

A Brief Analysis of The Impact of Investor Sentiment on Stock Prices in The Chinese Stock Market

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Abstract: This article describes the challenges that behavioral finance poses to traditional financial assumptions, from questioning the rationality of human behavior to explaining the classifications and three indicators of investor sentiment in behavioral finance. Furthermore, it confirms the combination of theory and practice by examining turnover ratio as a proxy indicator, the trading volume of closed-end funds, and stock price regression. It demonstrates that investor sentiment significantly influences stock prices. Moreover, it indicates that both investor sentiment and stock prices can mutually affect each other. Among the investor sentiment indicators, turnover ratio has a stronger impact on stock prices, while the trading volume of closed-end funds exhibits certain predictive functionality.

Keywords: Turnover ratio, Trading volume of closed-end funds, Stock price.

1. Introduction

The efficient market hypothesis, capital asset pricing model, and Modigliani-Miller theorem have laid the framework for traditional finance, all assuming that individuals are fully rational. However, in the 1970s, various financial anomalies emerged, such as the "equity premium puzzle" and "IPO underpricing puzzle." To explain these anomalies, attention turned to the field of behavioral finance.

Behavioral finance explains these financial anomalies by analyzing sociology, psychology, and behavior. It suggests that not all market participants are rational actors as assumed in the efficient market hypothesis. Instead, there are irrational traders in the market, known as noise traders, who are susceptible to irrational influences, leading to abnormal stock price movements.

Behavioral finance theory can be divided into investor behavior and market inefficiency research. Investor sentiment falls under the category of investor behavior, which examines the impact of investor sentiment on stock prices. Investor sentiment lacks a clear definition but generally refers to the irrational judgments that investors make in the stock market. These irrational judgments can lead investors to have incorrect expectations of stock prices, resulting in financial market anomalies.

The relationship between investor sentiment and stock prices lies in how investor sentiment is measured. According to previous research, there are three main methods for measuring investor sentiment: explicit indicators, proxy indicators, and investor sentiment indices. Explicit indicators involve surveys of investors to reflect market judgments of stock prices. Proxy indicators represent investor sentiment through variables in financial markets, such as turnover ratio and IPO first-day returns. Investor sentiment indices are composite indexes constructed by weighting multiple variables. Among the three indicators, there has not been much research on investor sentiment indices in China, and explicit indicators can be subject to errors and do not accurately represent investor sentiment. Proxy indicators have been the focus of many scholars' research, with turnover ratio being a widely studied proxy indicator due to its easy

availability and representative nature.

Turnover ratio measures the ratio of trades in the market within a certain period, reflecting stock liquidity and speculative demand from investors. In this study, the market value-weighted daily turnover ratio of the Shanghai and Shenzhen A-share markets is used. When investor sentiment is high, speculative demand drives trading activity, indicating elevated investor sentiment. Conversely, low trading volume represents decreased speculative demand and subdued investor sentiment. Thus, turnover ratio can be viewed as a proxy indicator of investor sentiment.

The trading volume of closed-end funds reflects investor expectations of future asset prices. When investors have a negative outlook on future investment prospects, the trading volume of closed-end funds increases, and vice versa.

This study conducts an empirical analysis using these two indicators to examine whether investor sentiment significantly affects the performance of the Shanghai Stock Exchange Composite Index.

2. Literature Review

Investor sentiment has a profound impact on the pricing of assets in capital markets. Songs Jun and Wu Chongfeng (2003) found that investor sentiment can have a sustained and significant impact on market prices, which can be seen as compensation for systematic risk. Su Dongwei and Mai Yuanxun (2004) replaced liquidity with turnover ratio and discovered a significant liquidity premium in China's stock market. Companies with lower turnover ratios and higher trading costs have higher expected returns. The reason behind the liquidity premium is transaction costs rather than transaction frequency.

Regarding market predictability, Songs Jun and Wu Chongfeng and other scholars believe that investor sentiment is unpredictable and does not possess predictive power for the market. In terms of its impact on stock returns, Yang Yang and Wan Difang (2010) argue that investor sentiment does not have a significant influence on stock returns. Zhang Qiang and Yang Shue (2016), through modifications to the noise trading theory model, analyzed the mechanism of how

investor sentiment affects stock returns. They selected turnover ratio and closed-end fund discount as indirect indicators of investor sentiment. Using OLS and GARCH regression analysis, they found that investor sentiment is one of the systemic factors influencing stock prices, and stock prices fluctuate with changes in investor sentiment.

Regarding market volatility, Ba Shusong and Zhu Hong (2016) argue that margin trading and short selling amplify the impact of investor sentiment on market volatility. Investor sentiment has the greatest impact on the A-share market in mainland China, and there is also evidence of sentiment contagion in related non-A-share markets and overseas markets. Huang Delong (2009) constructed a sentiment index for the Chinese stock market using principal component analysis and tested it empirically using the EGARCH model. The results showed that theoretical deductions are highly consistent with market conditions.

3. Data Description and Descriptive Statistics

The article uses Python to obtain the daily weighted turnover rate of the Shanghai Stock Exchange Composite Index and the daily trading amount of closed-end funds as independent variables from March 4, 2010, to March 29, 2019. The daily highest value of the Shanghai Stock Exchange Composite Index from March 4, 2010, to March 29, 2019, is used as the dependent variable. In this analysis, X represents the weighted turnover rate of the Shanghai Stock Exchange Composite Index, X2 represents the trading amount of closed-end funds, and Y represents the daily highest value of the Shanghai Stock Exchange Index. Firstly, a correlation analysis is conducted, with the following results:

Table 1. Correlation among the Three Variables

	X	Y	X2
X	1.000000	0.634784	-0.125840
Y	0.634784	1.000000	-0.183982
X2	-0.125840	-0.183982	1.000000

Table 2. Descriptive Statistics of the Three Variables

	count	mean	std	min	50%	75%	max
X	2245	2.037633	1.403871	0.59	1.61	2.23	10.39
Y	2245	2806.55149	556.795349	1959.158	2815.79	3159.019	5178.191
X2	2245	1.102847	1.165185	0.04726	0.702528	1.303312	10.770862

Table 3. OLS Regression Results

	Y	R-squared:	0.414			
Model:	OLS	Adj. R-squared:	0.413			
Method:	Least Squares	F-statistic:	791.8			
Date:	Sat, 18 Dec 2021	Prob (F-statistic):	6.99e-261			
Time:	22:41:15	Log-Likelihood:	-16779.			
No. Observations:	2245	AIC:	3.356e+04			
Df Residuals:	2242	BIC:	3.358e+04			
Df Model:	2					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
const	2360.0495	18.887	124.959	0.000	2323.013	2397.086
X	246.4852	6.464	38.134	0.000	233.810	259.161
X2	-50.5458	7.788	-6.490	0.000	-65.818	-35.274
Omnibus:		83.238	Durbin-Watson:		0.058	
Prob(Omnibus):		0.000	Jarque-Bera (JB):		37.233	
Skew:		0.000	Prob(JB):		8.22e-09	
Kurtosis:		2.369	Cond. No.		6.22	

Based on the results of the correlation analysis, it can be observed that X2 has a weak negative correlation with Y, while X has a strong positive correlation with Y, indicating that X and Y can be further analyzed through regression analysis.

Next, regression analysis was conducted using Python, and the results are as Table 3.

According to the regression results, the t-statistic's p-values for the daily turnover rate of the Shanghai Stock Exchange Index and the daily trading amount of closed-end funds are both less than the significance level of 0.01. The p-value of the F-statistic is also significantly less than 0.01, indicating that the linear equation passes the significance test. Both X (daily turnover rate) and X2 (daily trading amount of closed-end funds) are significant and not equal to zero. Therefore, the daily turnover rate of the Shanghai Stock Exchange Index has a positive impact on the index, while the trading amount of closed-end funds has a negative impact. The R-squared value is 0.413, indicating a good fit, which means that the daily turnover rate and trading amount of closed-end funds

can explain 41.3% of the index's volatility. The trading amount of closed-end funds can be seen as an expectation of future stock prices. When investors expect stock prices to decrease, the trading amount of closed-end funds increases, and vice versa.

From the regression results, it can be concluded that the results are consistent with the theory. For every unit change in the trading amount of closed-end funds, the stock price index will change in the opposite direction by 50 units. This implies that investor sentiment significantly affects asset prices. When investor sentiment is high, indicated by an increase in turnover rate, stock prices also rise. For every unit change in the turnover rate, the Shanghai Stock Exchange Index will change in the same direction by 246 units.

However, there may be a mutually causal relationship, where an increase in stock prices can induce high investor sentiment, leading to further increases in stock prices. To investigate this, a regression analysis was conducted with the turnover rate as the dependent variable and stock prices as the independent variable. The results are as follows:

Table 4. Regression Results

					F(1, 2243)=1513.81	
Model	1782.0899	1	1782.0899		Prob>F=0.0000	
Residual	2640.50781	2,243	1.1772215		R-squared=0.4030	
					AdjR-squared=0.4027	
Total	4422.59771	2,244	1.9708546		Root MSE=1.085	
Source	SS	df	MS		Number of obs =2,245	
x	Coef	Std. Err.	t	P> t	[95% Conf.Interval]	
y	0.0016005	0.0000411	38.91	0.000	0.0015198	0.0016812
cons	-2.454274	0.1176994	-20.85	0.000	-2.685085	-2.223463

Based on Table 4, it can be observed that the equation passes the significance test with the F-statistic's p-value less than 0.01. The t-values also pass the significance level of 0.01.

The R-squared value is 0.40, indicating a good fit of the equation. The following graph shows the fitting image:

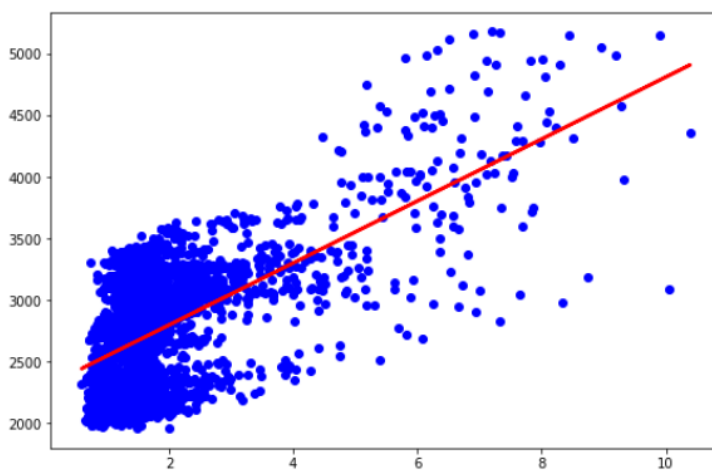


Figure 1. Fitting Image

Through the analysis of Figure 1 and the regression results, it can be concluded that changes in stock prices can induce speculative demand, and speculative demand can further contribute to changes in investor sentiment, leading to further changes in stock prices. This further explains the occurrence of financial anomalies in behavioral finance. Irrational behavior by investors has a significant impact on stock prices.

Through empirical verification, it has been confirmed that investor sentiment does indeed have a significant impact on

asset prices. Among them, the turnover rate has a more profound impact on stock prices, while the trading amount of closed-end funds has a relatively smaller impact. This can be attributed to the fact that when investors invest in assets and have low expectations for the market, funds can flow not just into closed-end funds but also into other investment products such as bonds and options. Additionally, closed-end funds have the characteristic of being non-tradable during their closed periods, which may limit their profound impact on

stock prices.

4. Conclusion

This article begins by discussing the reasons for the transition from traditional finance to the emergence of behavioral finance, and further explores the development of behavioral finance. The impact of investor sentiment on stock prices is theoretically analyzed. By establishing the turnover rate and the trading amount of closed-end funds as proxy indicators of investor sentiment, empirical verification confirms that investor sentiment has a significant impact on stock prices. The turnover rate is found to be a good indicator for measuring investor sentiment, and the trading amount of closed-end funds has a negative impact on stock prices, aligning with real-world models.

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