



Investor sentiment and stock returns: Evidence from provincial TV audience rating in China

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HIGHLIGHTS

- Provincial investor sentiment is positively related to stock returns.
- The provincial correlation coefficient is larger than the cross-provincial correlation coefficient.
- There exists home bias in Chinese stock market.
- Provincial investor sentiment can explain the provincial comovement.

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ABSTRACT

In this paper, we advocate the provincial TV audience rating as the novel proxy for the provincial investor sentiment (PIS) and investigate its relation with stock returns. The empirical results firstly show that the PIS is positively related to stock returns. Secondly, we provide direct evidence on the existence of home bias in China by observing that the provincial correlation coefficient is significantly larger than the cross-provincial correlation coefficient. Finally, the PIS can explain a large proportion of provincial comovement. To sum up, all these findings support the role of the non-traditional information sources in understanding the “anomalies” in stock market.

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1. Introduction

The role that investor sentiment plays in asset pricing has been highlighted for a long history in financial economics. The earliest discussion could broadly trace back to Keynes's “animal spirits”, which claims that prices move in a way unrelated to fundamentals [1]. The academic enthusiasm has been aroused by Refs. [2–6], who clearly illustrate that irrational noise traders (with erroneous psychological beliefs and diverse biases) could not be offset by limited arbitrageurs and therefore they have material impact on stock prices. To empirically investigate this issue, various investor sentiment proxies have been put forward to investigate the contemporaneous correlations between investor sentiment and market-wide variables e.g., stock returns, volatility and liquidity as well as time series predictive power for these variables.

Among these, two distinct streams of literature stand out. The first stream refers to the continuous observations of overly forecasts of cash flow or investors' state of mind revealed by survey on individual investor or consumer confidence [7–12], sentiment extracted from the online message boards [13–16] as well as the market-wide variables, including net mutual

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fund redemptions, dividend premium, bid–ask spreads and average first-day returns on IPOs [17–20]. The rationale of these studies is that some proxies are essentially correlated to investor sentiment or served as the reflections of investor behavior. For example, the linguistic analysis of the online postings in message boards could be expounded as the individual investor sentiment towards certain firms. However, this stream of literature has the disadvantage of endogenous problem. Because the online postings and changes in market variables, e.g., dividend premium and bid–ask spreads, could be the results of the trading activities. It is inappropriate to “test a theory that is about from inputs to outputs with an output measure” as claimed by Ref. [21]. Besides, the participation rate of the survey is not sufficient enough and participants have little incentives to response to survey questions truthfully. The second stream of the literature mainly relies on some sentiment-altering events, which can lead to sentiment changes in a large number of investor and thus influence the asset prices. Therefore this stream of sentiment proxies is discrete variable, including the game results of sport event [22,23], TV series finales [24] as well as the aviation disasters [25]. This stream of sentiment proxies outperforms the first in the sense that it avoids the endogenous problem as well as provides more objective emotions. Admittedly, these discrete proxies only allow us to investigate the price changes around the special events, but fail to provide further illustrations on time series anomalies.

In this paper, we aim to bridge the gap between the above-mentioned two streams of literature by advocating the provincial TV audience rating as the novel proxy for the provincial investor sentiment (hereafter, PIS). This PIS proxy has the advantage of coming from a large number of potential investor, avoiding the endogenous problem as well as serving as continuous observations. The rationales of this interpretation are in the following three aspects. Firstly, drawing on the literature on economic psychology, sentiment can affect financial decision-making through determining the risk perception as well as the information processing behavior of investors when forming expectations [26,27]. Secondly, given the high coverage rate, the TV audience rating represents the sentiment from hundreds of millions of the TV watcher. Besides, as is shown in Ref. [24], TV series final can eventually affect investors' demand for risky assets through connecting with reviewer's emotions. Thirdly, Internet information has been extensively employed in econophysics [28–40]. In particular, the utilization of search engine [31–33,35,38,39], online news [29,37,40] as well as the microblogging [36] has profoundly reshaped our understanding of complex financial economic systems. With this novel PIS proxy, we contribute to the existing literature in two aspects. On one hand, we can directly measure the correlation coefficients between PIS and its corresponding as well as stock returns of others provincial. The distinct differences in the correlation coefficients provide direct evidence on the existence of home bias in Chinese stock market. On the other hand, the PIS can explain a large proportion of provincial comovement and the results are robust to alternative proxies of PIS across different models.

The rest of this paper is organized as follows. We put forward the hypotheses in Section 2. Section 3 describes the data. Section 4 performs the empirical analysis and illustrates the results. Robustness test is given in Section 5. Section 6 concludes.

2. Hypotheses

The daily PIS proxy allows us to directly examine the behavioral predictions on the contemporaneous relations between investor sentiment and stock returns. Existing literature based on the proxies constructed by Internet information has documented a positively contemporaneous relation to stock returns [15,16], showing that the highest (lowest) sentiment corresponds to positive (negative) stock returns in the market index. In that sense, we put forward the most straightforward hypothesis on the positively contemporaneous relations between PIS and corresponding stock returns.

Hypothesis 1. The PIS has a positively contemporaneous relation to stock returns.

The home bias phenomenon has long been one of the most intriguing puzzles in financial economics, which could be understood as investors construct their portfolios with disproportionate amount of assets on local (domestic) equities in spite of the benefits of diversifications [41–43]. Besides, several findings emphasize the crucial role of geographic location in financial decision-making and asset prices [44–47]. In that sense, if there exists home bias puzzle in Chinese stock market, the correlation coefficient between PIS and corresponding stock returns (provincial correlation coefficient) should be larger than the correlation coefficient between PIS and stock returns of other provinces (cross-provincial correlation coefficient). For the same reason, there should be no significant differences in provincial correlation coefficient and cross-provincial correlation coefficient if there is no home bias puzzle in Chinese stock market. The following two alternative hypotheses are naturally derived.

Hypothesis 2a. The provincial correlation coefficient is larger than the cross-provincial correlation coefficient.

Hypothesis 2b. There are no significant differences in provincial correlation coefficient and cross-provincial correlation coefficient.

In a recent work by Wongchoti and Wu [48], they show that stock returns exhibit provincial comovement after controlling for the market and industry effect. This location-based movement cannot be explained by fundamental factors and is pronounced in firm with large number of local investors [49]. In that sense, if PIS represents the sentiment from local investors, it should display some explanatory power for the observed provincial comovement. Therefore, we put forward the hypothesis on the explanation of PIS on provincial comovement.

Hypothesis 3. The PIS can explain the provincial comovement.

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