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Research on the Impact of Different Leverage on Capital Market

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Abstract

In 2015, China's stock market experienced an abnormal fluctuation, which can be called the most serious stock disaster in History of China's capital market. As for the cause of the stock disaster, the more consistent view is: the excessive and disorderly use of leverage trading. In order to study the impact of different leverage on the capital market, this paper constructs a model and sets four different leverage. Then, under four kinds of funding leverage, this paper studies the possible gains and losses of investors for different range of a stock price up and drop. Finally, the author provides reference and suggestions for investors and financial regulatory authorities according to the research conclusions.

Keywords

Leverage; Capital Market; Stock Market Disaster.

1. Introduction

On July 8, 2020, the China Securities Regulatory Commission (CSRC) exposed the list of 258 platforms and their operating institutions illegally engaged in over-the-counter funding.[1] This behavior of the CSRC shows that it has strengthened the supervision of illegal over-the-counter funding.The behavior of the CSRC took place at the beginning of the bull market, which reminds people of the profound lesson that the high leverage stampede destroyed the market liquidity in 2015.

Looking back at 2015, China’s stock market experienced an abnormal fluctuation. At that time, the bull market was very brilliant. At the beginning of the year, the Shanghai composite index was more than 3000 points, and then rose all the way, reaching the highest point of 5178 points on June 12.But then it went down sharply to 3421 on July 8 and 2850 on August 26.In a short period of more than two months, the Shanghai stock index has dropped by nearly 50%, and the stock market has also fallen greatly. What’s more, the stock market is in a state of shock, and it did not return to normal until September, when the stock market value has evaporated more than trillion.It is no exaggeration to say that this is almost the most serious stock disaster in the history of China’s capital market.[2]

As for the causes of the stock disaster, the market and regulators almost unanimously agreed that the excessive and disorderly use of leverage trading was the culprit of the stock disaster in 2015.[3] Although the large-scale use of over-the-counter funds and high leverage tools accelerates the bull market, it is also caused the downward market.Looking back at the situation at that time, when the market fell rapidly investors suffered losses, but the most serious loss was the investors who used over-the-counter funds and use high leveragfunds.This is because the leverage ratio of over-the-counter funds is very high, up to three times, five times or even ten times, which is far higher than that of ordinary securities companies.In addition, such investors bear a heavy risk of closing and bursting positions in this case.To be specific, when the market drops rapidly, for an investor who does not use the over-the-counter funding tools, even if he is deeply tied by the stock market, he does not have to bear the risk of closing or even bursting the position, and he still has enough time and patience to wait for rescuing. In contrast,

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for the investors who use the over-the-counter fund allocation tools, they could not only hold on to the stock for a long time, but also face the risk of closing or even exploding at any time.

The impact of different leverage on the risk of capital market has practical and theoretical significance, so this paper studies it through modeling, and puts forward effective suggestions for investors and financial regulators according to the research conclusions.

2. Introduction to Leveraged Trading

Investors who engage in leveraged trading purchase assets that cost more than they can afford in cash. They deposit cash in a trading account, which acts as collateral against which they can borrow money from the broker to complete the trades. This type of trading is also called trading on the margin.

Leveraged trading is done from special accounts designed to allow the trader to borrow funds from the broker to conduct trades. Opening an account requires the trader to certify that he understands the risks involved in margin trading and that he agrees to adhere to the regulations on trading set by regulatory agencies and the broker. These regulations include specifications on the minimum amount of cash, or the minimum margin, the trader must maintain in the account.

Leverage trading refers to the behavior of providing funds to investors on the basis of investors's own funds to buy and sell stocks according to a certain proportion, and the proportion is related to the concept of allocation leverage. If the investor has a principal of 1 million dollar, he can borrow 2 million dollar and operate 3 million dollar according to the leverage of twice the over-the-counter allocation.

Leveraged trading includes not only the securities margin trading in floor trading market conducted by securities company, but also the over-the-counter. For the the securities margin trading, the current supervision is very strict considering the risks of leveraged trading.In addition to setting a higher threshold for investors, it also controls the actual leverage ratio of financing business at about one time. Over-the-counter capital allocation refers to the company lending its funds to investors through the platform according to a certain leverage ratio, so as to realize the leverage transaction of investors.The leverage ratio of over-the-counter capital allocation is usually high, which can reach three times, five times, or even more than ten times, far higher than the leverage ratio of floor trading market, in which the leverage ratio of securities margin trading is one time.

3. Model Construction

Assume that investor's self-owned capital is 1 million dollar and the annual interest rate is 15%. Set 10 kinds of growth rate from 1% to 10%, and calculate the investors' profit, netprofit and rate of return according to each growth rate; set 10 kinds of decline rate (different leverage) to calculate the investors' loss, net loss and rate of loss, and analyze whether to burst the position for further study.The unit of profit, net profit, loss and net loss in the following table is 10000 dollar.Based on the analysis of the actual situation, the leverage is set as one time, two times, five times and ten times.

3.1. One Time Leverage

Under the condition of one time leverage, the controllable capital is 2 million dollar, including 1 million dollar of self-owned capital and 1 million dollar of borrowing capital, and the interest of 1 million dollar borrowed is 150000 dollar per year.

ISSN: 2688-8653

Table 1. Return and loss of investors under one time leverage

Growth rate	profit	Net Profit	Rate of return	Decline rate	Loss	Net loss	Is the stock bursting	Rate of Loss
1%	2	-13	-6.50%	10%	-20	-35	no	-17.50%
2%	4	-11	-5.50%	20%	-40	-55	no	-27.50%
3%	6	-9	-4.50%	30%	-60	-75	no	-37.50%
4%	8	-7	-3.50%	40%	-80	-95	no	-47.50%
5%	10	-5	-2.50%	41%	-82	-97	no	-48.50%
6%	12	-3	-1.50%	42%	-84	-99	no	-49.50%
7%	14	-1	-0.50%	43%	-86	-101	yes	-50.50%
8%	16	1	0.50%	44%	-88	-103	yes	-51.50%
9%	18	3	1.50%	45%	-90	-105	yes	-52.50%
10%	20	5	2.50%	50%	-100	-115	yes	-57.50%

3.2. Double Leverage

In the case of double leverage, the controllable capital is 3 million dollar, including 1 million dollar of self owned capital and 2 million dollar of borrowing capital, and the interest of 2 million dollar of borrowing capital is 300000 dollar a year.

Table 2 Return and loss of investors under double leverage

Table 2. Return and loss of investors under double leverage

Growth rate	profit	Net Profit	Rate of return	Decline rate	Loss	Net loss	Is the stock bursting	Rate of Loss
1%	3	-27	-9.00%	5%	-15	-45	no	-15.00%
2%	6	-24	-8.00%	10%	-30	-60	no	-20.00%
3%	9	-21	-7.00%	15%	-45	-75	no	-25.00%
4%	12	-18	-6.00%	20%	-60	-90	no	-30.00%
5%	15	-15	-5.00%	21%	-63	-93	no	-31.00%
6%	18	-12	-4.00%	22%	-66	-96	no	-32.00%
7%	21	-9	-3.00%	23%	-69	-99	no	-33.00%
8%	24	-6	-2.00%	24%	-72	-102	yes	-34.00%
9%	27	-3	-1.00%	25%	-75	-105	yes	-35.00%
10%	30	0	0%	30%	-90	-120	yes	-40.00%

3.3. Five Times Leverage

Under the condition of five times leverage, the controllable capital is 6 million dollar, including 1 million dollar of self owned capital and 5 million dollar of borrowing capital, of which the interest of 5 million dollar of borrowing capital is 750000 dollar a year.

3.4. Ten Times Leverage

Under the condition of ten times leverage, the controllable capital is 11 million dollars, including 1 million dollar of self-owned capital and 10 million dollars of borrowing capital, of which the interest of 10 million dollar of borrowing capital is 1.5 million dollar a year.

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Table 3. Return and loss of investors under five times leverage

Growth rate	Profit	Net Profit	Rate of return	Decline rate	Loss	Net loss	Is the stock bursting	Rate of Loss
1%	6	-69	-11.50%	1%	-6	-81	no	-13.50%
2%	12	-63	-10.50%	2%	-12	-87	no	-14.50%
3%	18	-57	-9.50%	3%	-18	-93	no	-15.50%
4%	24	-51	-8.50%	4%	-24	-99	no	-16.50%
5%	30	-45	-7.50%	5%	-30	-105	yes	-17.50%
6%	36	-39	-6.50%	6%	-36	-111	yes	-18.50%
7%	42	-33	-5.50%	7%	-42	-117	yes	-19.50%
8%	48	-27	-4.50%	8%	-48	-123	yes	-20.50%
9%	54	-21	-3.50%	9%	-54	-129	yes	-21.50%
10%	60	-15	-2.50%	10%	-60	-135	yes	-22.50%

Table 4. Return and loss of investors under ten times leverage

Growth rate	Profit	Net Profit	Rate of return	Decline rate	Loss	Net loss	Is the stock bursting	Rate of Loss
1%	11	-139	-12.64%	1%	-11	-161	yes	-14.64%
2%	22	-128	-11.64%	2%	-22	-172	yes	-15.64%
3%	33	-117	-10.64%	3%	-33	-183	yes	-16.64%
4%	44	-106	-9.64%	4%	-44	-194	yes	-17.64%
5%	55	-95	-8.64%	5%	-55	-205	yes	-18.64%
6%	66	-84	-7.64%	6%	-66	-216	yes	-19.64%
7%	77	-73	-6.64%	7%	-77	-227	yes	-20.64%
8%	88	-62	-5.64%	8%	-88	-238	yes	-21.64%
9%	99	-51	-4.64%	9%	-99	-249	yes	-22.64%
10%	110	-40	-3.64%	10%	-110	-260	yes	-23.64%

4. Relevant Suggestions

Investors should be cautious about over the counter and keep rational in investment.

In recent years, illegal over the counter funding has revived in China. The China Securities Regulatory Commission has issued an article to remind investors that "the over-the-counter funding platforms do not have the qualification to operate securities business, and some are suspected of engaging in illegal securities business activities, and some are even suspected of engaging in fraud and other illegal and criminal activities". In fact, in order to attract investors, over the counter capital allocation companies often avoid talking about high leverage risk. Once investors blindly listen to over-the-counter capital allocation companies' suggestions and use high leverage capital allocation, when the stock falls sharply, investors will suffer heavy losses, and more seriously, some serious situations may endanger social stability. In addition, the investors' account is jointly owned by the investor and the capital allocation company, while the capital allocation company does not have the qualification to engage in securities brokerage business, and has no internal control, risk control and external supervision, which is in the gray area of legal supervision and belongs to the illegal field. Once the over the counter capital allocation companies are greedy and desperate, they may abscond and investors' funds will never return.

To sum up, the high risk of over-the-counter funding does not match the risk tolerance of individual investors. Therefore, investors should learn from the lessons of 2015, keep sober about the seemingly attractive publicity of the allocation company, and adhere to the investment with surplus money, rational investment and value investment. If there is a need

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for financing, securities margin trading is a better choice which is conducted through legal securities business institutions.

Financial supervision departments should strengthen the prevention of over-the-counter capital allocation and build a healthy stock market environment.

Leverage capital enlarges the multiplier effect of profit, while when the marginal expected profit increases, people tend to take risks. The risk taking demand is a "hot bed" for over the counter financing platforms, which should be paid attention to by supervision authorities in a long-term period to prevent their "resurgence". Only by cracking down on illegal capital allocation and creating a healthy bull market environment can investors and market main bodies be truly protected.

In view of this, the regulatory authorities need to strictly prohibit all kinds of over the counter allocation forms that are beyond the regulatory vision, strengthen the penetrating supervision of funds, and prevent over the counter funds from redressing in the "legal coat" of on-site trading.In addition, we should encourage and regulate the healthy development of margin trading business in the market and should not adopt the method of "one size fits all, reversing history" in order to deleverage.

5. Conclusion

From the analysis above, it can be concluded that under the four kinds of leverage assumptions, only when the leverage is one time, and the stock increase reaches 8%, 9% and 10%, the investors will get net profit. In other cases, no matter how many times the leverage, no matter how high the stock increase rate, the net profit of the investors is negative.

When the leverage is doubled and the stock value drops by 10%, the investors will suffer serious losses, but they will not reach the position closing line; however, when the stock value drops by 24%, they will be forced to close their positions. As a result, the investors should reduce their positions in time before the stock value drops by 24%.

When the allocation leverage is five times, the 5% decline will be forced to close the position, and the higher the decline, the more serious the loss of investors. Therefore, investors should set the 5% decline as the closing line.

When the allocation leverage is ten times, when the decrease rate reaches 1%, the position will be forced to close, and the investment risk is extremely high. At this time, investors should be extremely cautious in investment.

Acknowledgements

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