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Lucky issuance: The role of numerological superstitions in irrational return premiums[☆]

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ABSTRACT

Numerological superstitions, which lead people to regard some numbers as lucky and others as unlucky, are common in Taiwan. Analyzing a sample of all domestic companies listed on the Taiwan stock market from January 1991 to December 2015, we find that firms with lucky listing codes enjoy return premiums on the stock market. Though the return premiums are highest within one year of firm IPOs and decline in magnitude over time, they continue over the long term. We also show that lucky premiums only appear in firms with low institutional holdings, implying that individual investors are more susceptible to numerological superstitions. Furthermore, stock mispricing attributable to numerological superstitions has largely been eliminated from the market in recent years. We argue that this reflects increasing maturity in Taiwan's stock market driven by the presence of more institutional and fewer individual investors.

1. Introduction

“Men will fight for a superstition quite as quickly as for a living truth – often more so, since a superstition is so intangible you cannot get at it to refute it, but truth is a point of view, and so is changeable.”

Hypatia, Greek mathematician and philosopher (c. 350–370 to 415)

Increased interest in behavioral finance has led to the integration of insights derived from psychological research into economics. Behaviors in every society are influenced by diverse, culturally defined superstitions. People in many western societies, for example, consider Friday the 13th an unlucky day and some avoid their normal daily business routines.¹

Chinese superstitions have an equal, if not greater, persuasive influence on people's behavior. Many Chinese people, for example, follow the principles of “Feng Shui,” which integrate Chinese philosophical notions and superstitious beliefs.² These beliefs influence choices about where people live or are buried to avoid misfortune (Nisbett, 2003). The prevalence of Feng Shui leads people facing misfortune to favor belief over skepticism. Against this belief system scientific evidence has little effect (Bruun, 2008).

Numerological superstitions, according to which some numbers are lucky and others unlucky, are also a well-known phenomenon

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¹ John Roach “Friday the 13th Phobia Rooted in Ancient History.” *National Geographic News*, 12 August 2004. Available from http://news.nationalgeographic.com/news/2004/02/0212_040212_friday13.html

² Various Chinese cultural practices manifest across a wide geographical region in southeastern and eastern Asia, including in Singapore, Malaysia, and Taiwan.

in Chinese culture. Six, for example, sounds similar to the word for smooth or well-off, making it an extremely popular number. Eight sounds like the word for multiply and so represents good luck and fertility.³ Many regard nine as one of the luckiest numbers because it sounds like longevity in Mandarin. Four, by contrast, when pronounced in Chinese, sounds like the word for death and is therefore considered very unlucky (unless it is combined with a favorable number) (Thompson, 1996).

Numerological superstitions have a significant influence on a range of behaviors. For example, in Taiwan, when people purchase real estate, they may avoid addresses on fourth floors or apartments that contain the number four. Some hotels or hospitals actively avoid naming fourth floors (consecutive floors are numbered one, two, three, five and so on).⁴ Ng et al. (2009) find that number superstitions influence the auction prices of vehicle license plates in Hong Kong. Singaporeans likewise actively avoid buying apartments on floors with numbers ending in a four (Agarwal et al., 2014).

Given the myriad ways in which cultural superstitions influence individuals, in this paper we aim to conduct a systematic examination of the ways numerological superstitions affect investors in the stock market. We focus on the extent to which market investors' numerological superstitions influence the pricing of publicly listed companies in Taiwan's stock market. Our research contributes to an emerging behavioral finance discourse that shifts the focus from individual mental characteristics to seek explanations based on socio-cultural perspectives (Hirshleifer, 2015).

We hypothesize that the preference for specific numbers could affect investor stock selections and cause irrational equity pricing. Since each publicly listed firm in Taiwan has a unique four-digit code as its trading symbol, investors should favor companies with listing codes that contain lucky digits like six, eight or nine, over companies with less lucky numbers in their listing codes. We use the monthly return in the post-IPO period to examine whether a premium accrues to those stocks with lucky, rather than unlucky listing codes. The aims of our study are as follows. First, we examine the extent to which investors' behavior is numerologically superstitious. Following our basic hypothesis, if investors select firms based on a lucky listing code, these firms should enjoy lucky premiums in terms of higher stock returns. Second, assuming that numerological superstitions affect investor behaviors, we examine whether lucky premiums only appear in the short run. Third, we examine whether individual investors rather than institutional investors are the leading cause of the lucky return premium.

Our empirical results are as follows. First, we find that firms with lucky digits in their listing codes in Taiwan's stock market tend to trade at a distinct return premium over firms with unlucky listing codes. The return premium also increases in relation to the number of lucky digits in the listing code. Second, the return premium on lucky listing codes, while declining over time, remains identifiable in the long run, up to nine years after firm IPOs. These results support our assertion that numerological superstitions influence investment preferences. Third, our results demonstrate that the phenomenon of return premiums associated with lucky listing codes is largely restricted to the period 1991 to 2008. After 2008 the premiums vanish, suggesting that such return premiums are less likely to continue in more developed markets. Fourth, the lucky return premiums only manifest for firms with low institutional holdings, implying that numerological superstitions have a stronger impact on individual investors. Our results survive various robustness tests.

The results of this study have implications for literature related to emerging market mechanisms. Since cultures adapt slowly, the irrational premium of lucky listing codes existed in the market for nearly two decades. Our findings suggest that capital markets can become more rational by increasing the participation of institutional investors.

The remainder of this paper is structured as follows; in the next section, we review the empirical and theoretical aspects of superstition and behavioral bias in investments; we then describe our methods and analytical procedures, before providing an overview of our findings, and concluding the study.

2. Investors' superstition

Investor superstitions affect asset prices. Various studies demonstrate a correlation between the weather, individuals' moods, and their behaviors. Saunders (1993), for example, shows that the weather in New York City has a long history of significant association with stock indices. Similarly, Kamstra et al. (2000) show evidence of a psychological mechanism by which changes in daylight savings time cause fluctuations in financial markets. Hirshleifer and Shumway (2003) find that morning sunshine affects daily stock returns in 26 countries. Variations in sunshine levels affect investors' emotions and, in turn, stock market performance.

Studies note that the irrationality of investors strongly affects stock prices, trading performance, and investment decisions. Heath et al. (1999) examine the relationship between psychological factors and the exercise of stock options of 50,000 employees in seven corporations. Kamstra et al.'s (2003) investigation of the role of seasonal affective disorder (SAD) demonstrates that seasons affect investors' risk preferences and investment behavior. Cao and Wei (2005) find that lower temperatures lead to higher stock returns as investors become more aggressive in their risk taking. This is consistent with psychological evidence that lower temperatures can make people behave more aggressively (Schneider et al., 1980).

Individual investors accrue significant losses in the market in Taiwan. Between 1995 and 1999, individual investors lost, on average, 187 million New Taiwan Dollars annually – about 2% of Taiwan's gross domestic product. Barber et al. (2009) attribute these dramatic losses to the fact that investors in Taiwan's stock market (which was predominated by individual investors) often show

³ A vivid example is Nick Leeson, a trader in Singapore, who followed a local employee's recommendation and created an account with the number “88,888” to cover up his investment losses.

⁴ Another example is the pricing of phone numbers. In Taiwan, prices vary according to digits. Telecommunications companies vary phone number prices based on how lucky a phone number is.

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