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Can investor sentiment be used to predict the stock price? Dynamic analysis based on China stock market

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HIGHLIGHTS

- Investor sentiment data is obtained through user comments.
- TOP methods are used to explore the dynamic lead-lag relationship.
- Investor sentiment can be used to predict the stock price sometimes.

ABSTRACT

With the development of the social network, the interaction between investors in stock market became more fast and convenient. Thus, investor sentiment which can influence their investment decisions may be quickly spread and magnified through the network, and to a certain extent the stock market can be affected. This paper collected the user comments data from a popular professional social networking site of China stock market called Xueqiu, then the investor sentiment data can be obtained through semantic analysis. The dynamic analysis on relationship between investor sentiment and stock market is proposed based on Thermal Optimal Path (TOP) method. The results show that the sentiment data was not always leading over stock market price, and it can be used to predict the stock price only when the stock has high investor attention.

Keywords: investor sentiment; Thermal optimal path; stock market; dynamic analysis

1. Introduction

Under the Efficient Market Hypothesis (EMH), all relevant information is included in the stock price as each participant in the market is perfectly rational [1]. With the rapid development of financial market in recent decades, more and more different kinds of investors participated in stock market, and lots of financial anomalies which not conforming to EMH emerged. A growing number of evidence found that investors are not fully rational. For example, they may overconfidence about the precision of private information [2]. With the maturing of the behavioral finance, the influence of investors' irrational factors on stock market caused more attention [3]. The classical theoretical models of behavioral finance such as DSSW, BSV, DHS and HS, studied the effect of investors' irrational factors like overconfidence, herd behavior, information asymmetry and so on in stock market from different perspectives [4-7].

Stock market is a typical complex system with different types of agents [8]. Individual investors as one important kind of agents in the market, their decision may affect the movements of the market price and volatility. With the development of the social network, the interaction between

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