	No.–*Unlucky*	Mean–*Unlucky*	No.–*All-other day*	Mean–*All-other day*	Mean–*Diff*
IR r	282	0.731	1517	0.910	**-0.178*****
IR a	282	0.739	1517	0.904	**-0.165*****
Lottery	282	1.207	1517	1.358	-0.151
Ln Issue	282	3.748	1517	3.704	0.044
Lagday	282	25.333	1517	26.023	-0.690
Overhang	282	2.957	1517	3.072	-0.115
FirmSize	282	20.232	1517	20.203	0.029
FirmAge	282	6.681	1517	6.187	0.494
ROE	282	0.269	1517	0.252	0.017**
Ln Leverage	282	-0.755	1517	-0.716	-0.039
Top1 state	282	0.358	1517	0.415	**-0.056***
Turnover	282	67.523	1517	66.794	0.729
Market Return	282	0.052	1517	0.057	-0.005
SD Return	282	0.028	1517	0.029	-0.001**

Table 4: Superstition and IPO initial return

Table 4 presents the regression results for the relation between superstition and IPO initial returns. The sample consists of 1,799 IPOs in the A-share market spanning the period 1996-2012. The regressions are performed by OLS. Year, Month, and Day of Week fixed effects are included. Standard errors clustered by year and month. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Dep. Var. =	Expected Sign	IR_r		IR_a	
		(1)	(2)	(3)	(4)
Unlucky	**-**	**-0.069***	**-0.068****	**-0.064***	**-0.063****
		(0.034)	**(0.030)**	**(0.030)**	**(0.027)**
Lottery	-		-0.007		-0.007
			(0.007)		(0.007)
Ln Issue	-		0.013		0.007
			(0.062)		(0.065)
Lagday	+		0.000		0.000
			(0.002)		(0.002)
Overhang	+		0.056***		0.054***
			(0.013)		(0.013)
FirmSize	-		-0.183***		-0.176***
			(0.046)		(0.047)
FirmAge	-		0.001		0.001
			(0.003)		(0.003)
ROE	-		-0.681**		-0.663**
			(0.229)		(0.233)
Ln Leverage	+		0.127**		0.121**
			(0.048)		(0.045)
Top1_state	+		0.012		0.022
			(0.053)		(0.054)
Turnover	+		0.014***		0.014***
			(0.003)		(0.003)
Market Return	+		0.409		0.504
			(0.352)		(0.361)
SD Return	+		10.416		11.286
			(8.094)		(8.340)
Year FE		Yes	Yes	Yes	Yes
Month FE		Yes	Yes	Yes	Yes
Week FE		Yes	Yes	Yes	Yes
N		1,799	1,799	1,799	1,799
Adj R^2		0.410	0.554	0.407	0.551

Table 5: Robustness checks

Table 5 presents the robustness checks for the baseline regression results. The regressions are performed by OLS. Year, Month, and Day of Week fixed effects are included. Standard errors clustered by year and month. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Dep. Var. =	IR_r_17	IR_a_17	IR_r	IR_a	IR_r	IR_a	IR_r	IR_a	IR_r	IR_a
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Recalculate First-day return after 2013		Exclude firms with H shares		Cluster at IPO listing date		Exclude SARS (2003)		Exclude Financial Crisis (2008)	
Unlucky	**-0.049***	**-0.042***	**-0.067****	**-0.062****	**-0.068***	**-0.063***	**-0.081****	**-0.075****	**-0.071****	**-0.068****
	(0.025)	**(0.025)**	**(0.028)**	**(0.025)**	**(0.037)**	**(0.036)**	**(0.033)**	**(0.028)**	**(0.031)**	**(0.030)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2,741	2,741	1,739	1,739	1,799	1,799	1,736	1,736	1,726	1,726
Adj R^2	0.577	0.576	0.568	0.565	0.555	0.552	0.555	0.552	0.572	0.568

Table 6: Pseudo unlucky days

Table 6 presents the endogeneity tests for the baseline regression results using three pseudo unlucky dates. The sample consists of 1,799 IPOs in the A-share market spanning the period 1996-2012. The regressions are performed by OLS. Year, Month, and Day of Week fixed effects are included. Standard errors clustered by year and month. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Dep. Var. =	IR_r	IR_a	IR_r	IR_a	IR_r	IR_a
	(1)	(2)	(3)	(4)	(5)	(6)
	Random Selection		Same date at next month		Last date	
Pseudo Unlucky	**0.017**	**0.022**	**-0.017**	**-0.017**	**-0.017**	**-0.013**
	(0.074)	**(0.073)**	**(0.045)**	**(0.045)**	**(0.035)**	**(0.036)**
Controls	Yes	Yes	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1,799	1,799	1,799	1,799	1,799	1,799
Adj R^2	0.554	0.551	0.554	0.551	0.554	0.551

Table 7: Propensity score matching

Table 7 presents the endogeneity tests using the propensity score matching process. The regressions are performed by OLS. Year, Month, and Day of Week fixed effects are included. Standard errors clustered by year and month. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Panel A: Univariate t test

Variable	No.–Treatment sample	Mean–Treatment sample	No.–Control sample	Mean–Control sample	Mean–diff
Lottery	204	1.183	204	1.283	-0.100
Ln Issue	204	3.693	204	3.730	-0.037
Lagday	204	24.961	204	26.902	-1.941
Overhang	204	2.899	204	2.927	-0.028
FirmSize	204	20.133	204	20.222	-0.088
FirmAge	204	6.755	204	6.956	-0.201
ROE	204	0.264	204	0.272	-0.008
Ln Leverage	204	-0.774	204	-0.735	-0.039
Top1 state	204	0.358	204	0.358	0.000
Turnover	204	67.066	204	68.028	-0.963
Market Return	204	0.057	204	0.052	0.005
SD Return	204	0.028	204	0.029	-0.000

Panel B: PSM

Dep. Var. =	IR_r	IR_a
	(1)	(2)
Unlucky	**-0.105****	**-0.100****
	(0.046)	**(0.043)**
Lottery	0.022**	0.020**
	(0.009)	(0.009)
Ln Issue	0.042	0.049
	(0.074)	(0.075)
Lagday	0.000	0.000
	(0.002)	(0.002)
Overhang	0.022	0.020
	(0.021)	(0.021)
FirmSize	-0.213***	-0.215***
	(0.065)	(0.066)
FirmAge	0.006	0.007
	(0.005)	(0.005)
ROE	-0.700*	-0.673*
	(0.322)	(0.318)
Ln Leverage	0.205***	0.208***
	(0.052)	(0.059)
Top1_state	0.126	0.128
	(0.078)	(0.076)
Turnover	0.015***	0.014***
	(0.004)	(0.004)
Market Return	0.372	0.416
	(0.515)	(0.508)
SD Return	7.612	9.912
	(8.258)	(7.850)
Year FE	Yes	Yes
Month FE	Yes	Yes
Week FE	Yes	Yes
N	408	408
Adj R^2	0.616	0.619

Table 8: Heckman selection

Table 8 presents the endogeneity tests using the Heckman two-stage selection model. Column 1 is performed by probit regression and column 2 and column 3's regressions are performed by OLS. Year, Month, and Day of Week fixed effects are included. Standard errors clustered by year and month. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Dep. Var. =	Unlucky	IR_r	IR_a
	(1)	(2)	(3)
Unlucky		**-0.063***	**-0.057***
		(0.031)	**(0.028)**
Lambda		**0.028**	**0.029**
		(0.037)	**(0.036)**
Number of Unlucky days in listed month	**0.198*** **		
	(0.022)		
Lottery	-0.022	-0.007	-0.008
	(0.023)	(0.007)	(0.007)
Ln Issue	0.109	0.012	0.006
	(0.105)	(0.064)	(0.067)
Lagday	-0.002	0.000	0.001
	(0.004)	(0.002)	(0.002)
Overhang	-0.015	0.055***	0.054***
	(0.029)	(0.013)	(0.013)
FirmSize	0.013	-0.182***	-0.175***
	(0.091)	(0.047)	(0.048)
FirmAge	0.005	0.001	0.001
	(0.010)	(0.003)	(0.003)
ROE	0.578	-0.672**	-0.654**
	(0.377)	(0.228)	(0.231)
Ln Leverage	-0.056	0.122**	0.116**
	(0.129)	(0.047)	(0.045)
Top1_state	-0.067	0.003	0.014
	(0.115)	(0.056)	(0.057)
Turnover	0.003	0.014***	0.014***
	(0.003)	(0.003)	(0.003)
Market Return	0.441	0.392	0.490
	(0.414)	(0.378)	(0.382)
SD Return	13.424	10.725	11.580
	(9.155)	(8.397)	(8.607)
Year FE	Yes	Yes	Yes
Month FE	Yes	Yes	Yes
Week FE	Yes	Yes	Yes
N	1774	1774	1774
Adj R^2/Pseudo R^2	0.151	0.556	0.553

Table 9: The role of investment risk

Table 9 presents the regressions that analyze the relation between unlucky days and IPO initial day return conditional on investment risk perception. ***SD_ROE*** is defined as pre-IPO industry-level ROE standard deviation. High and Low are defined on the basis of the sample median. ***Intangible ratio*** is defined as pre-IPO intangible assets divided by total assets. High and Low are defined on the basis of the sample median. ***SD market return*** is defined as pre-IPO two-month market daily volatility, i.e., the standard deviation of market return within two months before the IPO date. High and Low are defined on the basis of the sample median. Year and Day of Week fixed effects are included. Standard errors clustered by year and month. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Panel A: SD_ROE

Dep. Var. =	IR_r	IR_r	IR_a	IR_a
	(1)	(2)	(3)	(4)
		SD_ROE		SD_ROE
	Low	High	Low	High
Unlucky	**-0.050**	**-0.087****	**-0.040**	**-0.083****
	(0.060)	**(0.029)**	**(0.052)**	**(0.033)**
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes
N	899	900	899	900
Adj R^2	0.612	0.507	0.603	0.510

Panel B: Intangible ratio

Dep. Var. =	IR_r	IR_r	IR_a	IR_a
	(1)	(2)	(3)	(4)
		Intangible ratio		Intangible ratio
	Low	High	Low	High
Unlucky	**-0.042**	**-0.101*****	**-0.035**	**-0.096*****
	(0.064)	**(0.035)**	**(0.056)**	**(0.032)**
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes
N	736	1,063	736	1,063
Adj R^2	0.575	0.545	0.572	0.543

Panel C: SD Market Return

Dep. Var. =	IR_r	IR_r	IR_a	IR_a
	(1)	(2)	(3)	(4)
	SD market return		SD market return	
	Low	High	Low	High
Unlucky	**-0.051**	**-0.111***	**-0.049**	**-0.105***
	(0.053)	**(0.054)**	**(0.052)**	**(0.049)**
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes
N	899	900	899	900
Adj R^2	0.581	0.530	0.574	0.523

Table 10: The level of investors' superstition

Table 10 presents the regressions that analyze the relation between unlucky days and IPO initial day returns conditional on investors' level of superstition. ***Superstitious belief*** is defined according to the 2017 Chinese National Survey on people's superstitious beliefs. The mean scores for each province are calculated on the question: "Do you believe in divination, palm reading, or feng shui? (Strongly disagree = -2, disagree = -1, neutral = 0, agree = 1, strongly agree = 2)". An IPO belongs to the high group if the province's final score is among the top 10, and 0 otherwise. ***"Huang li" searching index*** refers to the Baidu "Huang li" searching index for each province. An IPO belongs to the high group if it is located in a province whose searching score is among the top 10, and 0 otherwise. ***Number of Buddhist Temple*** is the total number of Buddhist temples in each province. The high group consists of provinces where the number of Buddhist temples is higher than the sample median. Year and Day of Week fixed effects are included. Standard errors clustered by year and month. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Panel A: Superstition perception index from CNSDA survey

Dep. Var. =	IR_r	IR_r	IR_a	IR_a
	(1)	(2)	(3)	(4)
	Superstitious belief		Superstitious belief	
	Low	High	Low	High
Unlucky	**-0.038**	**-0.096***	**-0.040**	**-0.087****
	(0.065)	**(0.044)**	**(0.060)**	**(0.039)**
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes
N	773	857	773	857
Adj R^2	0.552	0.584	0.549	0.579

Panel B: "Huang li" searching index

Dep. Var. =	IR_r	IR_r	IR_a	IR_a
	(1)	(2)	(3)	(4)
	"Huang li" searching index		"Huang li" searching index	
	Low	High	Low	High
Unlucky	**-0.051**	**-0.069****	**-0.040**	**-0.066*****
	(0.064)	**(0.026)**	**(0.064)**	**(0.019)**
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes
N	567	1,232	567	1,232
Adj R^2	0.510	0.566	0.512	0.561

Panel C: Number of Buddhist Temples

Dep. Var. =	IR_r	IR_r	IR_a	IR_a
	(1)	(2)	(3)	(4)
	Number of Buddhist Temples		Number of Buddhist Temples	
	Low	High	Low	High
Unlucky	**-0.045**	**-0.092****	**-0.035**	**-0.092****
	(0.048)	**(0.036)**	**(0.046)**	**(0.033)**
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes
N	899	900	899	900
Adj R^2	0.560	0.548	0.557	0.546

Table 11: Comparison of the expected and actual proportion of unlucky days

Table 11 presents the proportion of unlucky IPOs and the proportion of unlucky trading dates by year. The sample consists of 1,799 IPOs in the A-share market spanning the period 1996-2012. Variable definitions are presented in Appendix A.

	Expected proportions		Actual proportions for all IPOs		Actual proportions in our sample	
Year	No. of Trading days	No. of Unlucky Trading Days /No. of Trading Days	No. of All IPOs	No. of Unlucky IPOs /No. of All IPOs	No. of IPOs (sample)	No. of Unlucky IPOs /No. of IPOs (sample)
1996	247	7.69%	165	7.27%	113	7.08%
1997	243	10.70%	179	15.08%	126	18.25%
1998	246	16.26%	99	14.14%	83	15.66%
1999	239	18.41%	93	19.36%	77	16.88%
2000	239	17.57%	133	12.78%	122	13.93%
2001	240	15.42%	73	20.55%	57	24.56%
2002	237	10.55%	66	12.12%	62	12.90%
2003	241	8.71%	66	9.09%	63	9.52%
2004	243	2.88%	97	2.06%	10	0.00%
2005	242	1.24%	15	0.00%	15	0.00%
2006	241	3.32%	66	9.09%	65	9.23%
2007	242	6.61%	123	5.69%	111	6.31%
2008	246	10.16%	77	9.09%	73	9.59%
2009	244	12.30%	99	6.06%	99	6.06%
2010	242	17.77%	349	24.07%	321	25.55%
2011	244	20.90%	282	19.50%	260	20.00%
2012	243	16.87%	153	13.07%	142	14.09%
Total	4,119	11.61%	2,135	11.71%	1,799	12.33%

Table 12: Comparison of post- IPO accounting performance between unlucky and all other days IPO

Table 12 presents the univariate t-test for firms' accounting performance. ***ROA*** is defined as the net income over total assets. *F1_ROA* refers to a one-year Post-IPO ROA, *F2_ROA* refers to two-year Post-IPO ROA, and *F3_ROA* refers to three-year Post-IPO ROA. ***EPS*** is defined as the amount of net income earned per share of stock outstanding. *F1_EPS* refers to a one-year Post-IPO EPS, *F2_EPS* refers to two-year Post-IPO EPS, and *F3_EPS* refers to a three-year Post-IPO EPS. **NI** is defined as the net income over total assets. *F1_NI* refers to one-year Post-IPO NI, *F2_NI* refers to two-year Post-IPO NI, and *F3_NI* refers to three-year Post-IPO NI. ***ROI*** is defined as the Net Profit/Total Investment * 100. *F1_ROI* refers to a one-year Post-IPO ROI, *F2_ROI* refers to two-year Post-IPO ROI, and *F3_ROI* refers to three-year Post-IPO ROI. ***Sales Growth*** is defined as the difference in sales between the current and previous years, divided by the sales by the previous year. *F1_Sales Growth* refers to one-year Post-IPO Sales Growth, *F2_Sales Growth* refers to two-year Post-IPO Sales Growth, and *F3_Sales Growth* refers to three-year Post-IPO Sales Growth. Year and Day of Week fixed effects are included. Standard errors clustered by year and month. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Variable	No.–*Unlucky*	Mean–*Unlucky*	No.–*All-other day*	Mean–*All-other day*	Mean–*Diff*
F1_ROA	169	0.058	844	0.059	-0.001
F2_ROA	169	0.049	844	0.051	-0.002
F3_ROA	169	0.036	844	0.045	-0.010
F1_EPS	169	0.460	844	0.490	-0.030
F2_EPS	169	0.359	844	0.410	-0.051
F3_EPS	169	0.326	844	0.363	-0.037
F1_NI	169	0.058	844	0.059	-0.001
F2_NI	169	0.049	844	0.051	-0.002
F3_NI	169	0.036	844	0.045	-0.010
F1_ROI	169	0.024	844	0.030	-0.006
F2_ROI	169	0.006	844	0.021	-0.015
F3_ROI	169	0.012	844	0.024	-0.012
F1_SalesGrowth	169	0.208	844	0.220	-0.012
F2_SalesGrowth	169	0.207	844	0.200	0.007
F3_SalesGrowth	169	0.241	844	0.244	-0.003

Table 13: Does unlucky offer day affect IPO initial day return?

Table 13 presents the regressions that analyze the relation between unlucky offer dates and IPO initial day returns. ***Unlucky offer day*** equals 1 if the IPO's offer day is unlucky. Year and Day of Week fixed effects are included. Standard errors clustered by year and month. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Dep. Var. =	IR_r	IR_a
	(1)	(2)
Unlucky	**-0.068***	**-0.063****
	(0.032)	**(0.028)**
Unlucky Offer day	-0.004	-0.007
	(0.038)	(0.039)
Lottery	-0.007	-0.007
	(0.007)	(0.007)
Ln Issue	0.013	0.007
	(0.062)	(0.065)
Lagday	0.000	0.000
	(0.002)	(0.002)
Overhang	0.056***	0.054***
	(0.013)	(0.013)
FirmSize	-0.183***	-0.176***
	(0.046)	(0.047)
FirmAge	0.001	0.001
	(0.003)	(0.003)
ROE	-0.682**	-0.665**
	(0.227)	(0.230)
Ln Leverage	0.127**	0.121**
	(0.048)	(0.046)
Top1_state	0.012	0.022
	(0.053)	(0.054)
Turnover	0.014***	0.014***
	(0.003)	(0.003)
Market Return	0.409	0.505
	(0.352)	(0.362)
SD Return	10.418	11.290
	(8.121)	(8.365)
Year FE	Yes	Yes
Month FE	Yes	Yes
Week FE	Yes	Yes
N	1,799	1,799
Adj R^2/Pseudo R^2	0.554	0.551

Table 14: Unlucky listing day and first-day trading volume

Table 14 presents the regressions that analyze the relation between unlucky listing day and IPO trading volume. Year and Day of Week fixed effects are included. Standard errors clustered by year and month. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Dep. Var. =	Trading Volume
	(1)
Unlucky	**-0.011***
	(0.006)
Lottery	-0.000
	(0.001)
Ln Issue	0.168***
	(0.045)
Lagday	0.000
	(0.000)
Overhang	0.019*
	(0.009)
FirmSize	-0.027
	(0.025)
FirmAge	-0.000
	(0.002)
ROE	-0.026
	(0.034)
Ln Leverage	0.021
	(0.025)
Top1_state	-0.004
	(0.010)
Turnover	0.001**
	(0.000)
Market Return	0.016
	(0.045)
SD Return	-1.713
	(1.080)
Year FE	Yes
Month FE	Yes
Week FE	Yes
N	1,799
Adj R^2	0.424

Table 15: The relation between unlucky listing day and post-IPO stock performance

Table 15 presents the regression results for the relation between superstition and post-IPO performance. The regressions are performed by OLS. Year and Day of Week fixed effects are included. Standard errors clustered by year and month. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Dep. Var. =	BHR_1y	BHR_2y	BHR_3y	BHAR_1y	BHAR_2y	BHAR_3y
	(1)	(2)	(3)	(4)	(5)	(6)
Unlucky	**-0.036**	**0.019**	**0.077**	**-0.028**	**0.001**	**0.087**
	(0.041)	**(0.054)**	**(0.104)**	**(0.033)**	**(0.048)**	**(0.109)**
Lottery	0.011**	0.012**	-0.003	0.002	0.002	-0.009
	(0.004)	(0.005)	(0.010)	(0.002)	(0.005)	(0.007)
Ln Issue	-0.046	-0.079*	-0.200**	-0.030	-0.093**	-0.187**
	(0.030)	(0.039)	(0.085)	(0.026)	(0.037)	(0.069)
Lagday	0.004**	0.003	0.004	0.000	0.000	0.003
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)
Overhang	-0.033***	-0.026**	-0.046**	-0.018**	-0.019**	-0.031*
	(0.008)	(0.010)	(0.017)	(0.008)	(0.009)	(0.017)
FirmSize	0.080**	0.053	0.097	0.057	0.055*	0.072
	(0.034)	(0.033)	(0.067)	(0.035)	(0.029)	(0.058)
FirmAge	-0.002	-0.001	0.003	-0.003	-0.001	0.001
	(0.002)	(0.003)	(0.007)	(0.002)	(0.003)	(0.007)
ROE	0.362	-0.040	0.026	0.382*	-0.023	0.009
	(0.202)	(0.191)	(0.299)	(0.207)	(0.216)	(0.297)
Ln Leverage	-0.089*	-0.127*	-0.316*	-0.076*	-0.128*	-0.300*
	(0.044)	(0.065)	(0.155)	(0.041)	(0.063)	(0.160)
Top1_state	0.038	0.009	0.085	0.035	0.033	0.051
	(0.027)	(0.046)	(0.112)	(0.023)	(0.043)	(0.105)
Turnover	-0.003***	-0.002	-0.007	-0.004***	-0.003**	-0.006
	(0.001)	(0.001)	(0.004)	(0.001)	(0.001)	(0.004)
Market Return	-0.094	-0.557	-0.556	-0.027	-0.094	-0.390
	(0.317)	(0.326)	(0.443)	(0.211)	(0.206)	(0.267)
SD Return	19.640**	16.034**	24.420*	22.317**	15.162**	24.551*
	(8.476)	(5.370)	(11.771)	(8.125)	(4.956)	(12.130)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1,799	1,799	1,799	1,799	1,799	1,799
Adj R^2	0.371	0.354	0.356	0.248	0.217	0.197

Table 16: Sensitivity test based on the role of investor irrationality

Table 16 presents the regressions that analyze the relation between unlucky days and IPO initial day returns conditional on investors' irrationality. ***Penny stock*** equals 1(Yes) if the offer price is below 5 RMB, and 0 otherwise (No). ***Lottery sales*** refer to the sales value of total lottery in each province. An IPO belongs to the high group if it is located in a province whose lottery sales are among the top 10, and 0 otherwise. ***Number of Shareholders with more than 1000 shares*** refer to the number of shareholders who own more than 1,000 shares at the end of the IPO listing day. High and Low are defined on the basis of the sample median. Year and Day of Week fixed effects are included. Standard errors clustered by year and month. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are presented in Appendix A.

Panel A: Penny stock

Dep. Var. =	IR_r	IR_r	IR_a	IR_a
	(1)	(2)	(3)	(4)
		Penny stock		Penny stock
	No	Yes	No	Yes
Unlucky	**0.000**	**-0.121****	**0.007**	**-0.115****
	(0.040)	**(0.051)**	**(0.040)**	**(0.045)**
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes
N	899	900	899	900
Adj R^2	0.584	0.532	0.583	0.529

Panel B: Lottery sales

Dep. Var. =	IR_r	IR_r	IR_a	IR_a
	(1)	(2)	(3)	(4)
		Lottery sales		Lottery sales
	Low	High	Low	High
Unlucky	**-0.049**	**-0.077***	**-0.037**	**-0.076***
	(0.077)	**(0.041)**	**(0.076)**	**(0.041)**
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes
N	734	1,065	734	1,065
Adj R^2	0.517	0.575	0.515	0.572

Panel C: Number of Shareholders with more than 1000 shares

Dep. Var. =	IR_r	IR_r	IR_a	IR_a
	(1)	(2)	(3)	(4)
	Number of Shareholders with more than 1000 shares		Number of Shareholders with more than 1000 shares	
	Low	High	Low	High
Unlucky	**-0.312***	**-0.020**	**-0.294**	**-0.017**
	(0.152)	**(0.018)**	**(0.154)**	**(0.021)**
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes
N	227	1,571	227	1,571
Adj R^2	0.445	0.556	0.446	0.553