



Advances in Research on Investor Sentiment and Stock Returns

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ABSTRACT

In recent years, along with the continuous development of empirical research methods, there has been a proliferation of studies surrounding the relationship between investor sentiment and stock returns in recent years. Under the field of behavioral finance, research on investor sentiment is also a keen object of study for many scholars, and the research literature on the relationship between investor sentiment and stock returns is the richest. Combining the recent literature on investor sentiment and stock returns from scholars at home and abroad, this paper focuses on the definition of investor sentiment, the measurement of investor sentiment, summarizes the relationship between stock return analysis and investor sentiment, puts forward some constructive suggestions on the existing research methods, which will offer some references for future related research, and this paper also puts forward some suggestions on the selection of specific methods when conducting research on stock returns, as well as some suggestions on the choice of specific methods when conducting stock return research.

Keywords: *investor sentiment, investor behaviour, stock returns, literature review, consumer confidence index*

1. INTRODUCTION

The rational man and efficient market hypotheses have been the roots of traditional financial theory for a long time, while dominating it. However, after the 1980s, many economic behaviors and phenomena shook the traditional economic theories, and there seemed to be no way to explain these phenomena using traditional economic theories, which led to the emergence of behavioral finance theories. Behavioral finance theory has countered traditional financial theory by arguing that investors have behavioral cognitive biases and can no longer base their research on the assumption that they are "rational beings" and that they are not "rational beings" but "limited rational beings" whose emotions are affected. Investors are not "rational" but "limitedly rational", and due to psychological biases, irrational behaviour is also possible. This is why the study of investor sentiment is difficult due to the special nature of "human beings", and it would be of some practical significance to analyse investor sentiment in order to judge financial phenomena.

At present, in the field of behavioral finance, investor sentiment has been the object of many scholars' research, and the research literature on the relationship between

investor sentiment and stock returns is the most abundant, and the corresponding research findings are also numerous, but there is still no unified standard system and theoretical framework for the research on investor sentiment and stock returns. As the subjects, variables and indicators used in the literature vary, this may lead to some differences in the findings, causing some confusion to scholars in subsequent studies. This paper compares the latest theoretical research results on investor sentiment and stock returns by scholars at home and abroad in recent years, and compares and integrates the characteristics of their research, which is important for the academic research on the influence of investor sentiment on stock returns. This paper also puts forward some suggestions on the selection of specific methods when conducting research on stock returns, as well as some suggestions on the choice of specific methods when conducting stock return researches.

2. INVESTOR SENTIMENT ANALYSIS

2.1. Definition of investor sentiment

Domestic and international scholars have given different definitions of investor sentiment from different

perspectives. The concept of investor sentiment was first introduced by Morck et al [1], who argued that investment is a belief that cannot be reasonably justified, and was later studied from the perspectives of both psychology and investment science. Shleifer [2] was one of the first to define investor sentiment by borrowing from psychological theory, arguing that investor sentiment reflects a dynamic process, i.e., investors' misuse of Bayes' rule. Barberis et al. [3] interpreted this dynamic process as an overreaction to either positive or negative news based on cognitive psychology and expectation theory, while Brown et al. [4] explained investor sentiment in terms of investment attitudes. Based on previous research, investor sentiment is generally defined as biased beliefs, expectations or preferences that are formed as a result of irrational investors.

Domestic scholars, on the other hand, argue that investor sentiment is an expectation of the future and that investment judgments based on sentiment can have an impact on stock market volatility. Thus, where investors and capital markets are in a situation of information asymmetry, there is an interaction between investors and capital markets, and as information is transmitted to the investor system, the interaction causes investor sentiment to also form certain differential psychological expectations for later, systematic investments.

2.2. Investor Sentiment Metrics

The measurement of investor sentiment or the selection of an investor sentiment index has been a controversial issue and there has been a great deal of academic focus on the measurement of investor sentiment indices over the years. Existing indicators used to measure investor sentiment can be divided into three main categories, namely direct, indirect and composite indicators. Direct indicators are indices based on surveys of investor sentiment and generally use research methods such as questionnaires to collect data from a wide range of traders (to understand their judgement of future market movements).

Due to the difficulty of directly investigating investor sentiment itself, scholars usually substitute other indicators, including Kenneth L. Fisher and Meir Statman's Consumer Confidence Index; Shiller's Investor Confidence Index; UBS/GALLUP's Investor Optimism Index, and similar indicators such as the Stock Analyst Sentiment Index. There are also scholars who construct investor sentiment indices directly, for example, Wang Meijin et al [5] constructed an investor sentiment index using the China CCTV Watch Index.

Indirect indicators are indices of investor sentiment based on objective market data, usually using data on actual capital market trading volumes. These include, among others, the closed-end fund discount proposed by Shleifer, the level of market liquidity, the number of first-

day public offerings, the number of new investor accounts, etc.

The composite index is a combination of the two. The composite index is constructed by combining a number of single indicators including closed-end fund discount, IPO first day return, IPO volume and trading volume, market turnover and consumer information to construct an investor sentiment index for principal component analysis, resulting in a composite index to measure investor sentiment.

In addition, as high-frequency data on investor sentiment is difficult to obtain, in recent years, due to the development of technology in recent years, the application of the Internet and big data has gradually increased, scholars have made some exploratory attempts to construct various composite indicators by data mining online information. Antweiler et al [6] used machine learning to quantify the sentiment of posts on Yahoo! Finance) and Raging Bull (Raging Bull), and found that post sentiment was negatively correlated with stock returns. Bollen et al [7] compared the predictive power of traditional investor sentiment indicators with social media investor sentiment indicators for stock markets, and found that social media investor sentiment indicators were more effective. However, such methods are not rigorous in their measurement of investor sentiment, and most of them lack objectivity and reasonable criteria through simple identification of big data text and semantics.

3. RELATIONSHIP BETWEEN INVESTOR SENTIMENT AND STOCK RETURNS

After nearly a decade of research, countless scholars have proven that investor sentiment has a significant positive correlation with stock returns, but although an impact has been proven, the specific impact varies according to the subject of study, methodology, etc. The impact findings are now categorized and summarized.

3.1. Institutional versus individual investors

It is shown through Zhang Yai [8] et al. that when both individual investors and institutional investors are present in the market at the same time, as institutional investors have capital and information advantages, they increase the overall market perception of stocks by increasing the demand for perceived stocks, thus reducing the expected return on stocks. This suggests that institutional investor sentiment leads to lower expected returns on stocks than individual investors and that the presence of institutional investors has a negative impact on stock returns. Meanwhile Liu and Vicky [9] et al. found that institutional investors' sentiment can help predict individual investors' sentiment and the reverse does not hold; in addition institutional investors behave more rationally in the market and their sentiment can predict

the aftermarket, while individual investors' sentiment is not predictive. And both for individual and institutional investors, it is consistent with the conclusion that the more attention investors pay to a stock, the more sensitive its returns are to changes in investor sentiment. This shows that both individual and institutional investor sentiment have an impact on stock returns, but there are some differences.

3.2. Asymmetry: positive positive emotions versus negative negative emotions

Through a study by Chen Peng [10] and others, optimism and pessimism have an asymmetric impact on stock returns, for example, both the Shanghai and Shenzhen A-share markets and the GEM market exhibit a greater sensitivity to changes in investor optimism, with significant differences in the magnitude of returns affected by sentiment across sectors. Positive and negative changes in investor sentiment show the same asymmetric impact on stock volatility in both the Shanghai and Shenzhen A-share markets and the GEM market, with positive sentiment changes enhancing stock return volatility, while negative sentiment changes have a non-significant impact on stock return volatility. Wen Fenghua [11] et al. also found that models that considered positive and negative sentiment separately had a better fit for returns.

3.3. Market scope: short-term vs. long-term markets

When exploring the aggregate and cross-sectional effects of investor sentiment on stock returns, Jiang Yumei [12] et al. showed that for the aggregate effect, sentiment is positively related to short-term market returns and negatively related to long-term market returns, suggesting that investor sentiment has a systematic effect on stock returns.

3.4. Stock market stages: high and low valuations

Zhu Honghong [13] found that during the high valuation phase, it is mainly irrational sentiment that creates stock market volatility, and during the low valuation phase, rational sentiment has a greater impact on volatility; irrational sentiment has a greater impact on small-cap stocks and rational sentiment has a greater impact on large-cap stocks, and rational sentiment has no less of an impact on asset volatility than irrational sentiment. The variability of this impact on stocks of different sizes is even more pronounced when sentiment shocks are added.

3.5. Stock characteristics

Jiang Yumei [12] and others found, in relation to cross-sectional effects, that there are differences in the sensitivity of stock returns to sentiment. For stocks with low values of characteristics such as dividend yield, tangible asset ratio, price, P/N ratio, P/E ratio, volatility, average household ownership ratio and stocks with high gearing ratios, their stock returns are more susceptible to investor sentiment. Such stocks have excess returns in the current period or lagged period when sentiment is optimistic, and vice versa when sentiment is pessimistic, and investor sentiment has some predictive power and explanatory effect on such excess returns.

3.6. Equity sector

Under the influence of changes in investor sentiment, there is significant variability and asymmetry in the volatility of returns across sectors affected by positive and negative changes in sentiment.

3.7. Stock companies differ in size

Liu Xudong [14] found through his research (there is a difference in the effect of investor sentiment between economically developed regions and economically less developed regions, the share price of companies in economically developed regions is less affected by investor sentiment than economically less developed regions; the effect of investor sentiment on stock returns is not significant for state-owned enterprises compared to non-state-owned enterprises, and the share price of companies in non-state-owned enterprises is more vulnerable to the effect from investor sentiment).

For large companies and small and medium-sized companies, the effect of investor sentiment is stronger for large companies than for small and medium-sized companies. Therefore, investors should pay attention to the rational view of the sentiment factor and return to value investment in stocks, and the regulator should strengthen market supervision and improve the market mechanism to form a good investment environment. Liu Yanchen obtained from his research that investor sentiment has a greater impact on the return volatility of small and mid-cap indices (e.g. CSI 500) and a smaller impact on the return volatility of large-cap stock indices (e.g. CSI 100).

3.8. Stock markets: bull and bear markets

Rao Lanlan et al [15] empirically investigated the asymmetric impact of investor sentiment on stock returns in bull and bear markets. The study shows that investor sentiment is a systematic influencer of stock returns in Shenzhen and Shanghai markets under different market states of bull, bear and shock, and has a significant asymmetric impact. The impact of investor sentiment on

stock returns in Shanghai and Shenzhen is greater in bear markets than in bull markets.

4. CONCLUSION

A summary of the research and literature on investor sentiment and stock returns shows that there is a wide variety of research subjects and methods chosen for the current study, and that there is a blossoming situation without a certain pattern or pattern, and that there is still room for improvement. In terms of the measurement of investor sentiment, the data sources and selection are relatively one-sided, usually choosing indirect indicators to reflect, even if the selection of direct indicators is less concerned about the psychological mechanisms and models of sentiment changes, unable to express the changes in investor sentiment in a timely and comprehensive manner, some data and information with the ability to reflect investor sentiment is less attention, for example, authoritative and influential experts and celebrities, social Some of the data that reflect investor sentiment are less well attended to, such as authoritative and influential experts and celebrities, news on social networking platforms, public press statements and financial institutions' research reports.

It is therefore suggested that with the development of internet platforms, the advent of the information age and the increasing availability of textual big data, the degree of application of unstructured textual big data can be enhanced by means of data mining of online information. The use of web crawler technology and other means to select reasonable real-time high-quality text data such as online platform posts, which can more intuitively measure investor sentiment, build a more accurate and realistic indicator system to reflect investor sentiment, while expanding the sources and scope of investor sentiment data and enriching information content. However, when collecting data, it is also necessary to take into account the differences and characteristics of each data platform, such as differences in countries, cultural environments, user groups, etc. This can be done through categorization surveys, as well as building big data user profiles to help improve the accuracy of platform semantic recognition.

On the other hand, the research methodology could be more detailed. If variables are chosen arbitrarily and studied randomly, there is a risk that the correlation that exists between the two is low or non-existent, the research is less efficient and the results of the research are more difficult to obtain. If it is possible to set up a system of classification for the study, a specific indicator corresponding to investor sentiment is selected for the study of a certain type of stock return, and by broadly classifying the stock market to be studied, such as which region it belongs to, which size, etc., and by classifying it according to the characteristics of this stock, and also according to the sentiment of different types of investors,

indicators at different time frequencies, stocks with different characteristics, data under different economic cycles, etc. The accuracy and relevance of the research results will be greatly enhanced and more innovative and reasonable conclusions may be generated.

AUTHORS' CONTRIBUTIONS

This paper is independently completed by Qianyi Xia.

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