

Research on Grading the Potential of Listed Port and Shipping Companies in China Stock Market

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Abstract: Due to lots of reasons, the price of stock fluctuate frequently, which confused many common stock investors, in order to help the investors to improve their performance, the article classify the key factors into company performance factor, volume factor and space factor. Based on fundamental analysis and technology analysis, using some mathematics tools to calculate the potential grade of the port and shipping listed companies, then choosing the front and paying attention to them, after some time of observation, the article find out the higher the ROE, the higher the volume, then the higher the potential grade is. And the higher the potential grade, the better the performance of the stock in the market will be.

Key word: Stock investment; Potential grade; Listed port and shipping company; Volume factor

1 Introduction

Due to lots of reasons, the price of stock fluctuate frequently, which confused many common stock investors, how to choose the stocks to invest the new added fund and the money they cash out by selling the stocks at a high price is the most important task to solve. Zhen Yibin researches the stocks market intermediate risk, he thinks the stock risk can be valued by calculating some targets, such as moving trend, exchange energy, wavy period and investment value. This article classify the key factors into company performance factor, volume factor and space factor, based on fundamental analysis and technology analysis, using some mathematics tools to calculate the potential grade of the port and shipping listed companies, then choosing the front and paying attention to them. Part two of the article explain why the article choose the three factors, part three calculates the grade of the factor, part four is the empirical research, the part five is the conclusion.

2 Selecting the Factors of Potential Grade of Stock

Potential grade of stock is to analysis the momentum of uptrend and space, which is based on the current stock value and technical indicators. So the factors this article select must be related to the value and technical indicators, and can result in the up range. The former is related to the performance, the later is related to up momentum and space. This article divides the factors into three classifications: performance factor, momentum factor, space factor. Based on the fundamental analysis and technical analysis, this article grades the three factors, evaluates each factor a corresponding weight, then calculates the potential grade.

2.1 Performance Factor

Whether the investor makes a profit after he buys the stock depends upon the price he pays and the performance of the company. Many investors like to use P/E to measure performance of the company, but this article chooses to use ROE, although the P/E and ROE are calculated by the same financial indicator, earning per share, the P/E will fluctuates according to the stock price. It has great reference value to measure the level of stock's price the investor pays is high or low with P/E, while it has little reference value to predict the trend of the earning power of the company. The ROE reflects the level of equity earnings, measuring the efficiency of company's capability to use the free capital. It is more appropriate to use ROE to analyze the company's profitability, reflecting the company's performance. The higher the ROE is, the better performance the company will be.

2.2 Volume Factor

Volume reflects the activity of the buyers and sellers. If you compare volume between two markets, it will show which one is more active or liquid^[1]. We can make a certain predictions and judgments for the future stock price combining the turnover and stock price movements. First, we should observe whether the stock's high turnover will maintain a longer time, because the longer time the high turnover maintains describe the capital pays attention to the stock, it'll be profitable to invest this kind of stock. If the stock recently maintains a high turnover, while its up range is limited (the MA shows the long array will be better), according to the theory behind the volume: the greater the volume, the greater the force behind the move, the uptrend is predictable. The value of researching the trading volume is mainly on

short-medium term price fluctuations, now we can determine the involvement of a better time in the stock market.

2.3 Space Factor

Stock fluctuation, not only is related to the performance and volume factor, but also is related to the highest and lowest price, and the highest and lowest shanghai composite index in the in the most recent period, because the important high and low points as well as through the consolidation of the position constitutes resistance and support prices in the area of a support or resistance continues longer, the more important this price zone is, if it is accompanied by a high trading volume, this area of support or resistance will be stronger^[2]. Space factor refers to the current stock price in its price movement course of forming the relative position, high or low, and compare to the relative position of the stock market over a period of time in which the formation of the high or low position, and it is a method to determine the size of the stock's upside.

3 Stock Potential Grade Model

3.1 The potential grade model

After a long time of gathering and analyzing statistics, this article designs the stock potential grade model: $Q=Y+N+K$

In this model:

- Q—potential grade;
- Y—performance grade;
- N—volume grade;
- K—space grade;

3.2 Performance grade model

$$Y=100 \times W_1 \times \sqrt[4]{\frac{R}{10\% \cdot Z}}$$

When ROE gets up to or more than 10%, that's to say, when the ROE of every quarter gets up to or more than 2.5%, then the performance grade will be 100. As the ROE is the accumulation result of the past time, the evaluation of Z has to change with the time span.

In this model:

- Y—performance grade;
- W_1 —the evaluation of the weight of performance is 0.4;
- R—the ROE of the accounting time;
- Z—when the financial statement is quarterly, interim, third quarterly, annual report, the evaluation of Z will be 1/4, 1/2, 3/4 and 1.

Table 1 Performance Grade of listed company of Port and Shopping in China Stock market

Order	Company Name	ROE	Performance Grade
1	COSCO Shipping	1.24	33.60
2	China Shipping Haisheng	0.39	25.20
3	China Shipping Development	1.67	36.15
4	Ningbo Maritime	2.41	39.65
5	TianJin Port	2.09	38.26
6	BeiHai Port	2.47	39.88
7	LianYun Port	1.37	34.41
8	YanTian Port	3.01	41.91

3.3 Volume grade model

$$N=100 \times W_2 \times \sqrt{L_1 \times L_2} \times \frac{V_s}{300}$$

When the turnover rate of the past season gets up to or over 300%, then the N will be 100. In this model:

N—volume grade;

W_2 —the evaluation of the weight of volume is 0.3;

V_s —turnover rate of the past season;

V_m —the monthly turnover rate;

V_w —the weekly turnover rate;

L_1 —volume factor one, the result of the monthly turnover rate multiply 3 and then divide the past season turnover rate.

L_2 —volume factor two, the result of the weekly turnover rate multiply 13 and then divide the past monthly turnover rate.

Table 2 Volume Grade of listed company of Port and Shopping in our stock market

Order	Company Name	V_s	V_m	V_w	Volume Grade
1	COSCO Shipping	55.15	22.62	3.60	8.80
2	China Shipping Haisheng	49.69	29.39	4.78	9.62
3	China Shipping Development	28.09	11.12	1.99	4.67
4	Ningbo Maritime	148.64	107.56	9.29	23.21
5	TianJin Port	33.69	13.46	2.19	5.36
6	BeiHai Port	96.96	58.23	15.16	23.94
7	LianYun Port	78.82	53.49	12.95	19.95
8	YanTian Port	104.56	59.61	18.40	27.39

3.4 Space grade model

$$P_s = P_L + (P_H - P_L) \times \frac{(I_H - I_C)^{[3]}}{(I_H - I_L)} \quad K = 100 \times W_3 \times \left(\frac{P_s}{P_c} \right)^2$$

In this model:

W_3 —the evaluation of the weight of volume is 0.4;

P_s —the supposed price;

P_c —the closing price;

P_L, P_H —the lowest and highest stock price in the most recent period;

I_L, I_H, I_S —the lowest, highest and closing Shanghai composite index in the most recent period.

Keep record the lowest, highest and closing Shanghai composite index in the most recent period on 2011-4-1, that's 3012.04, 2661.45, 2967.41.

Table 3 Space Grade of listed company of Port and Shopping in China stock market

Order	Company Name	The highest price	The lowest price	The closing price	The supposed price	Space grade
1	COSCO Shipping	9.18	6.96	7.91	7.24	33.53
2	China Shipping Haisheng	7.31	6.03	6.74	6.19	33.77
3	China Shipping Development	10.25	9.12	9.7	9.26	36.48
4	Ningbo Maritime	5.57	4.4	5.1	4.55	31.82
5	TianJin Port	9.32	8.44	8.58	8.55	39.74
6	BeiHai Port	13.85	11.01	13.61	11.37	27.92
7	LianYun Port	8.9	6.45	8.39	6.76	25.98
8	YanTian Port	7.87	5.99	7.7	6.23	26.18

3.5 Potential grade of the stock

This article calculates the potential grade of the listed company of the port and shipping, the results show as table 4:

Table 4 Potential Grade of listed company of Port and Shipping in China stock market

Order	Company Name	Performance grade	volume grade	space grade	potential grade
1	COSCO Shipping	33.60	8.80	33.53	75.93
2	China Shipping Haisheng	25.20	9.62	33.77	68.59
3	China Shipping Development	36.15	4.67	36.48	77.31
4	Ningbo Maritime	39.65	23.21	31.82	94.68
5	TianJin Port	38.26	5.36	39.74	83.36
6	BeiHai Port	39.88	23.94	27.92	91.75
7	LianYun Port	34.41	19.95	25.98	80.35
8	YanTian Port	41.91	27.39	26.18	95.48

Table 4 shows clearly that the potential grade of port-listed companies are higher than those of shipping-listed companies, and the YanTian Port ranks the highest while the China Shipping Haisheng ranks the lowest. With the grade decreases, these companies display like this: YanTian Port, Ningbo Maritime, BeiHai Port, TianJin Port, LianYun Port, China Shipping Development, and China Shipping Haisheng.

4 Empirical Research of the Potential Grade of Port and Shipping-listed Companies in China Stock Market.

Since 2011-4-1, we grade the 8 stocks, this article trails the fluctuation of these stocks price and shanghai composite index, when trade suspension happens, the closing price of that day will be the same as that of the last trade day, then the fluctuation of these stock price and shanghai composite index shows as table 5. Then we can draw the fluctuation in figure 1.

Table 5 the fluctuation of the stock and shanghai composite index

Time	Shanghai Composite Index	COSCO Shipping	China Shipping Haisheng	China Shipping Development	Ningbo Maritime	Tianjin Port	Beihai Port	Lianyun Port	Yantian Port
2011-4-1	2967.41	7.91	6.74	9.7	5.1	8.58	13.61	8.39	7.7
2011-4-6	3001.36	8.17	6.8	9.7	5.11	8.67	14.06	8.57	7.67
2011-4-7	3007.91	8.05	6.84	9.8	5.24	8.72	13.93	8.7	7.61
2011-4-8	3030.02	8.1	6.88	9.87	5.23	8.76	13.81	8.65	8
2011-4-11	3022.75	7.93	6.73	9.74	5.13	8.82	13.37	9.1	8.05
2011-4-12	3021.37	8.09	6.81	9.95	5.14	8.9	13.3	8.9	8.11
2011-4-13	3050.4	8.18	6.94	10.09	5.16	9.03	13.32	8.9	8.1
2011-4-14	3042.64	8.19	6.88	9.91	5.22	8.92	13.18	8.85	8.24
2011-4-15	3050.53	8.09	6.95	9.98	5.18	9.06	13.5	8.71	8.37
2011-4-18	3057.33	8.12	6.97	10.05	5.23	8.99	13.34	8.59	8.2
2011-4-19	2999.04	7.94	6.82	9.76	5.11	8.77	13.14	8.49	8.17
2011-4-20	3007.04	7.99	6.86	9.79	5.11	8.89	13.17	8.5	8.18
2011-4-21	3026.67	7.95	6.95	9.83	5.09	8.89	13.2	8.29	8
2011-4-22	3010.52	8.13	6.71	9.88	5.07	8.91	13.25	8.43	8.05
2011-4-25	2964.95	7.91	6.6	9.66	4.93	8.75	12.56	7.95	8.05
2011-4-26	2938.98	7.67	6.5	9.54	4.82	8.75	12.22	7.75	7.75
2011-4-27	2925.41	7.6	6.22	9.4	4.84	8.6	11.98	7.63	7.84
2011-4-28	2887.04	7.3	6.32	9.19	4.84	8.47	11.65	7.5	7.79
2011-4-29	2911.51	7.46	6.37	9.3	4.91	8.55	11.85	7.6	7.95

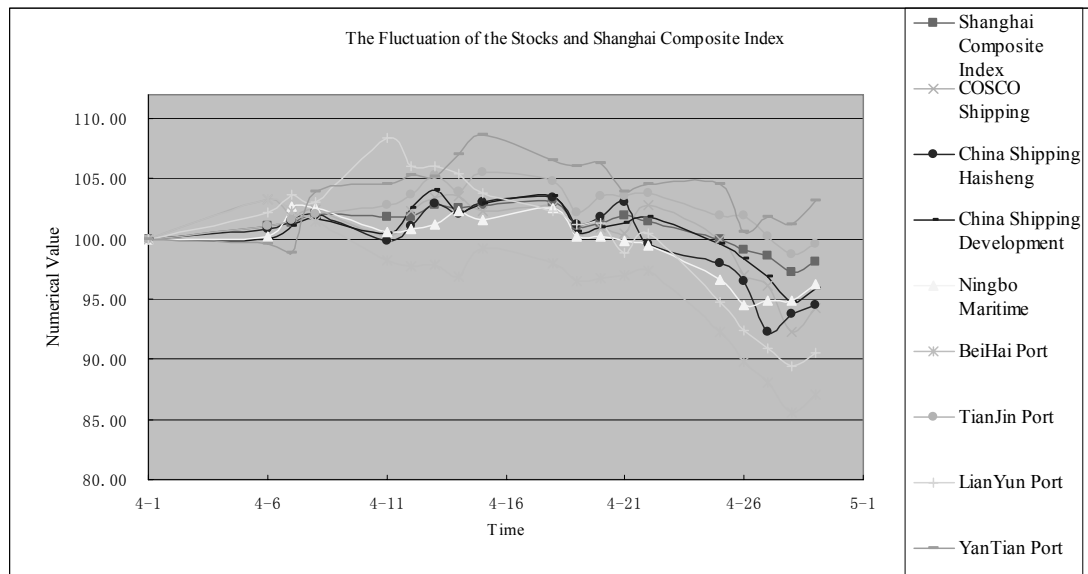


Figure 1 the Fluctuation of the Stocks and Shanghai Composite Index

Figure1 shows clearly that since 2011-4-1, the potential grade was calculated, shanghai composite index first rise before 2011-4-18, then decrease, so do the other stocks, but the up and down ranges are different from each other. When the shanghai composite index goes up stably, the higher the potential grade of the stock in table4, the bigger up range is, especially the YanTian Port, TianJin Port and LianYun Port rise higher than the shanghai composite index; when the shanghai composite index begins to go down, so do the stocks, but the higher the potential grade of the stock in table4, the smaller down range is. Most importantly, the YanTian Port and TianJin Port are always above the shanghai composite index, and compared with the data of 2011-4-1, the shanghai composite index decreased 1.88%, Yantian Port still rise about 3.25%. there is only one exception, that's BeiHai Port, its potential grade rank the third highest, but it has the biggest down range in the next month, the cause is the volume decrease sharply.

5 Conclusion

- (1) Potential grade is a very important way of picking stock to invest;
- (2) The higher the ROE, the bigger the volume, the higher the supposed price, the higher potential grade of the stock will be;
- (3) The higher the potential grade of the stock, the more attention should be paid to, if the volume begins to rise, then the potential grade will rise, the investor should begin to buy;
- (4) The higher the potential grade of the stock, when the stock market decrease, the smaller the down range will be; but with some conditions are fulfilled, when the stock market begins to rise, the stock will be stock rising quickly.

Reference

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