



# The Landscape of Sentiment Factors and Its Effects on Investment

Xinyue Hu<sup>1</sup>, Yutong Jia<sup>2</sup>, and Ziyao Wu<sup>2</sup>(✉)

<sup>1</sup> Nanning No. 2 High School, Nanning, China

<sup>2</sup> Insight Academy of Canada, Toronto, Canada

HDJ5@mail.cu.edu.kg

**Abstract.** Investor sentiment affects asset prices to a large extent, serving as an important factor in the functioning of financial markets. This article sums up the factors affecting investor sentiment in three following ways. The factors affecting investor sentiment are the starting point of everything. Based on previous literature on investor sentiment, the factors are related to the market, social opinion, policies, enterprises and unexpected events. Besides, investor sentiment index is an important basis for measuring the corresponding effects on portfolios investment. This paper introduces and summarizes several of the research using the DSSW model and DW index, etc. On this basis, it is separated to aggregate and cross-sectional effects, and analyzes the impacts of aggregate from the perspectives of correlation and predictive power. The present study aims to summarize the previous findings as well as the shortcomings in order to offer a guideline for future research.

**Keywords:** Investor Sentiment · DSSW Model · DW Index · Stock Market Returns

## 1 Introduction

The theory of behavioral finance suggests that asset prices are determined by both their inherent values as well as trading behavior and psychological factors, i.e., investor sentiment also affects asset prices to a large extent serving an important factor affecting the functioning of financial markets as a whole.

Generally speaking, investor sentiment corresponds to the intrinsic bias of investors for assets forecasting, which is a rather tough task to evaluate and analysis the intentions for investments decision. Investors can feel its objective presence, but investor sentiment is always volatile as each individual investor is different. However, one has to admit that it is a rather critical term in the field of finance as it is a form of random issue that influences investors' subjective judgments of investment benefits. Contemporarily, it is lack of a specific standard definition for the term investment sentiment. A group of scholars argue that procedures forming ordering decisions can be regarded as the definition, while others argue that it is blocked by investors' subjective preferences in

---

X. Hu, Y. Jia, and Z. Wu—These authors contributed equally.

© The Author(s) 2023

D. Qiu et al. (Eds.): ICBEM 2022, AHIS 5, pp. 800–812, 2023.

[https://doi.org/10.2991/978-94-6463-030-5\\_79](https://doi.org/10.2991/978-94-6463-030-5_79)

consideration of value movements of stocks entering the market. The more common view on investor sentiment is that investors have a general present-pleasure judgment on stocks.

Recently, as investor sentiment towards the maker of the new coronavirus vaccine has waned, and as rivals Pfizer (PFE.US) and Merck Sharp (MRK.US) have experienced the longest losing streak since 2019 in December 2021 due to the progress of rivals Pfizer (PFE.US) and Merck Sharp (MRK.US) on new coronavirus oral drugs, coupled with the rapidly spreading Omicron virus variant, Moderna (MRN.US) shares have been under pressure. The longest losing streak since 2019 has seen a cumulative loss of 28% in one month and a share price pullback of approximately 48% from all-time highs. It is ample evidence proving the truth of the apparent effects of sentiment on equities.

The rest part of this paper will be organized as follows. Section 2 will summarize the factors that influence investor sentiment. Among these, many researchers have studied the market. For example, the markets only have an impact in the short run and not significantly for a longer timeframe [21]. It is worth noting that the spread of novel coronavirus pneumonia has similarly led to fluctuations in investor sentiment in recent years [29]. In this section, we also summarize policies, companies, public opinion etc. Section 3 will summarize the construction of investor sentiment indicators. One of the most common models used by domestic and international scholars is DeLong's DSSW model, which is used as the basis for constructing a model that fits their research situation [9]. Another common method is Baker's DW index, which is a method of selecting variables that are representative of emotions and performing principal component analysis on their residuals [1]. Section 4 will summarize the effect of human beings' sentiment on portfolio investments. Thereinto, plenty of researchers indicate the positive relationship between the two (e.g., Liu and Chen, Fisher and Statman [12, 22]). In addition, regarding cross-sectional effects, a large number of scholars such as Baker and Wurgler, Lemmon and Golubeva have shown the relationships are influenced by different types of stocks [2, 23]. Eventually, Sect. 5 will summarize the review of the entire paper.

## 2 Factors Affecting Investor Sentiment

In general, previous studies of investor sentiment have focused on the investor sentiment effects on investment decisions, as well as corporate investment. A few scholars have also carried out research on relevant aspects of factors affecting investor sentiment. Plenty of researchers have implemented more investor sentiment indices and research findings in the course of their studies. Based on theoretical and empirical analyses, some key influential factors of investor sentiment have been investigated. On the one hand, the theoretical mechanism of the influence of some factors on the sentiment of market participants are explained. On the other hand, the testification is applied through empirical analysis to obtain more reliable conclusions. In summary, the factors that affect investor sentiment includes market, social opinion, policy, corporate debt level, age of executives and unexpected events (e.g., Novel coronavirus pneumonia). Thereinto, institutional investors' sentiment in turn has an impact on individual investors' sentiment. The summary of the factors of references have been listed in Table 1.

**Table 1.** THE SUMMARY OF THE FACTORS

| Research Methodology  | Conclusion   |
|---|--|
| <p>FAVAR method is used based on investor sentiment index the constructed in terms of the IPO amount, turnover rate, IPO return and number of new accounts [8].</p>   | <p>The short-term effects dominate (i.e., much more significant than it in the long run.</p>   |
| <p>Based on investor sentiment indicators, the factors affecting investor sentiment are examined from a time series and cross-sectional perspective [21].</p>   |  |
| <p>The maximum daily return anomaly of A-shares is verified based on SSE A-share data from 2011 to 2018 and explained by combining investor attention theory and investor lottery preference theory [24].</p>   | <p>For of highly sensitive market, betting-oriented investors show stronger intention to impulsively execute buy operations driven by optimism, increasing the probability of conversion from concern to trade, which in turn leads to a more pronounced degree of concern for maximum daily return anomalies.</p> |
| <p>In-depth analysis of the various factors influencing Chinese securities investor sentiment is examined based on investors' expectations [13].</p>  | <p>The dominant misinformation of social opinion and the intersection of policy lag and discomfort can cause investor sentiment to fluctuate.</p>  |
| <p>The historical background of the emergence of behavioral economics is discussed, and the foundations of behavioral finance theory and the existing basic models are introduced, and the future direction of behavioral finance is proposed [39].</p> |  |
| <p>The mechanism of action and causality of policy and public opinion as the main influencing factors of investors' sentiment are empirically analyzed by taking China's shareholding reform as the background [40].</p>                                |  |
| <p>The literature on sentiment and sentiment in some domestic and international journals was compiled, and market trading data was applied, and some common factors of sentiment indicators were derived using principal component analysis [15].</p>   | <p>The role of market sentiment on stock spreads is more pronounced, and the impact of institutional one is more pronounced than individual one.</p>   |

*(continued)*

**Table 1.** (continued)

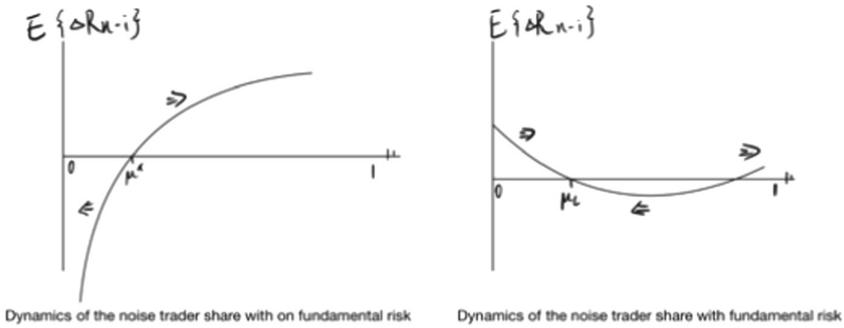
|  |   |
|--|---|
| The explanation of investor sentiment is compiled by economists, capital pricing research in behavioral finance, and the history of the development of investor sentiment indicators [33].   |   |
| The effects of institutional, individual and underlying assets sentiment indicators on price spreads and ratios are investigated [25].   |   |
| China's A-share listed companies from 2008 to 2015 were selected as a sample to measure market sentiment. The data extraction and model building analysis were also conducted to explore the correlation between sentiment and corporate debt levels kinds of corporations [37]. | A negative relation appears among sentiment and corporate debt levels, and it is also negatively related with executive age, and this correlation is more significant in SOEs.  |
| By using global principal component analysis to regress the index under the impact of the COVID-19, a dynamic panel model based on the Fama-French-3-factor model as well as sub-segments were developed for empirical testing [29].   | During the study period, the overall investor sentiment is optimistic and positive. As for the epidemic, an unexpected event, is negatively correlated with the constructed investor sentiment index, i.e., the epidemic makes investors have negative and panic sentiment, but does not make investors' sentiment completely negative and panic. |

### 3 Construction of Investor Sentiment Indicators

For evaluation of the investor sentiment on stock markets, the way to measure the investor sentiment is a momentous problem. It can partially be solved by mathematical modeling. In the financial filed at present, there have had some relatively mature index to measure it. There are some dominant indexes which formed by market researchers which reflect market participants' views on the future market (e.g., Investors Intelligence, American Association of Individual Investors, CCTVBSI). Besides, some investor sentiment models established by scholars are also very famous, e.g., DSSW [9], BW index [1]. These indexes make the measurement of investor sentiment more operable.

The most popular models in essays about investor sentiment are DSSW and BW index. BSSW mode, developed by DeLong in 1990 [9], refers to investors who are influenced by sentiment as noise traders.

There are lots of scholars doing research about investor sentiment based on this model. They usually combine their specific research direction to transform the DSSW model into a model which is more suitable for the actual situation. Wang and Sun built a model based on the DSSW that will have a better performance to predict the sentiment of Chinese investors from the perspective of China's stock market [34]. Zhang and Li puts forward a "institutional noise trader and individual noise trader model" based on DSSW and Chinese market condition too, which analyzes and explains the survival mechanism



**Fig. 1.** The noise trade with (left panel) and without (right panel) fundamental risks [37]

of random trade (also known as noise trade) [41]. Binswanger [3] dynamically extends the DSSW model, allowing the judgment error of noise traders’ expectation of asset price to change with time (see Fig. 1).

Another more popular model is investor sentiment index created by Baker and Wurgler [1]. They select proxy variables that can represent investor sentiment. These data is then subjected to multiple linear regressions on macroeconomic variables (e.g., CPI and residuals) are taken, i.e., the effect of underlying factors on investor sentiment can be removed. The residuals are then subjected to principal components analysis to filter out idiosyncratic factors associated with the proxy variables.

In terms of the index proposed by Baker and Wurgler, the cumulative variance of the three indicators [4, 16, 30]. However, the index construction method mentioned above is a mainstream method, there are still scholars who question and improve this method [16]. Based on the analysis, the first and second principal components after PCA explained only 6.4% difference in proportion, which does not support the use of the first principal component as a consistent sentiment index. Therefore, a new idea is proposed to create two emotion indicators, rational and irrational emotions, for the study. They found that principal component 1 (closed-end fund discount rate) reacts quickly and dramatically when there is a market correction and is seen as a rational investment indicator. Whereas principal component 2 (average market turnover) shows an early lagging relationship and acts as an irrational sentiment indicator.

Besides the mainstream BW investor sentiment index, other scholars have used other sentiment indices for the sake of exploring the relationship. For example, Wang and Sun do not use the BW index because the discount rate of closed-end funds is still controversial in China but use the “investors intelligence” (an index produced by Chartcraft Investment Services, Inc. That is a weekly indicator of medium-sized investors’ sentiment) and the American Association of Individual Investors (AAII) index, a weekly indicator of individual securities investor sentiment, for impact studies [34].

To sum up, there are as many as a dozen indicators for measuring investor sentiment in contemporary financial research. These indicators give scholars a wealth of options in their research and improving direction. It also helps investors better judge the effects and avoid falling into the trap of sentiment and blindly chasing gains and losses.

## 4 The Impact on Returns

Generally speaking, the effects can be separated to two categories: overall effect and cross-sectional effect.

### 4.1 Overall Effect

In general, the overall effect corresponds to the whole effects possessing on the investment decisions. Up to now, we have proved the existence of above relationships. Bernstein and Pradhuman stated that such a relationship can be negative based on the data of Wall Street sentiment index and S&P index earnings [7], while Lee et al. reported a positive relationship for other indexes and data [26]. Later, Fisher and Statman claimed that the correlation is time sensing, which is negative correlated in short run, vice cetera [12]. Ben-Rephael and others indicated that the relationship is positive for the same period, but negatively for subsequent time range [5]. To be more specific, Berger and Turtle found that the relationship between investor sentiment and returns is path-dependent, showing a positive relationship in the short run while reverse in the long run. Meanwhile, this conclusion is also valid for market portfolio returns [6]. Yang and Zhou studied the joint impact of crowded trading behavior of individual stocks and investor sentiment on stock excess returns, and the results show that the impact is positive and significant [38].

Moreover, it is believed that the effects on stock market returns are also significant, which can not be ignored [17, 22, 35]. Specifically, there is a two-way feedback relationship between them. As mentioned in Refs. [20, 34, 42], it is an inherit and nature factor influencing stock prices, and sometimes the effect is asymmetric. Wen et al. classifies investor sentiment into two opposite sides, and the study finds that when investors are optimistic, a clearly positive relationship appears; when investors are pessimistic, the opposite is true [36].

One observes from the results listed in Table 2, in the period of high sentiment, the average return rate of stocks is positive and higher. Whereas in the period of low sentiment, the average return of stocks is negative and lower. The average return rate shows obvious asymmetry under different emotional states, which means that high mood has a positive impact on stock return rate, while low mood makes stock return rate lower. The average return rate of the same stock is positive during the period of rising investor sentiment, In the period of declining investor sentiment, it is negative, which shows that

**Table 2.** DESCRIPTIVE STATISTICS FOR THE STOCK RETURN IN DIFFERENT PERIODS [36]

|                     | Mean   | Std. Dev. | Skew   | Kurt  | Sum    | Sum Sq. Dev | Obs |
|---------------------|--------|-----------|--------|-------|--------|-------------|-----|
| Whole               | 0.005  | 0.090     | -0.636 | 4.176 | 0.553  | 0.848       | 105 |
| High mood period    | 0.016  | 0.095     | -0.568 | 4.355 | 0.835  | 0.453       | 51  |
| Low mood period     | -0.005 | 0.085     | 0.846  | 3.842 | -0.282 | 0.383       | 54  |
| Increase the period | 0.015  | 0.087     | -0.667 | 3.735 | 0.634  | 0.316       | 43  |
| Reduce the time     | -0.003 | 0.093     | -0.581 | 4.426 | -0.181 | 0.515       | 61  |

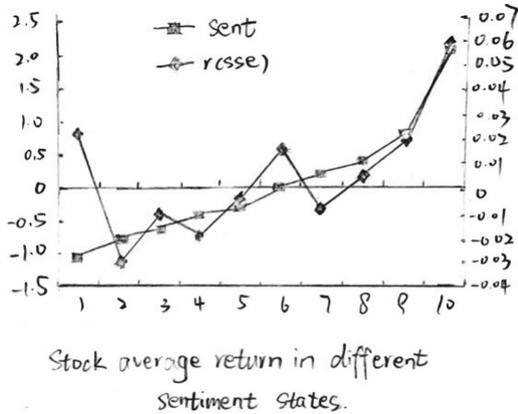


Fig. 2. Stock average return in the different sentiment states [36].

if the new irrational sentiment in the market is positive, i.e., new irrational investors enter the market to push up market sentiment. In addition, there will be a positive feedback effect, which will make stock returns higher. When the mood is in a declining period, i.e., the willingness of irrational investors to participate in the market is decreasing, which will lead to the decline of stock returns. Observing the standard deviation and skewness of stock returns, there is no same characteristic under different emotional characteristic. On this basis, investor sentiment has no impact on the higher moment of stock returns.

As illustrated in Fig. 2, while the emotion level gradually increases the average return rate of stocks also tends to rise, but this rising trend is more obvious when the emotion level is greater than 0. When the investor sentiment level reaches the highest point, the stock return rate also reaches the highest point.

Compared with the period of high emotion, the overall stock return rate in the period of low emotion is at a lower level, but the regular relationship between stock return rate and emotion level in the period of low emotion is not obvious. Liu and Wang also studied from the same perspective [27], which examined the changes of returns of different types of stocks during the optimistic period and the pessimistic period.

Table 3 shows the changes of RH returns classified according to its own characteristics in different emotional periods. The optimism of investors promotes the improvement of stock returns. The change of investor sentiment has a great influence on the change of stock returns. There is a “small company effect” in China’s stock market when investors are optimistic, i.e., the income of small-scale companies is higher than that of large-scale companies. Nevertheless, it is not obvious when investors are pessimistic. In the optimistic period, the medium-sized stock portfolio has higher returns, while the large-sized stock portfolio has lower returns.

Table 4 gives the changes in the returns of stock portfolios classified according to trading characteristics in different emotional periods. Based on the data, the returns of low P/E ratio stock portfolios are almost unaffected by investor sentiment, and their returns are generally smaller than those of high P/E ratio and medium P/E ratio stock portfolios. If investors invest according to P/E ratio, they can invest in high P/E ratio

**Table 3.** THE CHANGE OF RETURN RATE OF STOCKS CLASSIFIED BY COMPANY CHARACTERISTICS IN DIFFERENT EMOTIONAL PERIODS [27]

| Type | Emotional optimism | Period of pessimism | Optimistic period - Pessimistic period | The entire sample period |
|------|--------------------|---------------------|--|--------------------------|
| BH   | 3.79               | 0.02                | 3.76***(14.28)                         | 1.57                     |
| BM   | 3.85               | 0.51                | 3.34***(14.53)                         | 1.94                     |
| BL   | 4.37               | 0.67                | 3.70***(10.32)                         | 2.18                     |
| ZH   | 3.44               | -0.01               | 3.45***(18.30)                         | 1.42                     |
| ZM   | 4.07               | 0.28                | 3.79***(19.33)                         | 1.95                     |
| ZL   | 5.12               | 0.58                | 4.53***(19.35)                         | 2.57                     |
| SH   | 2.26               | -0.03               | 2.29***(17.24)                         | 0.85                     |
| SM   | 3.88               | -0.07               | 3.95***(18.59)                         | 1.76                     |
| SL   | 4.94               | 0.04                | 4.90***(23.60)                         | 2.26                     |

\*\*\* represent for  $p < 0.001$

**Table 4.** THE CHANGE OF RETURN RATE OF STOCKS CLASSIFIED BY COMPANY CHARACTERISTICS IN DIFFERENT EMOTIONAL PERIODS [27]

| Type | Emotional optimism | Period of pessimism | Optimistic period - Pessimistic period | The entire sample period |
|------|--------------------|---------------------|--|--------------------------|
| bh   | 4.25               | 0.96                | 3.29***(9.25)                          | 2.31                     |
| bm   | 4.68               | 0.49                | 4.19***(15.02)                         | 2.35                     |
| bl   | 3.87               | -0.08               | 3.95***(11.00)                         | 1.75                     |
| zh   | 4.74               | 0.66                | 4.08***(13.52)                         | 2.39                     |
| zm   | 3.8                | 0.5                 | 3.30***(14.06)                         | 1.95                     |
| zl   | 3.34               | 0.45                | 2.89***(11.28)                         | 1.71                     |
| sh   | 4.25               | 0.45                | 3.80***(11.15)                         | 2.01                     |
| sm   | 3.55               | -0.08               | 3.63***(10.91)                         | 1.45                     |
| sl   | 2.49               | 0.11                | 2.38***(6.62)                          | 1.07                     |

\*\*\* represent for  $p < 0.00$

stock portfolio in optimistic period and medium P/E ratio stock portfolio in pessimistic period. Stock portfolios with higher turnover rate usually have higher returns.

The data in Table 5 shows the changes of stock returns classified according to industry characteristics in different emotional periods. If it is specific to the industry level, investor sentiment still plays a greater role. Moreover, investors can selectively invest according to the returns of different industry stock portfolios in the optimistic period and the pessimistic period.

**Table 5.** THE CHANGE OF RETURN RATE OF STOCKS CLASSIFIED BY COMPANY CHARACTERISTICS IN DIFFERENT EMOTIONAL PERIODS [27]

| Belong to categories:  | Emotional optimism | Period of pessimism | Deviation      | Entire period |
|--|--------------------|---------------------|----------------|---------------|
| Agriculture, forestry, animal husbandry and fishery                    | 3.14               | 0.08                | 3.06***(5.89)  | 1.61          |
| The mining industry  | 3.48               | -1.62               | 5.10***(14.14) | 1.64          |
| manufacturing  | 4.05               | 0.14                | 3.91***(40.15) | 1.93          |
| Electricity, heat, gas and water production and supply                 | 3.27               | 0.23                | 3.04***(9.84)  | 1.52          |
| The construction industry  | 4.21               | 0.14                | 4.07***(6.24)  | 1.71          |
| Wholesale and retail   | 3.79               | 0.10                | 3.69***(16.05) | 1.76          |
| Transportation, warehousing and postal services                        | 2.37               | 0.40                | 1.97***(6.17)  | 1.05          |
| Accommodation and Catering   | 4.24               | 0.37                | 3.87***(7.19)  | 1.91          |
| Information transmission, software and information technology services | 4.01               | 1.28                | 2.73***(7.09)  | 2.26          |
| The real estate industry   | 3.82               | 1.02                | 2.80***(11.85) | 1.85          |
| Leasing and business services  | 3.57               | 0.38                | 3.19***(5.17)  | 1.92          |
| Scientific research and technology services                            | 5.47               | 1.84                | 3.63***(1.87)  | 3.11          |
| Water conservancy, environment and public facilities management        | 3.43               | 1.08                | 2.35***(2.31)  | 2.00          |
| Health and social work   | 3.49               | 1.17                | 2.32***(7.08)  | 1.96          |
| Culture, sports and entertainment                                      | 4.12               | 0.83                | 3.29***(2.09)  | 2.3           |
| Comprehensive  | 3.76               | 0.88                | 2.88***(7.17)  | 2.04          |

\*\*\* represent for  $p < 0.00$

Definitely, other scholars put forward various viewpoints from different angles. Shi and Wang found that optimistic investor sentiment is the main influencing factor of stock market momentum effect [31]. Zhang, et al. concludes that institutional investor sentiment is a systematic influencing factor of stock price, while individual investor sentiment will not show a significant effect on stock price [43]. This conclusion has been verified in Li, et al. [28]. Jin and Zo analyzed the relationship between investor sentiment and stock returns based on linear and nonlinear Granger causality tests [19]. According to the result, the linear causality and nonlinear causality between investor sentiment and stock returns are different, and the causality is inconsistent under different emotional states.

## 4.2 Cross-Sectional Effect

Cross-sectional effect represents for the different effects of investor sentiment on the stocks. Glushkov, Eckbo and Norli found through four-factor and five-factor models that in addition to several types of stocks mentioned by Baker and Wurgler, young stocks, stocks with high short selling restrictions and stocks with low dividends are also susceptible to investor sentiment [2, 11, 14]. He uses CCI, 11 and Michigan Consumer Sentiment Index (MS) to construct a comprehensive sentiment index, and then verifies the explanatory ability of investor sentiment to the cross-sectional returns of American securities market [18]. Du and Hu analyzed the impact of investor sentiment on cross-sectional pricing and found that the negative correlation between investor sentiment and cross-sectional excess returns was clearly on non-macroeconomic announcement days [10].

In addition to them, the empirical research results of Liu and Wang show that for different types of stocks, changes in investor sentiment have different impacts on them [27]. Zhang and Yang found that the cross-sectional return characteristics of Chinese stock market are caused by irrationality of investors [43]. Song and Li test results show that stock returns with high volatility and high P/B ratio are more sensitive to emotions, while stock returns with small-scale circulation market value are less sensitive to emotions [32]. In General, compared with foreign countries, domestic research started late, hence there are some incomplete in some aspects.

## 5 Conclusion

In conclusion, we organize the previous literature on the subject and present the limitations in order to promote a better development of investor sentiment. Specifically, there is a lack of literature on the factors affecting investor sentiment, especially the literature that is relevant to the times. In the construction of investor sentiment indicators, one can find ways to solve the shortcomings of some indicators to make the construction more perfect. Regarding to the research on the impact of investor sentiment on stock market returns, it is necessary to strengthen the research on the predictive ability, etc. In terms of the impact of investor sentiment on stock market returns, there is a need to strengthen the research on forecasting ability, etc. Overall, these results shed light on boosting further research for emotional impacts on investing and pave a path for future investigation.

## References

1. Baker, Malcolm, and Jeffrey Wurgler. "Investor sentiment and the cross-section of stock returns." *The Journal of Finance* 61.4 (2006): 1645–1680.
2. Baker, Malcolm, Jeremy C. Stein, and Jeffrey Wurgler. "When does the market matter? Stock prices and the investment of equity-dependent firms." *The Quarterly Journal of Economics* 118.3 (2003): 969–1005.
3. Binswanger, Mathias. "Stock markets, speculative bubbles and economic growth." Books (1999).
4. Ba Shu Song, and Zhu Hong. "Financing and Financing Securities, Investor Sentiment, and Market Volatility." *International Financial Studies* 8 (2016):15.
5. Ben-Rephael, Azi, Shmuel Kandel, and Avi Wohl. "Measuring investor sentiment with mutual fund flows." *Journal of financial Economics* 104.2 (2012): 363–382.
6. Berger, David, and Harry J. Turtle. "Sentiment bubbles." *Journal of financial markets* 23 (2015): 59–74.
7. Bernstein, Richard, and Satya D. Pradhuman. "A Major Change in Our Work II: 'Sell Side' Indicator Gives a 'Buy' Signal." *Merrill Lynch Quantitative Viewpoint* 20.1 (1994): 4.
8. Chen, Ying, and Zheng, Chong. "The Impact of China's Monetary Policy on Investor Sentiment." *Shanghai Finance* 2 (2017):8.
9. De Long, J. Bradford, et al. "Noise trader risk in financial markets." *Journal of political Economy* 98.4 (1990): 703–738.
10. Du, Ding, and Ou Hu. "Investor Sentiment and Cross-Section of Stock Returns." Available at SSRN 2565133 (2015).
11. Eckbo, B. Espen, and Øyvind Norli. "Liquidity risk, leverage and long-run IPO returns." *Journal of Corporate Finance* 11.1–2 (2005): 1–35.
12. Fisher, Kenneth L., and Meir Statman. "Consumer confidence and stock returns." *The Journal of Portfolio Management* 30.1 (2003): 115–127.
13. Fang, Y., and Sun, Shaorong. "Analysis of Factors Affecting Sentiment of Securities Investors." *Journal of Shanghai University of Technology* 30.2 (2008): 5.
14. Glushkov, Denys. "Sentiment beta." Available at SSRN 862444 (2006).
15. Gao, Y. et al. "Investor Sentiment and Financial Markets." *Journal of Tianjin University (Social Science Edition)* 020.006(2018):481–494.
16. Hu, Changsheng, and Chi, Yangchun. "Investor Sentiment: Rational and Irrational." *Financial Review* 6 (2012): 17.
17. Han, L.Y., and Wu, Y.R.. "Investor Sentiment and the Puzzle of IPOs - Price Suppression or Premium." *Management World* 3 (2007): 11.
18. Ho, Chien-Wei. *The role of investor sentiment in asset pricing*. Diss. Durham University, 2012.
19. Jin Xiu, and Zou Ji'e. "A Study on the Relationship between Investor Sentiment and Stock Returns." *Journal of Northeastern University: natural science edition* 35.1 (2014): 5.
20. Jiang, Yumei, and Wang, Mingzhao. "Investor sentiment and stock returns: an empirical study of aggregate and cross-sectional effects." *Nankai Management Review* 03(2010):150–160.
21. Liang, Lizhen. "An Empirical Study of Factors Influencing Investor Sentiment." *Statistics and Decision Making* 4 (2010): 4.
22. Liu, Renhe, and Chen, Liu-Chin. "Stock Market Investor Sentiment and Its Prediction." *Academic Exchange* 8 (2005): 4.
23. Lemmon, Michael, and Evgenia Portniaguina. "Consumer confidence and asset prices: Some empirical evidence." *The Review of Financial Studies* 19.4 (2006): 1499–1529.
24. Li Jiesong, and Liu Yuan. "Investor Concern and Maximum Daily Return Anomalies." *Journal of Jinan University (Social Science Edition)* 29.03 (2019): 94–105+159. doi:

25. Lu, Jing, and Zhou, Yuan. "The Impact of Market Sentiment, Institutional Investor Sentiment, and Individual Investor Sentiment on the Pricing of Cross-listed Stocks." *Journal of Southeast University: philosophy and social science edition* 20.5 (2018): 11.
26. Lee, Wayne Y., Christine X. Jiang, and Daniel C. Indro. "Stock market volatility, excess returns, and the role of investor sentiment." *Journal of banking & Finance* 26.12 (2002): 2277–2299.
27. Liu, L. W., and Wang, Z. "An Empirical Study on the Impact of Investor Sentiment on Different Types of Stock Returns." *Financial Theory and Practice* 2(2016):8.
28. Li, Xiaoxiao, Yang, Chunpeng, and Jiang, Wei. "A behavioral asset pricing model based on investor sentiment." *Journal of Qingdao University: Natural Science Edition* 21.4 (2008): 4.
29. Qiu, G.R.. The impact of investor sentiment on stock market returns under the new crown epidemic.2021.Yunnan Normal University, MA thesis.
30. Qiu, Dong. An Empirical Study on the Impact of Investor Sentiment on Returns and Return Volatility of Chinese Stock Market. Diss. Huazhong University of Science and Technology, 2012.
31. Shi, Y. D., and Wang, Z. "Does Investor Sentiment Affect the Momentum Effect? --Empirical Evidence from SSE A-Shares." *Investment Research* 9(2015):14.
32. Song, Zefang, and Li, Yuan. "The relationship between investor sentiment and stock characteristics." *Systems Engineering Theory and Practice* 1 (2012): 27–33.
33. Wang, Hao-Ming. "Overview of quantitative research on investor sentiment." *Journal of Shaoguan College* 39.10 (2018):4.
34. Wang, Meijin, and Sun, Jianjun. "Chinese Stock Market Returns, Return Volatility and Investor Sentiment." *Economic Research* 10(2004):9.
35. Wu, Yanran, and Han, Liyan. "Imperfect Rationality, Investor Sentiment, and the Enigma of Closed-End Funds." *Economic Studies* 42.3 (2007): 13.
36. Wen, Fenghua et al. "A Study on the Influence of Investor Sentiment Characteristics on Stock Price Behavior." *Journal of Management Science* 03(2014):60–69.
37. Yan, T. "A study on the drivers of investor sentiment - liability size, maturity structure and executive age." *Global Market Information Herald* 2 (2018): 2.
38. Yang, Chunpeng, and Liyun Zhou. "Individual stock crowded trades, individual stock investor sentiment and excess returns." *The North American Journal of Economics and Finance* 38 (2016): 39–53.
39. Zhang Lu, and Wang Xinyu. "A Preliminary Exploration on the Development Direction of Behavioral Finance." *Times Finance* 35 (2018): 2.
40. Zhao Xinyue. "A Study on the Influencing Factors of Investor Sentiment Volatility." *Financial Development Research* 6(2018):5.
41. Zhang Zongxin, and Wang Hailiang. "Investor Sentiment, Subjective Belief Adjustment, and Market Volatility." *Financial Studies* 4 (2013): 14.
42. Zhang Qiang, and Yang Shu'e. "Noise Trading, Investor Sentiment Fluctuations, and Stock Returns." *Systems Engineering Theory and Practice* 3(2009):8.
43. Zhang Qiang, Yang Shu'e, and Yang Hong. "An empirical study of investor sentiment and stock returns in the Chinese stock market." *Systems Engineering* 25.7 (2007): 5.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

