

Motivation Research of High-split of Listed Companies in China——Based on Logistic Model

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Abstract: In recent years, the high-split behavior of listed companies has increasingly attracted regulatory attention. Unlike the mature markets such as the United States, listed companies of China have a higher willingness to distribute share dividends. Short-term surges and declines of high-split companies have seriously damaged the interests of investors. This paper uses the Logistic model to study the motivations of high-split behavior of listed companies by using Chinese A-share listed companies from 2014 to 2017 as samples. The research results show that the optimal price theory, signal transmission theory and catering theory can all explain the high-split behavior of listed companies in the Chinese A share market, indicating that the high-split behavior of listed companies in the Chinese A share market is mainly to increase the liquidity of stock, to convey to investors the company's good operating information and cater to investors' preference for share dividends.

1. Introduction

Since the birth of the Chinese stock market, after more than 20 years of development, the total market value has exceeded 50 trillion. With the completion of the equity split reform and the introduction of margin trading and stock index futures, the Chinese stock market has gradually matured. All along, China's listed companies have tended to use high-split when they distribute dividends. This phenomenon has been particularly prominent in recent years. In 2006, only 73 companies announced high-split plans at the same time as their annual reports. By 2015, the number had changed to 453, and the number of listed companies that had high-split behaviors had increased by 520% in 10 years. The split ratio of high-split stocks has also increased from an average of 7.3 shares per 10 shares in 2006 to 11.03 shares per 10 shares in 2015. The number of companies that have announced high-split plans and the split ratio have increased year by year. Every year when a listed company announces high-split plans while publishing its annual report, it will often trigger market speculation. From the perspective of mature markets, only companies with good growth and good operating performance will do high-split. However, many listed companies that have not achieved high profits have even done high-split. What is the motivation behind the high-split behavior of listed companies? This is worth exploring in depth.

According to the company's financial theory, High-split is only an internal adjustment of shareholders' equity and will not change the company's fundamentals. But why listed companies are so keen on high-split, this will be the main research content of this paper. Since 2018, the CSRC has increased the supervision of the high-split behavior of listed companies, which has greatly inhibited the high-split behavior. Based on this, this paper selects the listed companies with high-split behavior in China's A shares from 2014 to 2017 as the main research samples, because the A share market has experienced a complete bull and bear cycle in the past 4 years. The number of listed companies that have high-split behavior reached 1,315, which met the requirements for regression analysis. This paper conducts empirical research and analysis through the Logistic regression model, trying to find the motivation of the high-split behavior in the A-share market, and hopes to provide appropriate investment advice for small investors.

2. Literature Review

2.1 Foreign Literature Review

In the related research of foreign scholars, the analysis of the motivations of listed companies' dividend policy behaviors mainly includes the following three theories: optimal price theory, signal transmission theory and catering theory.

The optimal price theory believes that there is an optimal range for the stock price of listed companies. If the stock price is too high or too low, it will affect the company's stock liquidity. Companies with high stock prices reduce the stock price through high-split and increase the liquidity of the stock. Most investors dislike high-price stocks and prefer low-price stocks. Investors with less capital may not consider stocks with excessively high prices. As a result, listed companies pay dividends to reduce the nominal price of the stock, thereby attracting more investors to buy the stock.

Lakonishok (1987) [1] verified through research that the stock split behavior of listed companies in the European and American stock markets can be explained by the optimal price theory. Gow-Cheng Huang (2015) [2] studied the liquidity changes of listed company funds before and after the stock split. He found that the stock split behavior will have a short-term adverse impact on the liquidity of the company's cashes.

The core of the signal transmission theory is that there is information asymmetry between the company and small investors. The company transmits the company's good development signals to the capital market by distributing share dividends.

Several research results such as Ikenberry and Rankie (1996) [3] show that the signal transmission theory is effective in the European and American stock markets. They analyze the different performances of institutional investors before and after the stock split. The results of the study show that listed companies can reduce the degree of information asymmetry through stock splitting and transfer information to the outside world.

Catering theory believes that the behavior of listed companies to pay dividends is determined according to the investor's preference for dividends, and the company conducts stock splits by catering to investor's preference.

Baker and Wurgler (2004a, 2004b) [4, 5] have published two papers one after another, verifying the effectiveness of the catering theory.

2.2 Domestic Literature Review

The research of domestic scholars is mainly to verify the applicability of foreign theories in the Chinese market on the basis of foreign research. Some scholars put forward relevant theories in line with China's national conditions based on China's special market conditions.

He Tao (2003) [6] studied whether the high-split behavior of listed companies in the Chinese market can be explained by signal transmission theory and optimal price theory. The empirical results show that the above theory is invalid in the Chinese market. The results of Xiong Yiming et al. (2012) [7] are contrary to He Tao, pointing out that China's share offerings are similar to the US's stock split, so signal transmission theory and optimal price theory can be used to analyze China's transfer behavior.

Xue Zuyun (2009) [8] et al. proposed the theory of equity expansion. The theory believes that the threshold for listing in China is high, and future refinancing activities will be restricted accordingly, so listed companies have a strong incentive to expand equity.

3. Research Design

3.1 Hypothesis

It can be seen from the above literature review that the motivations of the company's high-split behavior are various. In summary, this paper mainly combines the three theoretical hypotheses put forward in foreign literature, and puts forward research hypotheses.

Hypothesis 1 (optimal price theory): The stock price of a listed company is positively correlated with the probability of high-split. Companies with high stock prices are more likely to do high-split, and companies with low stock prices are less likely to do so.

Hypothesis 2 (signal transmission theory): The net profit growth rate of listed companies is positively correlated with the high probability of high-split.

Hypothesis 3 (catering theory): The shareholding ratio of the top five shareholders of listed companies is positively correlated with the high probability of high-split.

3.2 Variables and model

Define *gsz* as the dependent variable that characterizes high-split. If a listed company does high-split, the *gsz* variable takes the value "1", otherwise it takes "0". According to the previous research, the high-split here means that the split ratio is above 5 shares per 10 shares.

The other variables is shown in the table below.

Table 1 Variables

Type	Name	Description
Dependent variable	<i>gsz</i>	The company does high-split this year
Independent variable	<i>price</i>	The company's stock close price last year
	<i>profitoy</i>	The company's net profit growth rate last year
	<i>top5ratio</i>	The company's top5 sharehoding ratio last year
Control variable	<i>totalshare</i>	The company's total share amount last year
	<i>capresps</i>	The company's capital reserve per share last year
	<i>undisprops</i>	The company's undistributed profit per share last year
	<i>eps</i>	The company's earning per share last year
	<i>pb</i>	The company's P/B ratio last year
	<i>roe</i>	The company's roe last year
	<i>new</i>	The company is listed this year

The model is shown below:

$$\Pr(\text{gsz}=1) = \text{Logit}(\beta_0 + \beta_1 \text{price} + \beta_2 \text{profitoy} + \beta_3 \text{top5ratio} + \beta_4 \text{totalshare} + \beta_5 \text{capresps} + \beta_6 \text{undisprops} + \beta_7 \text{eps} + \beta_8 \text{pb} + \beta_9 \text{roe} + \beta_{10} \text{new}) + \varepsilon \quad (1)$$

3.3 Sample slection and data source

This paper selects all listed companies in Shanghai and Shenzhen as a sample from 2014 to 2017, excluding samples with incomplete data. The total number of samples is 8240. The data comes from Wind and Rreset databases.

4. Research Result

4.1 Descriptive statistics

Table 2 lists descriptive statistics of variable sample values used in this paper. According to Table 2, there are obvious outliers in the price-to-book ratio. In the following research, this article is going to adopt a winsorize treatment at the 1% level for the price-to-book ratio variable.

Table 2 Descriptive statistics

Name	Obs	mean	max	min	median	std
price	8240	17.91	334.15	1.67	13.13	16.27
profiyoy	8240	0.21	987.62	-238.85	0.12	16.31
top5ratio	8240	0.52	0.97	0.04	0.53	0.15
totalshare	8240	9.44	339.51	0.40	4.64	19.50
capresps	8240	1.89	134.8	-0.77	1.44	2.30
undisprops	8240	1.27	49.93	-11.74	1.03	1.85
eps	8240	0.34	19.25	-5.88	0.25	0.62
pb	8240	7.75	2788	0.08	3.50	60.40
roe	8240	0.05	224.92	-188.39	0.06	3.58
new	8240	0.04	1	0	0	0.21

4.2 Regression result

This paper uses the Logitstic model, adding three independent variables, price, profityoy and top5ratio, in order to observe whether the explanatory power of the model has improved significantly. The results are shown in Table 3.

Table 3 Regression result

Name	Model 1	Model 2	Model 3
constant	3.693***	3.739***	3.403***
price	0.042***	0.042***	0.041***
profiyoy		0.004**	0.004**
top5ratio			1.015***
totalshare	-0.298***	-0.300***	-0.309***
capresps	0.082***	0.082***	0.078***
undisprops	-0.234***	-0.228***	-0.232***
eps	0.502***	0.475***	0.463***
pb	-0.069***	-0.070***	-0.067***
roe	0.063**	0.064**	0.063**
new	-0.158	-0.153	-0.237*
obs	8240	8240	8240
McFaddenR ²	0.114	0.115	0.118

Note: *** indicates significant at the 1% level, ** indicates significant at the 5% level, and * indicates significant at the 10% level.

The regression results show that, first of all, the coefficient of price is positive, and it is significant at the 1% level, indicating that the higher the stock price of listed companies, the greater the possibility of high-split. Hypothesis 1 is confirmed, the optimal price theory is effective.

The coefficient of profityoy is positive and significant at the 5% level, and the coefficient of roe in the model is also significant at the 5% level, indicating that the company's fundamental operating conditions have a positive impact on whether or not to do high-split in that year. Hypothesis 2 is confirmed, signal transmission hypothesis theory is effective.

5. Conclusion

Through the results of empirical research, it is found that the optimal price theory, signal transmission theory and market catering theory can better explain the high-split behavior of listed companies in the Chinese A share market, indicating that the high-split of listed companies in the Chinese A share market is mainly to improve The liquidity of stocks, conveying the company's good business information to investors and catering to investors' preference for share dividends.

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