

An Empirical Study on the Effectiveness of China's Growth Enterprise Market: A Test Based on Momentum Reversal Effect

Tianyi Zhou*

Business college, Soochow University, Suzhou, China

*Corresponding author: 1211186268@qq.com

Abstract. In capital market anomalies, momentum effect and contrarian effect are typical phenomena in stock market, bond market, commodity market and foreign exchange market. The existence of momentum reversal effect also shows that there is a certain space for perfect integration between the traditional efficient market hypothesis theory, behavioral finance and capital market anomalies. This paper selects 50 stocks in China's GEM stock market from 2019 to 2021 to analyze the momentum effect and reversal effect in the GEM market. The empirical results show that the GEM market reversal effect is more significant in the total sample during this period, but no significant momentum effect has been observed. In addition, during the overall downward trend of the selected stocks, the reversal effect is more obvious, and there is a scale effect. China's GEM stock market is not yet a fully effective market. According to the empirical results, the relevant thinking and suggestions are put forward to promote the stable and healthy development of China's GEM stock market.

Keywords: GEM; Capital Market Anomaly; Momentum Effect; Reversal Effect; Market Efficiency.

1. Introduction

Typical market anomalies include scale effect, calendar effect, P/E ratio effect, book to market ratio effect, momentum effect, reversal effect, etc. [1]. Bondt (1985) first extended the view that "individuals tend to overreact to information" to the stock market, proposed that stock prices will also overreact to information, and the trading strategy of buying past losers and selling past winners can obtain better returns, which proves the existence of the reversal effect of the stock market [2]. In capital market anomalies, momentum effect and contrarian effect are typical phenomena existing in stock market, bond market, commodity market and foreign exchange market, and most of these two phenomena will alternate in long and short periods, representing the process of asset prices and corresponding returns changing towards a specific trend. That is, under the momentum effect, assets with higher returns in the past period will maintain higher returns in the future; Assets with low past returns will also have low future returns. Under the influence of reversal effect, the assets with poor early returns have a strong trend to reverse in the following period of time; And at a given time, assets with better returns tend to have worse performance in the later period. Since some investors' investment behavior is irrational, the momentum effect in the market may be caused by the insufficient response of investors to information [3].

Take China's Growth Enterprise Market as an example. Since the opening of the Growth Enterprise Market in 2009, a series of capital market anomalies have emerged in the Growth Enterprise Market, such as the breaking of new shares, the continuous trading of new shares, and long-term weakness. The anomalies of these large fluctuations to some extent reflect the problems that may exist in China's stock market, such as market inefficiency, imperfect market structure, low maturity of participants, and policies to be improved. Wang Dehong and Song Jianbo (2017) found that momentum effect and reversal effect are the strongest in the GEM market and the weakest in the SME market [4]. From the perspective of investment strategy selection, investors are more concerned about the prediction of future return on assets and the accuracy and reliability of the prediction results; From the perspective of efficient market hypothesis theory, the core is to test whether there are momentum effects, contrarian effects and other market anomalies in China's GEM market and the corresponding solutions. Therefore, the research and solutions to these problems have important theoretical and practical significance for people to further understand the development stage of China's capital market

and guide investors in practice. On the basis of the research of Chinese and foreign scholars, combined with the current situation of China's GEM market, this paper attempts to analyze and test whether there is momentum effect and reversal effect in China's GEM market by using the stock daily data in recent years, and puts forward relevant thinking and suggestions to promote the steady and healthy development of China's GEM stock market [5].

2. Research Design

2.1 Data selection and description

This paper selects 50 stocks in China's GEM stock market from January 2, 2019 to December 31, 2021, with a total of 35900 observations as sample research objects (data from the wind database). The selected stock indicators are stock closing price, rise and fall, total stock market value and trading volume. As the GEM has not been listed for a long time in China, the market mechanism of the GEM is not mature compared with the international market [6]. In order to ensure the reliability and practicality of the final results, the stocks selected in this paper are the stocks that have been continuously traded for more than three years, without missing values. In addition, some stocks with special restrictions such as * ST and subject to the effect of new shares were excluded, and 50 stocks meeting the requirements were finally determined.

2.2 Model establishment

In order to study the momentum effect and reversal effect of the GEM market, the method adopted in this paper is similar to the model adopted by Jegadeesh and Titman (1993) [7]. This paper selects 6 days, 12 days, 18 days and 24 days as the formation period (J) of the investment strategy, and 6 days, 9 days, 12 days, 15 days, 18 days and 24 days as the holding period (K) of the strategy. Different formation periods (J) and holding periods (K) combine to form a variety of portfolio strategies, build a J-K strategy, and test the momentum effect and reversal effect twice. At the same time, this paper ranks the cumulative returns of 50 stocks on the GEM from T-J-1 to T-1 at the T-1 moment, forming 10 investment portfolios sorted by the returns, and makes the five stocks with the highest cumulative returns into a portfolio of equal weight - winner portfolio; The five stocks with the lowest cumulative yield constitute a portfolio of equal weight - loser portfolio. The strategy buys the winner's portfolio and sells the loser's portfolio at T moment, holds it until T+K moment, and calculates the cumulative rate of return of each winner's and loser's portfolio and the cumulative rate of return of the winner's portfolio minus the loser's portfolio, that is, the zero-cost portfolio. Specifically, the calculation formula is as follows:

$$R_{i,t} = \prod_{j=1}^t (1 + R_{i,j}) - 1 \quad (1)$$

$$R_{i,j} = P_{i,j} / P_{i,j-1} - 1 \quad (2)$$

$R_{i,t}$ is the cumulative rate of return of the stock during the formation period of months, $R_{i,j}$ is the yield of the stock in month j, $P_{i,j}$ is the closing price of the stock on the last trading day of month j, $P_{i,j-1}$ is the closing price of the stock on the last trading day of j-1 month.

$$CR_{i,j} = R_{i,j} - R_{m,j} \quad (3)$$

$CR_{i,j}$ is the excess return rate of stock i at time t.

$$ACR_{w,T} = (1/N) \sum_{i=1}^N CR_{w,i,T} \quad (4)$$

$$ACR_{l,T} = (1/N) \sum_{i=1}^N CR_{l,i,T} \quad (5)$$

$CR_{w,i,T}$ is the average excess return of the i th stock of the past winner portfolio in the holding period; $ACR_{w,T}$ is the average excess return of 10% of the stocks in the past winner's portfolio. $CR_{l,i,T}$ is the average excess return of the i th stock of the past loser portfolio in the holding period; $ACR_{l,T}$ is the average excess return of 10% of the stocks in the past loser's portfolio.

$$ACR_{w,T} - ACR_{l,T} = ACR_{Zero\ cost} \quad (6)$$

$$t = x/(s/\sqrt{n}) \quad (7)$$

The average excess return of the past winners' portfolio stocks minus the average excess return of the past losers' portfolio stocks gives a zero-cost portfolio. T-test was performed. Where X is the mean, S is the standard deviation, and n is the number of groups.

3. Research results

3.1 Research on the momentum effect of the whole sample interval

This part adopts the model of Jegadeesh and Titman (1993), and uses Stata14 software to analyze the sample data. The formation periods of the selected stocks are 6 days, 12 days, 18 days and 24 days respectively; The holding period is 6 days, 9 days, 12 days, 15 days, 18 days and 24 days. The results are shown in Table 1.

Table 1. Test Results of Short-term Momentum Effect Unit: day

J		K=6	9	12	15	18	24
6	Winner	-0.02 (-1.632)	-0.011 (-1.191)	-0.011 (-1.454)	-0.006 (-0.923)	0.002 (0.341)	0.011 (2.13)
6	Loser	0.009 (0.94)	0.02 (2.393)	0.026 (3.659)	0.03 (4.787)	0.032 (5.314)	0.036 (6.796)
6	Winner-Loser	-0.03 (-2.553)	-0.031 (-3.413)	-0.037 (-4.992)	-0.036 (-5.552)	-0.03 (-4.999)	-0.025 (-4.595)
12	Winner	-0.026 (-2.149)	-0.019 (-2.043)	-0.009 (-1.231)	-0.003 (-0.495)	0 (-0.005)	0.009 (1.599)
12	Loser	0.008 (0.797)	0.021 (2.616)	0.026 (3.626)	0.029 (4.562)	0.032 (5.468)	0.036 (6.889)
12	Winner-Loser	-0.035 (-2.932)	-0.04 (-4.284)	-0.035 (-4.406)	-0.032 (-4.629)	-0.033 (-4.991)	-0.027 (-4.787)
18	Winner	-0.029 (-2.375)	-0.02 (-2.151)	-0.017 (-2.241)	-0.009 (-1.295)	-0.005 (-0.731)	0.001 (0.156)
18	Loser	0.02 (1.985)	0.024 (2.993)	0.028 (3.978)	0.035 (5.515)	0.038 (6.311)	0.039 (7.453)
18	Winner-Loser	-0.049 (-4.159)	-0.044 (-4.85)	-0.045 (-5.919)	-0.044 (-6.369)	-0.042 (-6.483)	-0.038 (-6.579)
24	Winner	-0.035 (-2.923)	-0.029 (-3.218)	-0.025 (-3.201)	-0.017 (-2.451)	-0.01 (-1.528)	-0.002 (-2.96)
24	Loser	0.008 (0.859)	0.019 (2.558)	0.024 (3.503)	0.027 (4.365)	0.029 (5.003)	0.03 (6.105)
24	Winner-Loser	-0.043 (-3.829)	-0.049 (-5.332)	-0.049 (-5.882)	-0.044 (-5.762)	-0.039 (-5.249)	-0.032 (-4.96)

Note: The first line of each blank represents the average monthly rate of return of the portfolio, and the value in brackets in the second line represents the corresponding t statistic value.

Analysis of the results in Table 1 shows that during the period from January 2, 2019 to December 31, 2021, the short-term momentum effect on China's GEM market is almost non-existent. That is, assets with high returns in the past period cannot maintain high returns in the future period; Assets with low past returns will not have lower future returns. Specifically, regardless of the formation period and holding period, the income value of the loser portfolio in the table is positive, while the income value of the winner portfolio is partially negative, except that J-K portfolio (6, 18), (6, 24), (12, 24), (18, 24) is positive. In addition, under the given formation period, the longer the corresponding holding period, the higher the return rate brought by the winner's and loser's portfolios. However, the portfolio return of the corresponding winner's portfolio minus the loser's portfolio is still negative, indicating that buying the winner's portfolio and selling the loser's portfolio cannot obtain a positive average cumulative return.

To sum up, the GEM did not reflect the existence of short-term momentum effect during this period. Some possible reasons for this phenomenon are that China's GEM has not yet developed into a relatively mature stage, and there may be problems such as unreasonable market investor structure, strong market speculation, small companies, and uncertain profits. The GEM is not yet a fully effective market.

3.2 Study on interval reversal effect of full sample

Table 2. Inversion Effect Test Results Unit: day

J		K=10	20	30	40	50	60	70
20	Winner	-0.021 (-2.436)	-0.005 (-0.863)	0.007 (1.334)	0.011 (2.401)	0.006 (1.644)	0.007 (2.464)	0.009 (3.405)
20	Loser	0.02 (2.752)	0.036 (6.301)	0.032 (7.309)	0.028 (7.672)	0.028 (7.541)	0.028 (8.041)	0.028 (9.004)
20	Winner-Loser	-0.041 (-4.952)	-0.041 (-6.282)	-0.025 (-4.668)	-0.017 (-3.694)	-0.022 (-5.169)	-0.021 (-5.377)	-0.019 (-5.827)
40	Winner	-0.032 (-3.449)	-0.013 (-1.990)	-0.006 (-1.204)	-0.002 (-0.529)	-0.002 (-0.560)	-0.001 (-0.264)	0.002 (0.752)
40	Loser	0.013 (1.717)	0.02 (3.996)	0.024 (5.576)	0.024 (6.799)	0.025 (7.979)	0.027 (9.405)	0.029 (10.419)
40	Winner-Loser	-0.045 (-4.350)	-0.033 (-4.531)	-0.031 (-5.331)	-0.026 (-5.896)	-0.027 (-7.372)	-0.028 (-9.271)	-0.027 (-10.429)
60	Winner	-0.039 (-4.304)	-0.016 (-2.568)	-0.006 (-1.239)	-0.003 (-0.896)	0 (0.083)	0.004 (1.543)	0.008 (3.172)
60	Loser	0.007 (0.847)	0.015 (2.906)	0.02 (4.968)	0.02 (6.415)	0.023 (8.101)	0.026 (10.202)	0.029 (11.385)
60	Winner-Loser	-0.046 (-4.520)	-0.031 (-4.363)	-0.026 (-5.759)	-0.023 (-5.914)	-0.023 (-7.552)	-0.021 (-8.697)	-0.02 (-8.741)
70	Winner	-0.035 (-3.826)	-0.008 (-1.231)	-0.001 (-0.231)	0.006 (1.553)	0.006 (1.782)	0.012 (3.925)	0.017 (5.832)
70	Loser	0.0013 (1.664)	0.02 (3.751)	0.021 (5.252)	0.023 (7.158)	0.024 (8.547)	0.026 (9.674)	0.03 (11.347)
70	Winner-Loser	-0.048 (-4.645)	-0.027 (-3.769)	-0.023 (-3.985)	-0.017 (-3.878)	-0.018 (-5.302)	-0.014 (-4.836)	-0.012 (-4.6)

Same as above

This part further tests the reversal effect that may exist in the GEM market, and the results are shown in Table 2. The formation period of the stock is 20 days, 40 days, 60 days and 70 days respectively; The holding period is 10 days, 20 days, 30 days, 40 days, 50 days, 60 days and 70 days.

On the whole, there is a significant reversal effect in China's GEM market. That is, the assets with good returns in the past will show poor performance in the later period, and the stocks with poor returns in the past will get better returns in the future. There has been a "reversal" of past and future earnings. Buying the zero-cost portfolio of past winners and selling the zero-cost portfolio of past

losers does not yield positive returns. At the same time in the formation period, the stock yield changes with the holding period, but the overall change trend is similar. And with the continuous increase of formation period and holding period, the reversal effect reaches its maximum in the combination formation period of 70 days.

It can be seen from Table 1 and Table 2 that the reversal effect in China's GEM market is more significant than the short-term momentum effect. Therefore, the strategy of selling past winners' portfolios and buying past losers' portfolios can be used as one of the criteria for investors to make decisions and select stocks to some extent. In the context of these two trading strategies, the longer the holding period, the higher the return.

3.3 A Study on the Reversal Effect in the Downward Period of Stocks (Sub period)

In order to further test the more obvious reversal effect observed in the GEM market, this paper will select one of the decline periods: the overall decline period of stocks from early February 2021 to mid-April 2021 as the sample sub period for investigation.

Table 3. Test Results of Reversal Effect in the Descending Period Unit: Day

J		K=10	20	30	40	50	60	70
20	Winner	-0.057 (-2.843)	-0.073 (-4.533)	-0.006 (-8.094)	-0.103 (-12.07)	-0.089 (-19.72)	0.007 (-23.38)	-0.069 (-18.34)
20	Loser	-0.03 (-1.733)	-0.019 (-1.521)	-0.005 (-0.442)	-0.003 (-0.394)	-0.012 (-2.389)	-0.012 (-1.471)	-0.04 (-6.477)
20	Winner-Loser	-0.057 (-2.843)	-0.073 (-4.533)	-0.096 (-8.094)	-0.103 (-12.07)	-0.103 (-19.72)	-0.089 (-23.38)	-0.069 (-18.34)
40	Winner	-0.03 (-1.733)	-0.019 (-1.521)	-0.005 (-0.442)	-0.003 (-0.394)	-0.012 (-2.389)	-0.012 (-1.471)	-0.04 (-6.477)
40	Loser	-0.026 (-0.991)	-0.053 (-2.218)	-0.091 (-4.728)	-1 (-8.29)	-0.091 (-14.06)	-0.078 (9-.31)	-0.029 (-4.768)
40	Winner-Loser	-0.0115 (-4.513)	-0.0129 (-7.036)	-0.0133 (-9.325)	-0.0119 (-10.15)	-0.108 (-13.06)	-0.09 (-14.76)	-0.077 (-14.76)
60	Winner	0.027 (-4.304)	0.06 (-2.568)	0.039 (-1.239)	0.021 (-0.896)	0.004 (0.083)	0.001 (1.543)	0.0025 (3.172)
60	Loser	-0.142 (-3.13)	-0.0188 (-3.668)	-0.172 (-11.02)	-0.141 (-13.20)	-0.113 (-14.12)	-0.1 (-9.496)	-0.052 (-5.121)
60	Winner-Loser	-0.046 (-4.520)	-0.031 (-4.363)	-0.026 (-5.759)	-0.023 (-5.914)	-0.023 (-7.552)	-0.021 (-8.697)	-0.02 (-8.741)

Same as above

Analysis of Table 3 shows that during a short period of decline in GEM stocks, the reversal effect still exists. Compared with the results of the whole sample period, the reversal effect is even more obvious. And the yield of the winner's portfolio and the loser's portfolio is also poor compared with the full sample. But there is no evidence to prove that the overall decline of the stock market is the decisive factor for the reversal effect.

When the overall situation of the stock is not good, the overall investment sentiment of investors in the market is not high, and most investors lower their expectations of expected returns. Therefore, more investors will not invest on a large scale rashly, resulting in a small amount of new capital in the market, which also causes the stocks that have performed well in the previous period cannot continue to maintain good returns, and the returns fall, and the decline is large, resulting in a more obvious reversal effect in the market.

3.4 Full sample interval scale effect analysis

Table 4. Inspection Results of Full sample large scale Companies Unit: day

J		K=10	20	30	40	50	60	70
20	Winner	-0.002 (-0.212)	0.011 (1.43)	0.023 (3.657)	0.027 (4.993)	0.023 (4.968)	0.024 (6.192)	0.027 (7.775)
20	Loser	0.021 (2.761)	0.034 (6.138)	0.037 (8.785)	0.033 (9.789)	0.029 (9.229)	0.028 (9.922)	0.03 (10.933)
20	Winner-Loser	-0.023 (-2.037)	-0.024 (-3.044)	-0.013 (-2.135)	-0.006 (-1.099)	-0.006 (-1.279)	-0.005 (-1.056)	-0.003 (-0.869)
40	Winner	-0.021 (-1.891)	-0.003 (-0.429)	0.004 (0.588)	0.009 (1.843)	0.01 (2.44)	0.01 (2.895)	0.0015 (4.984)
40	Loser	0.015 (2.049)	0.028 (5.582)	0.033 (7.879)	0.031 (9.419)	0.033 (10.981)	0.034 (11.89)	0.036 (13.199)
40	Winner-Loser	-0.036 (-3.152)	-0.032 (-3.979)	-0.029 (-4.667)	-0.022 (-4.32)	-0.023 (-5.335)	-0.024 (-6.22)	-0.02 (-5.72)
60	Winner	-0.022 (-1.998)	-0.009 (-1.253)	-0.001 (-0.009)	0.006 (1.324)	0.009 (2.318)	0.0015 (4.422)	0.022 (7.271)
60	Loser	0.027 (3.697)	0.029 (5.893)	0.033 (8.689)	0.034 (11.25)	0.038 (12.94)	0.043 (14.321)	0.044 (15.299)
60	Winner-Loser	-0.049 (-4.504)	-0.038 (-5.165)	-0.033 (-5.751)	-0.029 (-5.939)	-0.029 (-6.945)	-0.028 (-7.559)	-0.023 (-6.782)
70	Winner	-0.005 (-0.447)	0.003 (0.503)	0.013 (2.225)	0.022 (4.757)	0.022 (5.613)	0.03 (8.471)	0.038 (11.481)
70	Loser	0.014 (1.962)	0.029 (6.113)	0.031 (8.847)	0.035 (11.8)	0.038 (13.097)	0.043 (14.517)	0.041 (14.64)
70	Winner-Loser	-0.02 (-1.602)	-0.025 (-3.28)	-0.019 (-3.033)	-0.013 (-2.651)	-0.015 (-3.557)	-0.013 (-3.263)	-0.003 (-0.741)

Same as above

Table 5. Inspection Results of Full Sample of Small and Medium sized Companies Unit: day

J		K=10	20	30	40	50	60	70
20	Winner	-0.066 (-5.888)	-0.03 (-3.447)	-0.01 (-1.36)	-0.05 (-0.751)	-0.09 (-1.76)	-0.06 (-1.517)	-0.04 (-1.161)
20	Loser	0.029 (3.112)	0.035 (5.028)	0.028 (5.241)	0.025 (5.459)	0.027 (5.42)	0.026 (5.551)	0.024 (5.729)
20	Winner-Loser	-0.094 (-7.879)	-0.065 (-6.816)	-0.038 (-4.732)	-0.02 (-4.336)	-0.036 (-5.446)	-0.032 (-5.684)	-0.028 (-5.602)
40	Winner	-0.056 (-4.392)	-0.036 (-3.938)	-0.017 (-2.336)	-0.011 (-2.003)	-0.013 (-2.74)	-0.008 (-2.015)	-0.001 (-0.244)
40	Loser	0.008 (0.875)	0.004 (0.657)	0.012 (2.361)	0.014 (3.234)	0.013 (3.137)	0.0141 (3.633)	0.015 (4.26)
40	Winner-Loser	-0.063 (-4.603)	-0.04 (-4.142)	-0.029 (-3.765)	-0.025 (-4.264)	-0.025 (-5.107)	-0.022 (-5.073)	-0.016 (-3.988)
60	Winner	-0.075 (-6.391)	-0.0038 (-4.281)	-0.015 (-2.065)	-0.007 (-1.216)	0.003 (0.654)	0.012 (2.491)	0.015 (3.127)
60	Loser	-0.003 (-0.279)	0.009 (1.286)	0.011 (2.124)	0.011 (2.557)	0.011 (2.564)	0.009 (2.767)	0.012 (3.707)
60	Winner-Loser	-0.073 (-5.638)	-0.047 (-4.729)	-0.027 (-3.387)	-0.018 (-3.014)	-0.006 (-1.296)	0.003 (0.667)	0.002 (0.626)
70	Winner	-0.0073 (-6.074)	-0.028 (-3.089)	-0.01 (-1.402)	0.006 (1.048)	0.016 (2.891)	0.017 (3.512)	0.018 (3.827)
70	Loser	0.006 (0.557)	0.01 (1.548)	0.009 (1.772)	0.008 (2.03)	0.007 (1.952)	0.009 (2.748)	0.013 (4.049)
70	Winner-Loser	-0.079 (-5.729)	-0.038 (-3.797)	-0.019 (-2.473)	-0.002 (-0.314)	0.01 (1.849)	0.008 (1.887)	0.005 (1.161)

Same as above

In order to analyze whether the size of the company will have an impact on it, we divided the total sample into two groups: large and small based on the size of the stock market. The results are shown in Table 4 and Table 5. Similar to the overall results, the reversal effect of larger companies in the market is more significant. However, in small and medium-sized companies, the J - K portfolio (60, 60), (60, 70), (70, 50), (70, 60), (70, 70) is positive, so in addition to the reversal effect, momentum effects also exist in small and medium-sized samples. That is to say, the reverse trading strategy is easier to gain income in the larger company market, the momentum effect and reverse effect of small and medium-sized companies exist at the same time, and the size effect exists in the GEM market.

4. Cause and result analysis

The final results of the empirical study show that during the period from January 2, 2019 to December 31, 2021, the market reversal effect of China's GEM is relatively significant, but no significant momentum effect has been observed, which is somewhat different from the research results of the main board market in the same period. Moreover, the GEM market in this period was not completely effective, with obvious reversal effect, short cycle and obvious scale effect. The following article will explain the possible reasons.

(1) Characteristics of the Growth Enterprise Market

Companies on the GEM generally have not been listed for a long time, are small in size, and are mostly in electronic, medical or high-tech industries. Compared with most companies listed on the main board, such companies are not mature enough to deal with all kinds of emergencies, and their stock returns are uncertain. However, the market price of the stock is largely related to the profitability of the company in the future. Therefore, the uncertainty of investors' investment becomes greater, resulting in large short-term fluctuations in the market. It is finally manifested as a significant reversal effect [8].

(2) Investor's expected deviation

Market conditions are closely related to investors' psychological expectations. When the overall trend of the market is good, investors tend to be in a more optimistic state. They have a better expectation of the stock yield and are bolder in their investment; When the market is in a downward trend, investors tend to be pessimistic, with lower expectations of stock returns and more rational investment. Changes in investor sentiment and psychology often cause expectations to deviate from normal rational price expectations, and the market becomes more speculative [9]. When the market is highly speculative, the reversal effect is often widely significant, and the reversal cycle is shorter than that of the less speculative market.

(3) Structural characteristics of investors

Compared with the international stock industry, China's stock industry has a shorter development time, a later start and a lower maturity. The GEM market has a shorter establishment period, and most of the investors in the market are small and medium-sized investors, so the total capital capacity in the market is not high. And because of the characteristics of conformity psychology and cognitive bias, small and medium-sized investors are vulnerable to the impact of external information and market noise, so they are prone to irrational investment and increase the volatility of stocks in the market. The structural characteristics of such investors also aggravate the reversal effect of China's GEM market [10].

5. Conclusion

To promote the steady and healthy development of China's GEM stock market. First of all, the government should improve the information disclosure system. At present, China's GEM is not a fully effective market, but an efficient market that can make profits through technical analysis. The Measures for Information Disclosure of Listed Companies, which the CSRC improved and began to implement in May 2021, has made more explicit provisions on the operational details of the lack of

information disclosure on the original basis. In addition, our government should also seek to formulate and implement a management method that strictly stipulates the information disclosure of listed companies in terms of content, obligations, rights, responsibilities, etc., so as to improve the transparency and effectiveness of information disclosure of listed companies and maintain the stable and healthy development of the securities market.

Secondly, relevant regulatory authorities should strengthen market supervision. We should crack down on the malicious behavior that may exist in the market, and the transition to speculative profits, and strengthen the education of investors from all aspects. It is further clarified that investment is an activity where risks and benefits coexist, and investment should be rational, scientific and reasonable. At the same time, monitor the public opinion environment in the market, severely crack down on spreading false information and disturbing the market investment order, promote the stability, security and effectiveness of China's capital market operation, guide capital pricing to be more reasonable, and market resource allocation to be more efficient.

Finally, relevant institutions and departments should further optimize the investor structure. At present, China's GEM is not an effective market, which also shows that the investment activities in the current market are not rational enough. Small and medium-sized investors in the market account for a large proportion. The risk in the market is high, and the volatility is strong. Investors are vulnerable to heavy losses. Therefore, it is necessary to cultivate and guide more institutional investors with stronger risk bearing, and improve the current situation that the proportion of small and medium-sized investors and individual investors is relatively high; Establish and improve a reasonable and effective dividend management system to maintain market order.

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