Does investor sentiment influence gambling behavior? Evidence from the Chinese stock market.

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*Abstract:*This study examines the influence of investor sentiment on stock market gambling behavior using Chinese stock market data from January 2019 to December 2021. The research reveals a positive impact of investor sentiment on gambling behavior, particularly amplified after the onset of the COVID-19 pandemic. Non-cyclical stocks demonstrate a heightened susceptibility to investor sentiment compared to cyclical stocks. Additionally, the study identifies gambling behavior as a positive mediating variable in the relationship between investor sentiment and stock returns.

Keywords: Investor sentiment, Gambling behavior, Social media, stock return

1. Introduction

Stock market investment behavior resembles gambling, as investors invest a lesser amount with the anticipation of substantial returns (Markowitz, 1952)[7]. Prior research has identified factors influencing this behavior, encompassing age, education, and gender (Kumar, 2009) [10]. Kumar (2011)[11] observed the impact of religious beliefs on fund managers' gambling behavior. Additionally, literature has explored the influence of investor sentiment on 'irrational behaviors,' such as herding behavior. Fotini Economou et al. (2018)[5] assessed investor panic, while Liao et al. (2011)[13] established a significant positive correlation between daily investor sentiment and fund managers' herding behavior. The literature review indicates a notable absence of specific articles examining the influence of investor sentiment on gambling behavior. Consequently, this paper posits that an investigation into this relationship can significantly augment stock market participants' understanding of investors' psychological preferences, thereby deepening their comprehension of stock market operations.

This study makes several key contributions. Firstly, it addresses a significant gap in existing literature, which has not consider the impact of investor sentiment on such behavior. Secondly, the paper introduces a novel mechanism for the influence of investor sentiment on stock returns. Thirdly, As of 2023, natural person investors constituted 99.76% of total investors in China. Therefore, this study's emphasis on the Chinese market is instrumental in studying the impact of investor sentiment on gambling behavior, holding significant implications.

2. Data & methodology

2.1Data and variables

The temporal scope of this paper is defined as spanning the years 2019 to 2022. For this research, sample stocks were chosen from the CSI 300 and CSI 500 indices. The data underwent meticulous processing: the exclusion of companies undergoing movements as well as those suspended for over 30 consecutive days. This process resulted in the identification of 365 sample stocks. The data utilized in this study originated from the Oriental Fortune Stock Bar, CSMAR and Wind.

Initially, web crawler technology was employed to systematically crawl and store content. Subsequently, the crawled text underwent preprocessing, involving the removal of deactivated words after word segmentation. Data with null time entries were also excluded, and topic posts containing information and research reports were filtered out. For sentiment analysis, this paper utilized the Zhi.com Hownet sentiment dictionary, the National Taiwan University ntusd sentiment dictionary, and so an. These resources collectively contributed to the creation of a comprehensive sentiment lexicon. Ultimately, this process culminated in the generation of the monthly sentiment index.

2.2 Methodology

The paper's explained variable is the gambling index of individual stocks, as elucidated by Kumar (2009)[10], Bali et al. (2011)[2], and Kumar et al. (2016)[12]. This section employs a brief panel fixed effects regression, with both individual fixed effects and time-fixed effects

fixed. The formula are presented below.

$$Gamble_{i,t} = \left(\frac{IV_{Rank_{i,t}}}{N} + \frac{MAX_{Rank_{i,t}}}{N} + \frac{Price_{Rank_{i,t}}}{N} \right) /3 \quad (1)$$

$$Gamble_{i,t} = \beta_0 + \beta_1 Senti_{i,t} + \beta_2 Beta_{i,t} + \beta_3 ILLIQ_{i,t} + \beta_4 Lnsize_{i,t} + \beta_5 Leverage_{i,t} + \beta_6 Ret_{-1_{i,t}}$$
$$+ \beta_7 Ret_{-2,-12_{i,t}} + \mu_i + \lambda_t + \varepsilon_{i,t} \quad (2)$$

Where and represent the Intuitive Gambling Index and Investor Sentiment for stock i in month t, respectively. Control variable choices are informed by Hai et al. (2020)[6]. measures of stock price volatility. refers to Amihud's (2002)[1] study. is calculated as the ratio of total liabilities to total assets. is the return on stock i at month t-12 to the average return on the index in month t-2. is the return on stock i at month t-1 (Jegadeesh et al, 1993)[9].

3. Analysis of regression results

Table 1 illustrates a positive correlation between the individual stock investor sentiment index gambling index and gambling behavior, with coefficients reaching 0.104. This suggests that the intuitive gambling index is notably influenced by shifts in the mood of individual stock investors. The findings indicate an escalation in gambling behavior as individual stock investor sentiment rises.

The fixed effects regression coefficients for individual stock investor sentiment, measured by Gamble, on individual stock gambling behavior are 0.225 and 0.538 before and after the COVID-19 pandemic, respectively. Both coefficients exhibit significance at the 1% confidence level. This suggests that, following the epidemic, the macroeconomic environment and individual incomes experienced negative impacts, potentially leading to a shift in investment mentality towards increased risk-taking and speculative behavior as a means to offset losses.

Cyclical and non-cyclical stocks exhibit regression coefficients of 0.109 and 0.099, respectively, concerning individual stock investor sentiment measured through Gamble. Non-cyclical industries, predominantly linked to the national economy and greater information transparency. Consequently, investors demonstrate less caution in decision-making. Hence, this trend results in a heightened inclination towards investing in non-cyclical stocks, thereby amplifying the influence on gambling behavior.

This paper performs robustness tests, employing ISkew. Subsequently, empirical analysis utilizes two-stage least squares (2SLS). The results, though not presented here due to space limitations, maintain their robustness.

Table 1 Empirical regression results

		Pre-COVID	Post-COVID	Cyclicals	Non-Cyclicals
	(1)	(2)	(3)	(4)	(5)
	Gamble	Gamble	Gamble	Gamble	Gamble
Senti	0.104	0.225	0.538	0.109	0.099
	***	***	***	***	***
beta	0.014	-0.003	0.004	0.017	0.010
	***	(-0.37)	(1.23)	***	***
ILLIQ	-2.236	-1.756	-1.579	-2.258***	-2.232
	***	***	***	***	***
Lnsize	-0.051	0.097	0.077	-0.050	-0.052
	***	***	***	***	***
Leverage	0.015	0.264	-0.058	0.019	0.008
		**			
	0.262	0.010	0.134	0.283	0.242
	***		***	***	***
	0.698	-0.883	-0.218	0.728	0.659
	***	***	**	***	***
Constant	0.974	-0.633	-0.177	0.962	0.99
	***	**		***	***

Note: *, **, *** represent statistical significance at 10 percent, 5 percent and 1 percent, respectively.

4. A study of the mediating effect of gambling behavior in investor sentiment affecting stock returns

4.1 Methodology

The literature indicates a substantial impact of investor sentiment on stock returns (Brown et al., 2004[3]). Multiple regression models, following the approach outlined by Baron et al. (1986)[4], are employed to assess the mediation effect.

$$Yield_{i,t} = \alpha_0 + \alpha_1 Senti_{i,t} + \alpha_2 Beta_{i,t} + \alpha_3 ILLIQ_{i,t} + \alpha_4 Lnsize_{i,t} + \alpha_5 Leverage_{i,t} + \alpha_6 Ret_{-1_{i,t}} + \alpha_7 Ret_{-2,-12_{i,t}} + \mu_i + \lambda_t + \varepsilon_{i,t} \quad (3)$$

$$Yield_{i,t} = \mu_0 + \alpha_1' Senti_{i,t} + \delta_1 Gamble_{i,t} + \mu_1 Beta_{i,t} + \mu_2 ILLIQ_{i,t} + \mu_3 Lnsize_{i,t} + \mu_4 Leverage_{i,t} + \mu_5 Ret_{-1_{i,t}} + \mu_6 Ret_{-2,-12_{i,t}} + \mu_i + \lambda_t + \varepsilon_{i,t} \quad (4)$$

The monthly return of individual stock i in month t is denoted by . The control variables align with those mentioned above.

4.2 Analysis of empirical results on the mediating effect

The results, though not presented here due to space limitations. It reveals the significance of coefficient when assessing the overall impact of individual stock investor sentiment on individual stock returns. Furthermore, coefficient is significant. Notably, the direct effect maintains significance even with the regression coefficient of the gambling index being 0.285 for gambling. Gambling behavior serves as an indirect variable in the relationship between investor sentiment and stock returns. Investor sentiment positively shapes stock market gambling behavior due to cognitive constraints in a complex stock market environment. Subsequently, gambling behavior directly impacts the stock price, volatility, and yield of a stock through share subscription and selling (Mobeen Ur Rehman, 2021)[8]. In summary, investor sentiment positively affects stock returns by influencing gambling behavior.

5. Conclusions

This paper investigates the correlation between investor sentiment and gambling behavior in the A-share market through the lens of behavioral finance. The findings can be summarized as follows: (1) a noteworthy positive correlation exists between investor sentiment and gambling behavior; (2) the impact of investor sentiment on gambling behavior has intensified in the wake of the COVID-19 pandemic, with non-cyclical stocks exerting a more pronounced influence than cyclical stocks; (3) gambling behavior serves as a positively partial mediator in the relationship between investor sentiment and stock returns.

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