Study on Industry Peer Effect of Cash Dividend Policy of Listed Companies in China

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Abstract: The Company's cash dividend policy has been concerned by regulators and investors for a long time, and has an important impact on the company's internal governance and value enhancement. Under the background of the Shanghai and Shenzhen Stock Exchanges issuing the "Guidelines on Cash Dividend for Listed Companies" in 2023, it is of practical significance to study the cohort effect of cash dividend policy. This paper takes A-share non-financial listed companies in Shanghai Stock market from 2013 to 2021 as a sample to study the peer effect of cash dividend policy. The empirical results show that the cash dividend policy of Shanghai-A listed companies in China has industry peer effect, that is, the cash dividend policy of listed companies will be affected by other companies in the same industry. At the same time, under the background of semi-mandatory dividend supervision policy, the dividend policy industry peer effect of state-owned holding companies is more obvious than that of non-state-owned holding companies.

1. Introduction

Dividend policy is one of the three major financial decisions of a company, which is very important to both the company and its stakeholders. For a company, the cash dividend policy is the key way to distribute profits, which is the result of the balance between returning investors and reinvesting. For shareholders, the cash dividend policy is the benefit feedback after investment. For investors, the cash dividend policy is the information to measure the investment value of the company, and it is a necessary factor to consider when making investment decisions.

The importance of dividend policy determines the research enthusiasm of scholars. The traditional research of dividend policy starts from some classic dividend theories (MM theory, one bird in hand theory, tax difference theory, etc.) and combines the characteristics and development of modern market to gradually form the modern dividend policy theory. The more famous theories include signal transmission theory, agency theory, life cycle theory and dividend catering theory. Based on these theories, most of the existing literature on dividend policy focuses on the factors affecting dividend distribution and the impact of dividend policy on corporate governance. In recent years, there is an interesting phenomenon in the domestic and foreign markets, that is, the highly concentrated cash dividend payment level of listed companies, which confuses scholars. The

existing dividend theory cannot explain the cause of this phenomenon, and a theory of other disciplines -- peer effect -- provides an explanation for this phenomenon.

Originating in education, social psychology, and social behavior, the idea that the behavior of one individual in a group is influenced by the behavior of other individuals. In recent years, with the extension of peer effect to the fields of economics and management, more scholars have begun to pay attention to the peer effect among companies, which exists in executive compensation, investment decision, financing decision, corporate social responsibility and corporate innovation. Same-group effect is more likely to exist between companies in the same region and the same industry, because companies in the same region and the same region face similar geographical environment and market environment, their corporate structures are more similar, and financial data are also comparable.

Based on the above reasons, this paper intends to investigate the clustering phenomenon of dividend payment level of listed companies in China based on the traditional dividend theory and the internal mechanism of the generation of peer effect, combined with the special dividend supervision background in China. The research contributions and significance of this paper are mainly reflected in the following aspects: First, based on the internal generation mechanism of peer effect, this paper studies the clustering phenomenon of dividend policy in the same industry, which enriches the research on influencing factors of cash dividend policy. Second, combined with China's special semi-mandatory dividend regulatory policy, the factors affecting the strength of the peer effect are analyzed, providing a new theoretical perspective and theoretical basis for regulators to improve the dividend regulatory policy, and thus promoting the order of the capital market, investors and corporate behavior standardization. Third, this paper can guide enterprises to flexibly adjust cash dividend policies and reduce decision-making costs, which will help companies build competitive advantages and drive other companies in the market to actively reward investors.

2. Literature Review

Originating in education, social psychology, and social behavior, the idea that the behavior of one individual in a group is influenced by the behavior of other individuals. More domestic and foreign scholars have extended the peer effect to the fields of economics and management, and found that enterprises have peer effect in executive compensation, investment decision, financing decision, cash holding [1], IPO [2], corporate social responsibility and corporate innovation.

In the study of mature capital market, there is an interactive relationship between corporate dividend decision [3], and the cash dividend payment behavior of a company is significantly affected by its peers [4]. Leary and Roberts (2014) [5] believe that due to the existence of principal-agent costs and time costs, cash dividend policy makers of listed companies will refer to the cash dividend policies of other companies in the industry as much as possible. Binay et al. (2018) [3] found that the expenditure policies of listed companies are significantly affected by the expenditure policies of other companies in the same industry, and the cohort effect of cash dividends of smaller companies is more obvious. Jillian (2019) [6] also believes that the dividend policies of listed companies affect each other. The research shows that after the average dividend of peer companies is increased, a single company will also increase its dividend after 1.5 quarters on average, and the increase rate due to peer effect accounts for 12%.

3. Theoretical Analysis and Rresearch Hypothesis

3.1. The Hypothesis of the Existence of the Cohort Effect of Cash Dividend Policy in the Same Industry

Dividend policy has always been an important financial decision for company managers, shareholders and external investors. Corporate managers are often faced with the difficult problem of how to formulate the optimal dividend policy. Too little dividend payment will cause dissatisfaction among investors. Based on the theory of dividend signal, too little dividend may send a wrong signal to the market that is not conducive to the company, thus weakening investors' enthusiasm [7]. Excessive dividend payment may lead to cash flow shortage of the company; reduce the financing ability of the company, which is not conducive to the long-term development of the company. Based on the information learning mechanism, corporate managers may observe dividend decisions made by other enterprises in the same industry in order to reduce the difficulty of decision making, improve the efficiency of decision making, and avoid excessive time and cost, and further learn and imitate the cash dividend decisions that are most suitable for their own companies. Based on the competitive mechanism, dividend policy is one of the three major financial decisions and an important part of a company's financial strategy. A company may pay close attention to the cash dividend policy of its peers in order to maintain or further expand its competitive advantage in the industry. In addition, both the company and its management are very protective of their own reputation. If a company does not pay dividends after earning profits, it may be regarded as an iron rooster or there are serious agency problems within the company. Therefore, companies tend to maintain dividend policies at a similar level to those of their peers based on the needs of reputation maintenance. The study of Bizjak et al. (2008) [8] shows that in order to avoid taking the responsibility for the company's decision-making mistakes and being considered as incompetent, corporate managers imitate the dividend decisions of their peers. To sum up, based on the three internal mechanisms of peer effect, the cash dividend policy of listed companies in the same industry is likely to have peer effect. Therefore, the following hypothesis is proposed:

H1: There is in-group effect between cash dividend policies of listed companies in the same industry.

3.2. Property Right Nature and Peer Effect Strength

When the general secretary talked about the healthy development of the capital market many times, he mentioned that investor protection is an important guarantee for the development of China's securities market. Due to the immaturity of the capital market; China has strengthened the protection of investors by law. Since 2001, China Securities Regulatory Commission has issued a series of dividend supervision policies for the purpose of investor protection. In 2004, China Securities Regulatory Commission linked corporate dividend with refinancing qualification, and in 2006, China Securities Regulatory Commission promulgated relevant regulations again to restrict the financing of listed companies. In 2008, the CSRC further raised the threshold, changing the condition for public issuance of securities to the cumulative cash distribution of profits in the last three years not less than 30 percent of the average annual distributable profits realized in the last three years; In addition, the regulatory authorities require listed companies to improve and disclose their dividend policies and payments. Among them, the Shanghai Stock Exchange issued the Shanghai Stock Exchange Dividend Guidelines (hereinafter referred to as the SSE Guidelines) in January 2013, which stipulates that the ratio of the total cash dividends distributed by listed companies in the year to the annual net profit attributable to shareholders of listed companies shall not be less than 30%. After the release of the Shanghai Stock Exchange guidelines in 2013, its

dividend ratio has been greatly improved compared with the Shenzhen Stock Exchange. Regulators have gradually promulgated a number of dividend policies, and scholars refer to this series of dividend policies as semi-mandatory dividend supervision, building a dividend regulatory policy system in China.

On the one hand, in China's political background, the government owns most of the resources and can influence the long-term development of listed companies to a large extent. Listed companies are often faced with greater political pressure. From the perspective of property rights, state-owned holding companies may face greater political pressure than non-state-owned holding companies, such as local financial pressure and political performance assessment pressure. On the other hand, the dividend regulatory policy clearly stipulates that the basic requirement for the cash dividend distribution level of public additional issuance is the cumulative profit distributed in cash in the past three years, which is not less than 30% of the average annual distributable profit achieved in the past three years. Both conditions must be met to qualify for a public equity refinancing. Those companies with refinancing needs or potential refinancing needs are more likely to pay dividends in order to qualify for refinancing under the influence of the semi-mandatory dividend policy. Combined with the dividend catering theory, there is a special catering phenomenon in China -- regulatory catering [9]. Starting from the dividend catering theory, Zhifei Xie(2019) [10] believes that the implementation of semi-mandatory dividend policy has become a new strong catering target, and some enterprises, especially state-owned enterprises, will change the original dividend policy to meet the regulatory policy and increase the dividend level of the company. Whether due to regulatory pandering or political pressure, state-owned holding companies may respond more actively to the semi-mandatory dividend policy and change the original dividend policy. Based on the dynamic competition theory, as some state-owned holding companies change the preference order of the optional dividend decision, other state-owned holding companies in the same industry may be affected and also change their dividend decision. Non-state controlled enterprises will also be affected, but the impact may be weaker than that of state controlled enterprises. In summary, state-controlled companies may be more likely to mimic the cash dividend policies of other companies in the same industry. Therefore, the following hypothesis is proposed:

H2: Among companies in the same industry, the in-group effect of cash dividend policy of state-owned holding companies is more significant.

4. Research Design

4.1. Sample Selection and Data Source

Considering that the semi-mandatory dividend policy that this paper focuses on is the guideline issued by the Shanghai Stock Exchange in 2013, this paper chooses the cash dividend policy of companies listed on the Main board of Shanghai A as the research object. In 2012, China Securities Regulatory Commission revised the classification guidelines of listed companies, and the data classification has undergone relatively big changes. Therefore, the research interval selected in this paper is from 2013 to 2021. In this paper, the sample is processed as follows: (1) ST sample is removed; (2) Remove abnormal samples of financial data and related data; (3) Samples of listed companies in the financial industry are excluded; (4) In order to reduce the influence of extreme values, all continuous variables except dummy variables were cored by quantile less than 1% and more than 99%; The final sample number is 9827. Among them, the data involved in the research are all from the CSMAR and WIND databases of Guotai'an and the data processing adopts Stata16.0.

4.2. Definition of Peer Group Companies

Since listed companies in the same industry have the same product life cycle and face the same market competition environment, their dividend policies have mutual influence. Therefore, this paper defines the peer relationship according to the industry, and listed companies belonging to the same industry are peer companies to each other. The industry classification standard of CSRC in 2012 is adopted. Other industries use a tier 1 classification, which is a good trade-off between industry categories and the number of companies in the industry, ensuring that there is an appropriate sample in each industry. For convenience of expression, we define individual companies as focus companies, which belong to the same group of companies as other companies in the same industry.

4.3. Variable Setting

(1) Explained variable: cash dividend Payout payout. This paper uses the cash dividend payment ratio (cash dividend/net profit) to investigate the cash dividend payment level of listed companies.

(2) Explanatory variable: peer company cash dividend payout rate Peerpayout. In this paper, the average cash dividend payout ratio of all listed companies in the industry (excluding the company) is used to measure.

(3) Control variables: Referring to existing literature, other factors that may affect the company's dividend policy are included in the control variables, including company Size, asset-liability ratio Lev, Growth, Cash flow level, Soe of property rights and Listage of listing. The definitions of variables in this paper are shown in Table 1.

Table 1: Definition of variables

	Variable symbol	Description of a variable
Explained variable	Payout	The dividend payout rate of company i in industry j in year t
Explanatory variable	Peerpayout	The average cash dividend payout ratio of all listed companies in industry j (excluding Company i) in year t
Control variable	Size	The natural log of total assets
	Lev	Total liabilities/total assets
	Growth	Revenue growth rate
	Cash	Net cash flow from operating activities/operating income
	SOE	The value is 1 for state-owned enterprises and 0 for non-state-owned enterprises
	Listage	Year of the year - natural logarithm of listing year +1

4.4. Model Construction

In order to verify the hypothesis proposed in this paper, using the test method proposed by Leary and Roberts (2014) for reference, the basic panel regression model is:

$$Payout_{ijt} = \alpha + \beta Peerpayout_{-ijt} + \gamma_1 Size_{ijt} + \gamma_2 Lev_{ijt} + \gamma_3 Growth_{ijt} + \gamma_4 Cash_{ijt} + \gamma_5 SOE_{ijt} + \gamma_6 Listage_{ijt} + \delta' u_j + \varepsilon_{ijt} \quad (1)$$

Where, the subscripts i, j and t represent the listed company, industry and year respectively. The

explained variable Payoutijt is the dividend payout ratio of Company i in industry j in year t, Payoutijt≥0; Explanatory variable Peerpayoutijt is the average cash dividend payout ratio of all listed companies in industry j (excluding company i) in year t; the rest are control variables, and the industry effect is moderately controlled.

5. Empirical Analysis

5.1. Descriptive Statistical Analysis

The table 2 shows descriptive statistics of the main variables. As can be seen from the following table: the average cash dividend payout ratio of the sample is 30.2%, which means that the average payout ratio of the sample companies has reached the dividend payout ratio required by the SSE guidelines. From the perspective of Size, Lev, Cash, Growth and other basic company indicators, the sample companies on average have a reasonable structure of assets and liabilities, positive net cash flow from operating activities, and an increasing trend of operating income.

Table 2: Descriptive statistical

Variable	Mean	Max	Mini	Standard deviation	Number of observations
Payout	0.302	1.730	0.000	0.285	9827
Peerpayout	0.294	1.730	0.000	0.084	9827
Size	22.620	26.750	19.580	1.436	9827
Siev	0.435	0.947	0.068	0.202	9827
Growth	0.257	4.091	-0.628	0.639	9827
Cash	0.114	0.760	-1.151	0.198	9827
Soe	0.457	1.000	0.000	0.498	9827
Listage	2.085	3.367	0.000	1.068	9827

5.2. Correlation Analysis

The correlation test results of the main variables are shown in the table 3. The following conclusions can be drawn from the table:

Table 3: Correlation analysis

	Payout	Peerpayout	Size	Lev	Growth	Cash	Soe	Listage
Payout	1							
Peerpayout	0.121***	1						
Size	-0.038***	-0.112***	1					
Lev	-0.204***	-0.100***	0.476***	1				
Growth	-0.081***	-0.060***	-0.00100	0.031***	1			
Cash	0.080***	0.030***	0.128***	-0.109***	-0.053***	1		
Soe	-0.099***	-0.098***	0.364***	0.304***	-0.0120	0.022**	1	
Listage	-0.138***	-0.046***	0.355***	0.387***	-0.00700	-0.062***	0.474***	1

1) There is a significant correlation between the cash dividend payout ratio and the peer cash dividend payout ratio at the level of 1%, and the correlation coefficient is positive. It is preliminarily judged that there is a significant positive correlation between the cash dividend payout ratio and the peer cash dividend payout ratio.

2) The absolute values of the correlation coefficients among other variables did not exceed 0.5,

indicating that there was no serious multicollinearity problem among the variables. 3) Cash dividend payout ratio and control variables Company size, asset-liability ratio, company growth, cash flow level, property rights nature and company age are all significant at 1% level.

5.3. Regression Analysis

(1) The existence test of peer effect of dividend policy in the same industry

According to model (1), whether the cash dividend payment level of Shanghai-A-listed companies has industry peer effect is investigated. The fixed-effect regression results of the overall sample group are shown in the following table 4:

Table 4: Regression results of hypothesis 1

	(1)	(2)	(3)
	Payout	Payout	Payout
Peerpayout	1.0723***	1.0605***	1.0431***
	(15.1599)	(15.0482)	(14.7761)
Size		0.0146***	0.0158***
		(4.1372)	(4.3860)
Lev		-0.2430***	-0.2575***
		(-11.1868)	(-11.4801)
Growth		-0.0176***	-0.0160***
		(-4.2804)	(-3.8396)
Cash		-0.0032	-0.0036
		(-0.2196)	(-0.2375)
Soe		-0.0152	-0.0070
		(-1.5536)	(-0.6949)
Listage		-0.0225***	-0.0257***
		(-5.5990)	(-6.2523)
Constant	-0.0114	-0.1824**	-0.1642*
	(-0.5434)	(-2.3846)	(-1.8601)
Industry	NO	NO	YES
N	9833	9833	9833
adj.R^2	0.0294	0.0348	0.0347

As shown in the table, the regression coefficients of the cash dividend payout level of the same group are respectively positive and both are significant at the level of 1%. This result indicates that the higher the cash dividend payout ratio of the same group companies in the same industry, the higher the cash dividend payout ratio of the focus companies. Hypothesis 1 is confirmed that the cash dividend policy of Shanghai-A-listed companies has a cohort effect.

(2) The test results of the cohort effect of dividend policy with property rights

In order to test the moderating effect of the property rights nature of Shanghai-A-listed companies on the same-group effect of cash dividend policy in the same industry, we divide the property rights nature into state-owned listed companies and non-state-owned listed companies. The value of state-owned listed companies is 1, and the value of non-state-owned listed companies is 0. The samples were grouped according to property rights, and the final regression results were observed to see whether there were significant differences. The results are shown in the following table 5, where (1) and (2) are the regression results of grouping tests by property rights, where Test is the inter-group difference test for grouping property rights.

Table 5: Regression results of hypothesis 2

	(1)	(2)
	Soe1	Soe0
Peerpayout	1.2859***	0.8955***
	(10.3635)	(8.3384)
Size	0.0257***	0.0063
	(8.1864)	(1.4680)
Lev	-0.3512***	-0.2390***
	(-14.4475)	(-8.6934)
Growth	-0.0184***	-0.0249***
	(-3.1843)	(-3.6883)
Cash	0.0020	0.0789***
	(0.1058)	(3.4118)
Soe	0.0000	0.0000
	(.)	(.)
Listage	-0.0273***	-0.0182***
	(-4.7558)	(-4.1563)
Constant	-0.4464***	0.1231
	(-5.3619)	(1.1618)
Industry	YES	YES
N	4495	5338
adj.R^2	0.099	0.098
Test	Prob>chi2=0.0154	

It can be seen from table (1) and (2) that the regression result coefficients of state-owned holding companies and non-state-owned holding companies are 1.2859 and 0.8955 respectively, and both are significant at the 1% level, indicating that both state-owned holding companies and non-state-owned holding companies have the dividend policy homogenous effect. Among them, the difference test results between groups are significant, the null hypothesis is rejected, hypothesis 2 is confirmed, the property rights have a moderating effect on the dividend policy group effect.

5.4. Robustness Test

In order to test the robustness of the above research results, this paper adopts replacement model, replacement of main variables and 2SLS model to carry out robustness test: (1) Tobit model is used to replace the fixed effect model. Due to the large number of 0 values in the explained variables, they belong to the left truncated data, which may cause errors in the regression results. Tobit model is considered for robustness test. (2) Cash dividend per share is used to replace the explained variable cash dividend payout ratio to measure the dividend payment level of listed companies, and the corresponding explanatory variable is used to replace the peer cash dividend payout ratio with the average cash dividend per share excluding the company in the industry in which the company is located. (3) 2SLS regression was performed by using the explanatory variable with a one-stage lag as the tool variable. The results show that no matter what kind of robustness test, the conclusion is consistent with the previous verification. Therefore, it can be considered that the research conclusion is robust and reliable. The following table 6 is the testing process and results.

Columns (1), (2), and (3) show the regression results of the replacement model, the replacement main variable, and the 2SLS model respectively, which are consistent with the verified main regression results.

Table 6: Robustness test results

	(1)	(2)	(2)
	Payout	Tpayout	Payout
Peerpayout	1.6913***		1.3777***
	(19.1447)		(12.9159)
Tpeerpayout		0.2051***	
		(6.2761)	
Soe	-0.0003	-0.0632***	-0.0200***
	(-0.0222)	(-6.2838)	(-4.2581)
Growth	-0.0244***	-0.0059**	-0.0200***
	(-4.5954)	(-2.1265)	(-4.2581)
Lev	-0.3626***	-0.2612***	-0.3258***
	(-12.4009)	(-14.6342)	(-17.2708)
Size	0.0333***	0.0582***	0.0146***
	(7.0167)	(16.9771)	(5.5961)
Cash	-0.0052	0.0617***	0.0315**
	(-0.2781)	(6.1451)	(2.0114)
Listage	-0.0491***	-0.0525***	-0.0525***
	(-9.4575)	(-14.5091)	(-14.5091)
Constant	-0.7371***	-0.9295***	-0.2503***
	(-6.3228)	(-10.5241)	(-3.5938)
sigma_u	0.1904***		
	(37.8684)		
sigma_e	0.2683***		
	(111.2944)		
Industry	YES	YES	YES
N	9833	9827	9162
adj.R^2			0.087

6. Research Conclusion and Enlightenment

Most of the previous studies on dividend policies of listed companies only considered external macro factors or internal factors, ignoring the influence of dividend policies of companies in the same industry on their own companies in the information age. This paper studies the cohort effect of cash dividend policy of China's Shanghai A-share non-financial LEI listed companies from 2013 to 2021. The empirical results show that the cash dividend policy of Shanghai-A listed companies in China has industry peer effect, that is, the cash dividend policy of listed companies will be affected by other companies in the same industry. At the same time, under the background of semi-mandatory dividend regulation policy, combined with the dynamic competition theory, the dividend policy industry peer effect of state-owned holding companies is more obvious than that of non-state-owned holding companies.

The research conclusions of this paper are of great significance to regulators, listed companies and investors: First, in view of the interaction between companies, regulators can standardize the management of companies and further improve the dividend supervision policy, thus promoting the order of the capital market and the standardization of investors' and companies' behaviors. Secondly, the company cannot blindly imitate or vicious competition, but should flexibly adjust the dividend policy and compress the cost of decision-making, which will help the company to shape the

competitive advantage. Finally, the fluctuation of dividend policy of listed companies may convey information related to corporate value, or it may be the result of mutual influence between companies. Investors should make rational judgment according to the change of dividend policy of companies, so as to make effective investment.

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