



The Impact of East Money Stock Forum Discussions on Stock Price Volatility

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Abstract. This study examines the influence of discussions on the East Money Stock Forum (referred to as Guba) on stock price volatility, with a particular focus on the predictive power of forum posts, comments, and research reports on future stock returns. By employing a linear regression model, the analysis demonstrates that the net number of buy recommendations significantly and positively affects short-term stock returns, whereas the volume of comments shows a negative correlation. Over longer holding periods, the impact of these factors diminishes, suggesting that investor sentiment plays a more pronounced role in the short run. Furthermore, the study reveals that the COVID-19 pandemic intensified the effect of investor sentiment on stock returns, as heightened market uncertainty and increased reliance on social media for investment decisions exacerbated price fluctuations. These findings are consistent with behavioral finance theories, which emphasize the role of psychological factors and collective sentiment in driving market dynamics, particularly during periods of crisis. The research contributes to the growing body of literature on the intersection of social media, investor behavior, and financial markets, offering insights for both market participants and policymakers seeking to understand and mitigate excessive volatility. The results underscore the importance of monitoring online investor sentiment as a potential indicator of short-term market movements.

Keywords: East Money Stock Forum, Stock returns, Investor sentiment, Behavioral finance, COVID-19 impact.

1 Introduction

The East Money Stock Forum is one of China's largest online platforms for stock market discussions, where individual investors share opinions, recommendations, and sentiments about stocks. With the rise of social media, the influence of such platforms on financial markets has grown significantly, challenging traditional efficient market hypotheses [1]. Previous research suggests that investor sentiment, as reflected in online discussions, can predict stock returns, particularly in the short term [2]. The COVID-19 pandemic further intensified this phenomenon, as lockdowns and economic uncertainty drove more investors to online forums for information and emotional support. Against this backdrop, this study examines how Guba discussions affect stock returns,

both in normal times and during the pandemic, providing insights into the interplay between social media, investor behavior, and market outcomes.

2 Empirical Analysis

2.1 Number of Posts and Stock Returns

Research Purpose and Hypothesis. In this section, this paper hope to study whether the suggestions on the East Money Stock Forum can effectively predict future stock returns.

The null hypothesis is that Stock Forum posts cannot effectively predict returns, though behavioral studies show that limited attention delays information absorption [3]. This hypothesis meets the following two conditions: (1) Stock Forum posts do not contain any valid information; (2) The market immediately absorbs all value-related information on the day the post is published. The alternative hypothesis is that Stock Forum posts can actively predict returns. Although this prediction is inconsistent with the efficient market hypothesis, there are a lot of studies to support this view.

Regression Model. For various types of information in Stock Forum posts, this study established the following linear regression model:

$$R_{i\ t+1,t+x} = \beta_1 netpost_{num} + \beta_2 comment_{num} + \beta_3 report_{count} + Controls_{it} + Day_t + \varepsilon_{it} \quad (1)$$

The variables are defined as shown in Table 1:

Table 1. Variables names definition

variables	definition
$R_{i\ t+1,t+x}$	Stock returns in the following week (x=5 trading days) or the following month (x=21 trading days)
$netpost_{num}$	The number of buy recommendations minus the number of sell recommendations posted on stock i on day t
$comment_{num}$	The number of comments on stock i on day t
$report_{count}$	The number of research reports published on stock i on day t
$Controls_{it}$	Control factors include size, book-to-market ratio, returns measured from [-26, -6] and [-5, -1] days, and media sentiment expressed as the number of news (more news means higher sentiment)

Note: The specific clustering method is to cluster by different company names first, then by month, and finally by "Company X Month". This method can handle the heterogeneity of company-specific factors and time effects, avoid missing cross-effects, and reduce the residual auto-correlation problem caused by overlapping holding periods, thereby providing a more robust and accurate standard error estimate. This method utilizes the hierarchical structure of the data, improves the reliability of the regression

analysis results, ensures that the estimation results are more robust, and can better capture correlations.

Results Discussion. Stock Forum related content and future rate of return. Using this regression model to perform linear regression on the processed data, the results are as shown in Table 2.

Table 2. Stock Forum related content and future returns

	Ret [1,5]	Ret [1,21]
netpost_num(Net posts number)	0.1248%*** (19.06)	0.1352%*** (8.97)
comment_num(Comment number)	0.003%*** (-2.13)	-0.0097%*** (-2.15)
report_count(Research report number)	-0.1252%*** (-2.03)	-3.24%*** (-23.62)
Ln_size	1.1452%*** (18.06)	4.9368%*** (23.29)
Ln_bm	-2.2213%*** (-41.34)	-8.4758%*** (-44.12)
Ret[-5,-1]	-32.8933%*** (-22.23)	-74.1462%*** (-22.35)
Ret[-26,-6]	-13.044%*** (-24.84)	-41.2105%*** (-26.53)
newsnum_count(News number)	-0.0177%*** (-2.15)	-0.1117%*** (-4.36)
Observation Values	508393	508392
Control variables in the above table	Yes	Yes

The results show that, under the premise of controlling variables, the net post factor netpost_num has a significant positive impact on the yield within the 99% confidence interval both in the following week and month. For every increase of 100 net posts, the yield increases by 1.248%; the impact of the comment number factor comment_num on the yield is positive within a week and negative from a month; the research report number factor report_count has a negative impact on the yield, and the impact is stronger and more significant from one week to one month.

Net number of posts and returns at different holding periods. Furthermore, this paper examines the predictive power of the number of net posts on the stock forum for different holding periods. I control the other variables and only change the length of the holding period, and obtain the following regression and test results, as shown in Table 3.

Table 3. Net number of posts and returns at different holding periods

Ret. Period	Coefficient	t-stat
1	0.0867‰	34
2	0.0262‰	16.23
3	0.1352‰	8.97
4	0.0048‰	3.39
5	-0.0097‰	-6.77
[6-10]	0.0137‰	3.69
[11-15]	0.0036‰	0.96
[16-20]	-0.0037‰	-0.79
[21-60]	0.0116‰	0.91
Observation value	508392	508392

The results show that within 1-4 days, the number of net posts has a very significant positive impact on the rate of return, the positive impact of net posts aligns with behavioral finance theories on sentiment-driven returns, and the significance gradually weakens [4]. The market may have overreacted to the information in the Stock Forum posts in the early stage, resulting in a significant positive impact on the rate of return, but this effect gradually weakened over time [5].

On the 5th day, the number of net posts has a significant negative correlation with the rate of return, which may be because the market began to adjust after the initial rapid reaction. One explanation is that investors re-evaluate the information or the market corrects the overreaction of the initial reaction; another possibility is that the discussion in the Stock Forum may contain some misleading or negative information, consistent with findings from Chinese message boards, which gradually begins to affect market sentiment and leads to a decline in returns [6,7].

From 6 to 10 days, that is, the second week, the number of net posts has a significant positive correlation with the rate of return. It is possible that the market re-evaluated the information in the Stock Forum after a short adjustment and began to respond positively to this information.

From the 11th day, that is, the third week, the correlation between the number of net posts and the rate of return is no longer significant. As time goes by, the impact of information interaction in the Stock Forum on stock prices weakens.

Combining the distribution of coefficients and t values, we can get the relationship between the number of net posts and the returns of different holding periods. In the first 1-4 days, the number of net posts had a significant positive impact on the return rate, and the impact weakened over time, which is in line with the rule that the decline in discussion heat leads to a decline in stock returns on different trading days. The negative correlation on the 5th day can be regarded as an adjustment period after the rapid rise of the stock. After a short adjustment, the stock price ushered in the second stage of slow rise. At this stage, the market's perception of the stock gradually returned to rationality. The stock was regarded as a hot stock in the previous stage, and the number of net posts no longer brought excess returns.

Factor cumulative return estimation. In order to show the cumulative return more intuitively, this study also estimated the regression model with a significance level of 5% for the time span from 1 week (i.e. $x = 5$) to 12 weeks (i.e. $x = 60$):

The difference between this and the previous part is that the former's yield is the period yield, such as the yield on the second day after the statistical date, and the yield within the 6th to 10th day; the yield of this part is the cumulative yield, such as the cumulative yield of week 3 refers to the cumulative yield of three consecutive working days after the statistical date.

The cumulative returns from net posts initially showed a slight decrease, followed by a gradual increase, fluctuating around 0.014%. In contrast, the cumulative negative returns from comments rose steadily, tripling by the 12th week. The t-statistics for net posts declined over time but remained significant, while comments maintained a stable negative correlation at around 2.16. These results further support the short-term sentiment-driven effects observed in earlier analyses.

In this section, this paper studied whether the suggestions of Stock Forum posts can effectively predict future stock returns. Specifically, the paper analyzed three aspects: the different contents of the Stock Forum and future returns, the net number of posts and returns in different holding periods, and the net number of posts and comments and the cumulative returns. The research reached the following preliminary conclusions: the net number of posts in the Stock Forum has an overall positive impact on stock returns, and the impact is more significant in the short term than in the long term; the number of comments in the Stock Forum has a negative impact on stock prices, and this impact will cause the cumulative return to continue to decline.

2.2 Analysis of Stock Returns under the Impact of the Epidemic

Research Purpose. The outbreak of the COVID-19 pandemic in December 2019 brought an unprecedented impact on the global financial market. As an important reference indicator of economic activities, the fluctuation of the stock market's yield rate directly reflects the market participants' expectations of the economic outlook. After the empirical study of the Stock Forum text sentiment predicting yield rate in the above article, this paper considers and studies the events that may cause investors' sentiment to deviate in the Chinese market [8]. After reading relevant literature, it is found that Gu et al. used indicators such as the number of Stock Forum posts and the number of financial news to compare the changes in the impact of relevant indicators on the stock market before and during the epidemic, and concluded that during the epidemic, investors' attention, sentiment and news sentiment have enhanced their ability to explain the stock market [9].

This chapter aims to analyze the impact of the main independent variables (net number of posts, number of comments, number of research reports) on the changes in stock yields under the impact of the epidemic and try to analyze the reasons for the changes in the sentiment of various types of investors.

Regression Model. To verify the above literature viewpoints, this study divides the number of net posts into Pre_Pandemic (before 2019-12-29) and Post_Pandemic (after 2019-12-29) according to the situation of the epidemic in China, and makes similar divisions for the number of comments and research reports, in order to analyze whether the impact of investor sentiment on stock returns has changed significantly before and after the epidemic. The total sample is 9,998,221, and the above formula is combined to understand the changes in the predictive ability of the number of net posts over time series.

$$R_{i,t+1,t+x} = \beta_1 \text{Netpost}_{num} * \text{PrePandemic} + \beta_2 \text{Netpost}_{num} * \text{PostPandemic} + \beta_3 \text{Comment}_{num} * \text{PrePandemic} + \beta_4 \text{Comment}_{num} * \text{PostPandemic} + \beta_5 \text{Report}_{count} * \text{PrePandemic} + \beta_6 \text{Report}_{count} * \text{PostPandemic} + \text{Controls}_{it} + \text{Day}_t + \varepsilon_{it} \quad (2)$$

Pre and Post are 0-1 variables, which are introduced to examine the interaction between the main independent variables and the epidemic. The regression includes all control items in the previous chapter, and adds calendar day fixed effects. All continuous variables are standardized to make their mean zero and variance unit.

Results Discussion. The regression results are as shown in Table 4. The t values of the net post number variables in Ret [1,5] and Ret [1,21] before and after the epidemic are both greater than 2.76, indicating that they have a significant impact on stock returns. The absolute values of the variables in Ret [1,21] are significantly greater after the epidemic than before the epidemic.

The absolute value of the independent variable coefficient has increased significantly, indicating that the degree of influence on stock returns has increased. The number of comments as an indicator of attention has increased significantly after the epidemic, indicating that many people have more time due to home isolation during and after the epidemic, which makes them have more energy to study and pay attention to the stock market. In addition, the professional investor index reported by the research report is more correlated with stock returns after the epidemic. Therefore, it is preliminarily believed that the conclusions of this study are basically consistent with the conclusions of Gu Hongmei et al. in viewpoint verification.

Table 4. Net post count and yield fluctuations: impact of the epidemic

	Ret [1,5] [1]	Ret [1,21] [2]
Netpost- num_Pre_Pan- demic	1.74‰*** (8.45)	1.47‰*** (4.03)
Netpost- num_Post_Pan- demic	0.93‰*** (5.33)	1.17‰*** (5.81)

Comment- num__Pre__Pan- demic	0.02% ^{***} (-1.75)	-0.07% ^{***} (-1.78)
Comment- num__Post__Pan- demic	-0.07% ^{***} (-4.88)	-0.26% ^{***} (-5.84)
<i>Report_{count}</i> __Pre__ Pandemic	4.29% ^{***} (1.82)	-21.25% ^{***} (-11.27)
<i>Report_{count}</i> __Post__ _Pandemic	-10.55% ^{***} (-3.02)	-50.90% ^{***} (-17.51)
Ln__size	11.97% ^{***} (3.22)	51.72% ^{***} (24.45)
Ln__bm	-22.37% ^{***} (-5.39)	-85.16% ^{***} (-39.01)
Ret [-5, -1]	-324.86% ^{***} (-8.78)	-719.86% ^{***} (-22.49)
Ret [-26, -6]	127.24% ^{***} (-6.22)	-400.02% ^{***} (-24.51)
Newsnum__count	-0.20% ^{***} (-1.81)	-1.11% ^{***} (-3.03)
Netpostnum(Pre- Post)	0.81% ^{***}	0.30% ^{***}
Commentnum(Pre- Post)	-0.05% ^{***}	0.19% ^{***}
Report _{count} (Pre- Post)	14.84% ^{***}	9.64% ^{***}
Observation Values	9998221	9998221
Control variables in the above table	Yes	Yes

Results Discussion. After the epidemic, the impact of investor sentiment constructed by Stock Forum text data on stock returns has increased significantly. This phenomenon can be explained from the perspective of behavioral finance knowledge: during the epidemic, market uncertainty has intensified, and the information environment faced by investors has become more complex, resulting in more emotional decision-making behavior. Social media platforms such as Stock Forums have further become channels for investors to express emotions and obtain information. Investors' discussions and interactions on these platforms have further amplified the fluctuations in market sentiment. At the same time, due to the economic impact and policy uncertainty caused by the

epidemic, investors' risk perception and emotional response have become more sensitive, and emotional investment behavior has occupied a larger proportion in the market.

Therefore, the impact of investor sentiment reflected by Stock Forum text data on stock returns has increased significantly, reflecting that investors rely more on emotion-driven decision-making models in a highly uncertain environment, and this emotional behavior has further exacerbated market volatility.

Research Significance. This chapter of the study provides practical guidance for Chinese investors on investment behavior adjustment and risk management by revealing the significant impact of changes in investor behavior during the epidemic on stock returns. It shows that investors can obtain more market information and other investors' emotional expressions by paying attention to discussion texts on social media, forums and other platforms, so as to better grasp market opportunities.

During the epidemic, market uncertainty and volatility increased significantly, and investor sentiment had a more significant impact on the market [10]. The government can stabilize the market by improving the transparency of market information and enhancing investor confidence. This chapter verifies the view of Gu Hongmei et al. that changes in investor behavior during the epidemic have a significant impact on stock returns. This conclusion provides empirical support for subsequent research and helps to further explore the long-term impact of the epidemic on financial markets.

3 Conclusion

This study demonstrates that discussions on the East Money Stock Forum significantly influence stock price volatility, with net posts positively affecting short-term returns and comments exerting a negative impact. The predictive power of these factors diminishes over longer holding periods, suggesting that market reactions to forum content are transient. The COVID-19 pandemic further magnified the role of investor sentiment, as increased uncertainty and reliance on online platforms amplified market volatility. These findings underscore the importance of monitoring social media sentiment for investment strategies and risk management, particularly during crises. Policymakers and investors can leverage these insights to enhance market stability and decision-making. Future research could explore the long-term effects of pandemic-induced behavioral changes on financial markets.

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