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A Study of Peer Effects in the Dividend Distribution Behaviour

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Abstract: Based on the data of A-share listed companies from 2013 to 2022, this paper mainly studies the dividend distribution behavior of enterprises from the perspective of the theory of peer group effect, and tests the existence of peer group effect and analyzes the strength of peer group effect indicators in terms of Willingness to pay and intensity of payment in the dividend behavior of enterprises. For the selection of impact indicators, this article takes into account the internal and external environment of enterprise operation, mainly focusing on company size and industry competition as the research focus.According to the research, in the dividend distribution behavior of listed companies, the existence of the peer effect is confirmed in both the Willingness to pay and the degree of payment; The size of the company and the level of industry competition will have a significant impact on the strength of the peer effect. Based on the research results, the following conclusions can be drawn: enterprises should face their own business development characteristics and make appropriate dividend distribution behavior based on this.

Keywords: Peer Effect, Dividend Distribution, Company Size, Industry Competition.

1. Introduction

Dividend distribution plays an important role in giving investors tangible returns and guiding the sound development of the capital market. The dividend distribution policy focuses on formulating strategies and guidelines on how to pay dividends, how much dividends to pay to investors and how to pay dividends. When implementing dividend distribution measures, the main issue that a company needs to think about is the proper disposal of the company's profits, in order to obtain investors' enthusiasm for investment by way of distribution or to retain the profits as the company's later reinvestment.

For a long time, the establishment of a reasonable dividend distribution system for listed companies has been an important element in safeguarding the interests of investors, maximising the value of the company and promoting the reform of the capital market. In managing cash dividends, the SFC has mainly strengthened the improvement of the dividend system and the awareness of dividends among listed companies by means of written documents, and regulated unreasonable and inappropriate dividend payment behaviour. In 2013, the SFC issued the "Supervisory Guidelines for Listed Companies No. 3-Cash Dividends for Listed Companies" ("Document No. 3"), which has become the standardised guiding document for listed companies in respect of cash dividends in the following years. In 2022, the SFC further revised Document No. 3, making more comprehensive regulations on the policy promulgation, implementation process, management and supervision of dividend distribution, and reasonable and orderly dividend distribution behaviour will be popularised in the capital market.

Scholars have launched extensive research on dividend distribution policy, which developed three major traditional dividend policy theory. However, due to the development and use of cash dividends in China presents a relative speciality, the status quo there are a series of dividend enigmas that are difficult to explain by traditional dividend theory. With the continuous introduction of behavioural finance theory in recent years, scholars have found that the peer effect is more in line with the in-depth analysis of dividend distribution behaviour.

The influencing factors of cash dividends involved in the existing literature are mainly based on the company's development, profitability, capital structure, governance and other conditions, this paper mainly focuses on the company's size and industry competition as the focus of the discussion, and analyses the factors affecting the peer effect of dividend distribution from both internal and external perspectives. Using the financial data of A-share listed companies in China from 2013 to 2022, this paper tries to make a deep analysis of the mechanism of dividend distribution based on the assumption of the existence of the peer effect in the dividend policy, using the internal factor of company size and the external factor of industry competition.

2. Literature Review

2.1. Studies Related to Peer Effects

While most of the traditional economic theories are based on the assumption of rational economic man, behavioural finance breaks through the assumption of full rationality of the participants in the traditional economic theories and advocates the psychological and irrational factors arising from the decision-making process of investors. According to Shiller's (2000) definition of behavioural finance, it is a composite discipline that combines psychology, classical economics and finance to explain phenomena in the market that are contrary to standard financial theory. In the context of corporate financial behaviour, the phenomenon of group convergence, whereby the financial behaviour of a firm may not be determined solely by the outcome of managers' decisions, has been more widely manifested. Winston and Zimmerman (2003) define the academic concept and judgement of the peer effect, arguing that the existence of the peer effect depends on whether the behaviour a person commits is a result of the interaction between the behaviour

of the individual and the behaviour of the peer. Peer effect theory advocates the inclusion of a peer perspective between individuals and markets, which is an important expansion of traditional economic theory.

Most of the early studies on the peer effect by scholars at home and abroad revolve around sociological behaviour, observing many aspects of human social life to verify the peer effect. Deng Huihui (2018) study has confirmed the imitation behaviour of government officials in the field of government behavioural decision-making, and the geographic distance between local governments has become an important influence on the degree of the peer effect, and the closer the location the greater the impact of the peer effect accordingly. As the corresponding research on the peer effect becomes more and more in-depth, the fields of economics and management science also try to incorporate the theory of peer effect into the phenomenon explanation research. In terms of executive pay standards, Zhao Ying (2016) found that the pay level status of top executives from companies in the same industry affects the setting of standards by individual companies to a greater extent when studying the process of establishing them. Li Zhisheng et al. (2018) on local indebtedness, focusing on verifying the geographical peer effect on corporate over-indebtedness, found that individual firms are positively influenced by peer firms. In terms of fund management, Liu Jingjun et al. (2018) verified that there is a significant peer effect when making asset allocation among open-ended funds. In terms of listed companies' investment decisions, Li Jianing (2019) confirms the industry peer effect highlighted by listed companies in making investment decisions, and quantifies the economic effects expected to result from this behaviour, finding that it promotes firm performance.

2.2. Studies Related to Peer Effect and Dividend Distribution

With the increasing research on the peer effect, some scholars have introduced the peer effect into the study of dividend distribution policy. Popadak's (2012) study confirms the existence of the peer effect in terms of corporate dividend policy, whereby firms imitate each other's dividend decisions. Leary and Roberts (2014) argue that the reason why decision makers of listed companies imitate the reference in terms of cash dividend policy to the other firms in the peer group because of the general need for listed firms to consider the impact of cost issues due to time or proxy. Kaustia et al. (2015) explored the fact that the decision making of peer firms in terms of dividend policy can have a significant impact on the target firms and that the magnitude of the effect is approximately equal to half of the magnitude of the impact of share price growth. Adhikari and Agrawal (2018) investigated the existence of peer effects in the formulation of dividend policy by listed companies in the U.S.A., and pulled the idea of market competition into the study's considerations. (2018) study mainly focuses on the reaction time of dividend policy adjustment under the peer effect, when the peer firms increase the dividend amount, the target firms can accelerate the reaction and reduce the decision time, while after the peer firms reduce the dividend amount, this change is not prominent; he attributes the peer effect of the dividend policy to the overconfidence of the corporate managers and the market competition.

As for domestic studies, Yang Songling and Zhang Qiuyue (2017) test that poor internal corporate governance framework and opaque external market environment are potential factors to stimulate the peer effect in terms of equity pledges, and those firms with high attention per se are less likely to exhibit the peer effect. Zhang and Changwei (2019) argue that the mechanism of the peer effect is due to managers' social reputation considerations and information learning among managers, and then propose the inference that the dividend policy formulation of non-leader firms in the industry is significantly influenced by leaders, while the dividend policy of the latter firms is almost unaffected by the former. The results of Wu Shuxuan (2020) reconfirmed the existence of significant peer effect in dividend distribution of listed companies in China and emphasised on learning motivation, i.e., industry leader firms would have stronger peer effect on non-leader firms. Zhou Hu and Tan Yue (2020), on the other hand, suggest that the peer effect is related to factors such as the degree of management overconfidence, the proportion of management shareholding and the level of regional marketisation. Feng Gejian (2021) focuses on corporate social network characteristics, and in order to ensure the accuracy of the study, they successively exclude the interference of factors such as geography and industry, and finally confirm that the factor of corporate social network characteristics has a significant impact on the peer effect.

3. Theoretical Assumption

3.1. Existence Hypothesis of Corporate Dividend Policy Peer Effect

The similarities that emerge in the dividend distribution behaviour of firms can be interpreted in two ways. In terms of agency theory, some managers, as decision makers in the firm, will avoid this risk by imitating the decisions of their peers in order to ensure that their reputation does not fall below the market average, even if this behaviour, which is too close to the decisions of their peers, brings losses to the firm, the blame will be "shared", and the cost of error is much lower for the agent than for the maverick who makes the policy. The cost of error to the agent is much lower. The information environment for start-ups and growing firms is not as favourable as that of mature firms, and these young firms often choose to follow the leading firms in the industry in order to reduce the cost of information. In terms of the information asymmetry theory, information is a valuable resource, for individuals they may all hold a portion of useful information, and obviously part of the information may not support them to make fully effective decision-making judgement, so individuals and companies tend to refer to the behaviour of similar groups when making decisions. They are used as a source of information to avoid greater losses due to information opacity that makes information disadvantageous. And the following hypotheses can be obtained from this:

Hypothesis 1: The peer effect exists in the dividend distribution behaviour of listed companies, and the dividend behaviour of peer companies will be taken into consideration by decision makers in their own dividend decision designation.

3.2. Firm Size Differences and the Hypothesis of the Strength of the Peer Effect of Dividend Policy

Competitive and information-acquisitive mimicry may explain this behaviour of borrowing from other agents. On the one hand, large firms are in a competitively strong position in

the market and play a leading and exemplary role among companies in the same industry; cash dividend policy, as an important financial decision in company operation, will bring better gains to the company if used properly, so it is feasible for the disadvantaged companies in the industry to use dividend policy to narrow the gap, and the dividend behaviours of large firms will naturally be referred to by small firms. On the other hand, the size of a firm is often a symbol of its overall strength, and larger firms may imply that they have greater strength, which in turn has its advantages in terms of access to information. Due to the problem of the cost of acquiring information and the problem of the noise contained in acquiring information, firms that are disadvantaged in the market will be more likely to imitate the information of firms that have information advantages, especially the industry leaders. Based on the above two reasoning, it is conjectured that in the peer imitation of dividend distribution policy, smaller firms need to compensate for their disadvantages in information acquisition and industry competition through this behaviour. This leads to the following hypothesis:

Hypothesis 2: Dividend distribution behaviours made by firms of different sizes will interact with each other, and small-scale listed firms may be more inclined to exhibit imitative behaviours.

3.3. Industry Competitiveness and Dividend Policy Peer Effect Strength and Weakness Hypothesis

Companies in fiercely competitive industries tend to incur more time and money costs in terms of information acquisition, customer matching, product promotion, etc., compared to companies in less fiercely competitive industries. Reflected in the dividend distribution, as the dividend distribution behaviour is also an important initiative to attract investors, in order to ensure the dominant position in the industry or to maintain the current competitive position, the company based on the consideration of the company's earnings, often choose to implement a dividend policy similar to the same group of companies to ensure the attractiveness of the investors, and thus strengthen their own competitive strength in the industry. This leads to the following hypothesis:

Hypothesis 3: The degree of competition in the industry in which the listed company is located does affect the strength of the peer effect, and the fierce competition in the industry will make the companies in the industry show a stronger peer effect.

4. Research Methods

4.1. Data Processing

The research sample of this paper is Chinese A-share listed companies from 2013 to 2022, in order to ensure the accuracy of the research results, the following conditions are set to screen the data initially: (1) the sample is required to have at least ten years of stock data, and the status of the ten-year period is normal survival; (2) the sample of financial listed companies is excluded; (3) samples with missing data are excluded; (4) samples with fewer than ten companies in the industry in the study year are excluded; (5) exclude samples with less than ten companies in the industry during the study year.

After the initial screening is completed, all continuous variables are Winsorised at 1% level in order to avoid such data anomalies from affecting the results. The data in this paper are obtained from the CSMAR database. In this paper, the 2012 SEC Level 2 Industry Classification Standard is used as a criterion for different industries, and this is used to determine the category of peer companies.

4.2. Variable Design

(1) Explained Variables

Paytend: Paytend is taken as 1 to indicate the presence of dividend payout and 0 to indicate the absence of dividend payout.

Payout: represents the extent to which the company pays dividends, i.e., dividend payout ratio.

(2) Main explanatory variables

PeerPaytend: divides the number of firms paying dividends in an industry during the study period (excluding the individual firms studied) by the number of total firms in the industry.

PeerPayout: the dividend payout ratio of all firms in the industry (excluding the individual firms studied) is averaged.

HHI: Measured by Herfindahl-Hirschman Index.

(3) Secondary explanatory variables

PeerDev: Asset growth rate of the peer companies.

PeerROA: return on assets of the peer firms.

PeerTDR: the gearing ratio of the peer firms.

PeerBM: book-to-market ratio of the peer companies.

(4) Control variables

Firm size (SIZE), return on assets (ROA), gearing ratio (TDR), asset growth rate (DEV), book-to-market ratio (BM).

Table 1. Variable Definition Table

Variable type	Variable Code	Variable Definition
Explained Variables	Paytend	Paytend is 1 when cash dividend is paid, otherwise 0
	Payout	Dividend per share before tax / (current value of net profit / closing value of paid-in capital)
Main explanatory variables	PeerPaytend	average cash dividend payout intensity of peer group companies
	PeerPayout	average cash dividend payout intensity of peer group companies
	HHI	Herfindahl-Hirschman index
Secondary explanatory variables	PeerDev	the growth rate of assets of the peer group companies
	PeerROA	the return on assets of the peer group companies
	PeerTDR	the gearing ratio of the peer group companies
	PeerBM	book-to-market ratio of peer group companies
Control variables	ROA	the return on assets
	TDR	the gearing ratio
	SIZE	the natural logarithm of revenues
	Dev	the growth rate
	BM	book-to-market ratio

4.3. Modeling

This study designs the basic regression model around the peer effect of dividend distribution behaviour as follows:

$$y_{ijt} = C + \alpha\bar{y}_{-ijt} + \beta\bar{x}_{-ijt} + \gamma x_{ijt} + u_j + v_t + \varepsilon_{ijt} \quad (1)$$

The subscript ijt represents firm, industry and year, respectively. The explanatory variable yijt represents the dividend behaviour of firm i in industry j in year t; the primary explanatory variable y(—)-ijt represents the average dividend behaviour of all firms in industry j except i in year t; the secondary explanatory variable x(—)-ijt represents the fundamentals of the same peer of firms in industry j except i in year t; xijt serves as a control variable describing the fundamentals data; uj and vt denote the industry and year individual effects.

Based on the above basic model, to test the willingness to pay dividends, a logistic regression model is constructed with Paytend as the explanatory variable and PeerPaytend as the main explanatory variable, and to do the test of the strength of dividend payment based on this, a linear regression model is constructed with Payout as the explanatory variable and PeerPayout as the main explanatory variable. The linear regression model is constructed with Payout as the explanatory variable and PeerPayout as the main explanatory variable. In the regression model, the fundamental characteristics of the peer companies and control variables are introduced to explore their impact on the willingness and strength of cash dividend payment, and the model of this paper to test whether there is a peer effect of cash dividend is as follows:

$$\text{Logit}(Paytend) = C + \alpha\ PeerPaytend + \sum \beta_i \bar{x}_i + \sum \gamma_i x_i + u_j + v_t + \varepsilon \quad (2)$$

$$Payout = C + \alpha\ PeerPayout + \sum \beta_i \bar{x}_i + \sum \gamma_i x_i + u_j + v_t + \varepsilon \quad (3)$$

If the coefficient α is significant, then the cash dividend behaviour of the peer companies is considered to significantly affect the Company; if the coefficient β is significant, then the fundamentals of the peer companies are considered to significantly affect the Company. As long as one of the above two coefficients is significant, it can be then stated that the peer companies will affect the cash dividend behaviour of this company, and it is considered that the peer effect exists, and then Hypothesis 1 is established.

The data sample was divided according to size into large-scale firms (size above the mean) and small-scale firms (size below the mean), and the logistic regression and linear regression at full sample were repeated separately to observe whether the coefficients of the explanatory variables were significant or not to test Hypothesis 2.

In order to investigate the influence of the degree of industry competition on the strength of the peer effect of dividend policy of listed companies, the Herfindahl-Hirschman Index (HHI) is introduced. The design model is as follows:

$$\text{Logit}(Paytend) = C + \alpha_1 PeerPaytend + \alpha_2 HHI + \alpha_3 HHI \bullet PPt + \sum \beta_i \bar{x}_i + \sum \gamma_i x_i + u_j + v_t + \varepsilon \quad (4)$$

$$Payout = C + \alpha_1 PeerPayout + \alpha_2 HHI + \alpha_3 HHI \bullet PPo + \sum \beta_i \bar{x}_i + \sum \gamma_i x_i + u_j + v_t + \varepsilon \quad (5)$$

If the coefficient α3 is significant, it means that the degree of industry competition affects the strength of the peer effect reflected in the Company's cash dividend behaviour, and furthermore, since a larger HHI index implies a smaller degree of industry competition, if the coefficient α2 is negative it represents a positive relationship between industry competition and the peer effect of the target firms' dividends, and Hypothesis 3 is valid, and if the coefficient α3 is insignificant, it means that the degree of industry competition does not affect the strength of the Company's peer effect reflected in the Company's cash dividend behaviour, and Hypothesis 3 is not valid.

5. Empirical Results

5.1. Descriptive Statistics

Table 2. Descriptive statistics

Variable	Obs	Mean	Std	Min	Max
Pay-tend	13,182	0.797	0.402	0	1
Payout	13,182	0.297	0.321	0	2.009
PeerPay-tend	13,182	0.794	0.0946	0.455	1
PeerPayout	13,182	0.320	0.0908	0.169	0.635
HHI	13,182	0.0590	0.0416	0.0111	0.185
PeerDev	13,182	0.136	0.0714	0.0241	0.354
PeerROA	13,182	0.0418	0.0170	0.00477	0.0884
PeerTDR	13,182	0.437	0.104	0.249	0.718
PeerBM	13,182	0.341	0.0776	0.184	0.536
Size	13,182	22.55	1.324	20.12	26.47
Dev	13,182	0.129	0.204	-0.229	1.147
ROA	13,182	0.0425	0.0452	-0.119	0.192
TDR	13,182	0.436	0.202	0.0549	0.868
BM	13,182	0.342	0.158	0.0639	0.798

Table 2 reflects the number of samples, mean, standard deviation, minimum and maximum values for each variable. Among them, the mean values of the peer variables and the mean values of the independent variables of each sample

mostly remain similar, which is in line with the setting of the variable hypotheses. According to the indicators of paytend presented by the selected samples, it can be found that the proportion of companies that pay dividends is high, accounting for about 80%, which shows that the proportion of dividend payment in the current capital market is maintained at a high level. The data on paytend from the peer shows that the lowest industry dividend payment percentage is 45.5%. Compared to a single sample appeared larger dividend payment strength range, after the industry average basically showed a more stable range performance. From the dividend payout ratio indicator, the average value is maintained at around 30%, but the industry also appeared as high as 63.5% of the same cluster dividend payout ratio. From the data of fundamental indicators, the average development of the selected sample companies is good, in the average sense of profitability, asset and liability structure is relatively more reasonable, profitability, solvency, operating capacity are presented more optimistic level, but from the extreme value of the situation, there are also some companies have poor profitability, insolvency and so on.

5.2. Correlation and Covariance Analysis

Table 3 shows the correlation test, the correlation coefficients of the explanatory variables Paytend and Payout with their respective main explanatory variables PeerPaytend and PeerPayout are 0.211 and 0.172, respectively, and all of them are significant at the level of at least 1 per cent, by which it can be preliminarily judged that there exists a certain degree of correlation between the dividend distribution behaviours of a single company and the companies in the same group. Observe that the correlation coefficients of the rest of the variables and the explanatory variables are all significant, providing a basis for the subsequent development of regression tests.

Table 3. Relevance statistics

	Paytend	Payout	PeerPaytend	PeerPayout	HHI	PeerROA	PeerTDR	PeerDev	PeerBM	size	ROA	TDR	Dev
Paytend	1												
Payout	.468***	1											
PeerPaytend	.211***	.076***	1										
PeerPayout	.047***	.172***	.192***	1									
HHI	-0.015**	0.012**	-0.033***	.019**	1								
PeerROA	.089***	.054***	.362***	.102***	-.174***	1							
PeerTDR	-.045***	-.082***	-.140***	-.313***	.326***	-.562***	1						
PeerDev	.069***	-0.06**	.271***	0.013	-.195***	.332***	-.245***	1					
PeerBM	.083**	.056***	.046***	.173***	.133***	.055***	-.153***	-.414***	1				
size	.124***	-.023***	-.028***	-.144***	.206***	-.181***	.426***	-.197***	-0.011	1			
ROA	.376***	.112***	.136***	.040***	-.082***	.332***	-.222***	.111***	.029***	-.033***	1		
TDR	-.158***	-.182***	-.073***	-.165***	.171***	-.286***	.520***	-.128***	-.085***	.563***	-.379***	1	
Dev	.145***	-.025***	.084***	-0.006	-.059***	.102***	-.066***	.283***	-.119***	.027**	.226***	0.002	1
BM	.149***	.155***	.030***	.087***	.066***	.025***	-.073***	-.212***	.482***	-.026**	.023**	-.441***	-.101***
	Paytend	Payout	PeerPaytend	PeerPayout	HHI	PeerROA	PeerTDR	PeerDev	PeerBM	size	ROA	TDR	Dev

Table 4. Descriptive statistics

	VIF		VIF
PeerPay-tend	1.214	HHI	5.304
PeerPayout	1.165	size	1.863
PeerROA	4.989	ROA	2.534
PeerTDR	3.354	TDR	3.155
PeerDev	1.607	Dev	1.095
PeerBM	1.767	BM	2.088

Observation of the correlation coefficient table can be found, the absolute value of each correlation coefficient is less than 0.6, based on which the covariance problem to do a specific discrimination choice to take the variance expansion factor method. The results are shown in Table 4 below, the VIF value of each explanatory variable and control variable is less than 10, which excludes the existence of serious multicollinearity.

5.3. F-test and Hausman Test

In order to determine the regression model, F test and Hausman test are taken to determine. The results are shown in Tables 5~8 below, the P-value of the model about paytend and payout is less than 0.05 in the F-test and the Hausman test, so the combined view is taken as a fixed effect.

Table 5. F-test results of Paytend

F test that all u_i=0	Coef
F test Value	5.39
P-Value	0.0000

Table 6. Hausmanresults of Paytend

Hausman specification test	Coef
Chi-square test Value	49.00
P-Value	0.0000

Table 7. F-test results of Payout

F test that all u_i=0	Coef
F test Value	3.48
P-Value	0.0003

Table 8. Hausmanresults of Payout

Hausman specification test	Coef
Chi-square test Value	58.69
P-Value	0.0000

5.4. Benchmark Regression

Doing logistic regression on the explanatory variable of paytend, the primary explanatory variables, secondary explanatory variables, and control variables are imported in order to carry out the step-by-step increase of the explanatory variables; doing multiple linear regression on payout, the primary explanatory variables, secondary explanatory variables, and control variables are also imported in order. Table 9 shows the results of logistic regression and multiple linear regression.

Table 9. Existence Test for Peer Effects in Dividend Payout Behaviour

	(1)	(2)	(3)	(4)	(5)	(6)
	Paytend	Paytend	Paytend	Payout	Payout	Payout
PeerPaytend	5.234***	5.027***	5.604***			
	(-0.225)	(0.248)	(0.287)			
PeerPayout				0.609***	0.563***	0.575***
				(0.03)	(0.054)	(0.032)
PeerROA		1.583	-17.538***		0.706***	0.169
		(1.686)	(2.023)		(0.18)	(0.207)
PeerTDR		-0.244	-1.445***		-0.027	0.117***
		(0.27)	(0.357)		(0.023)	(0.039)
PeerDev		0.336	0.701		-0.117***	0.017
		(0.408)	(0.476)		(0.028)	(0.047)
PeerBM		0.108	-2.226***		0.163***	-0.095**
		(0.345)	(0.454)		(0.035)	(0.047)
Size			0.475***			0.02***
			(0.029)			(0.003)
ROA			28.172***			0.401***
			(0.958)			(0.074)
TDR			-1.246***			-0.261***
			(0.225)			(0.025)
Dev			0.67***			-0.051***
			(0.149)			(0.014)
BM			2.336***			0.164***
			(0.258)			(0.025)
Constant	-2.72***	-2.596***	-12.804***	0.102***	0.089***	-0.328***
	(0.174)	(0.261)	(0.648)	(0.01)	(0.031)	(0.063)
R2	0.065	0.066	0.35	0.03	0.031	0.071
N	13182	13182	13182	13182	13182	13182
Year	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

As can be seen from the regression results, the coefficients of the peer paytend in the three logistic regressions are 5.234, 5.027, 5.604 respectively, and they are all significant at 1% level, indicating that when the peer companies make the act of paying dividends, the Company also tends to pay dividends, and the existence of the peer effect has been confirmed in the level of the willingness to pay. The coefficients of the peer payout intensity in the three groups of multiple linear regression are 0.609, 0.563, 0.575 respectively, and they are all significant at 1% level, indicating that the number of dividends paid by the peer companies will have a positive impact on how much dividends the Company chooses to pay, the existence of the peer effect is confirmed at the level of the payment intensity. Hypothesis 1 is verified.

5.5. Robustness Analysis

In order to test the robustness of the research results, we choose to replace the main variables method. Both the explanatory variables and the core explanatory variables are replaced by replacing the dividend distribution rate with cash dividend per share to measure the strength of cash dividend payment of listed companies, and replacing the peer dividend

distribution rate with the peer cash dividend per share. Table 10 shows the results of the test.

Table 10. Robustness analysis of peer effect

	(1)	(2)	(3)
	cash dividend per share	cash dividend per share	cash dividend per share
Peer cash dividend per share	0.478***	0.378***	0.201***
	(0.106)	(0.111)	(0.097)
PeerROA		2.023***	0.438*
		(0.305)	(0.272)
PeerTDR		-0.021	0.058
		(0.093)	(0.084)
PeerDev		-0.09	0.142***
		(0.066)	(0.06)
PeerBM		0.195***	0.378***
		(0.056)	(0.057)
Size			0.056***
			(0.003)
ROA			1.683***
			(0.074)
TDR			-0.159***
			(0.025)
Dev			-0.01
			(0.014)
BM			-0.099***
			(0.027)
Constant	0.068***	-0.057	-1.314***
	(0.015)	(0.053)	(0.087)
R2	0.068	0.03	0.263
N	13182	13182	13182
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

From the regression results, the coefficients of peer cash dividends are 0.478, 0.378, 0.201 respectively, and all are significant at the 1% level, indicating that the level of peer cash dividends has a significant impact on the level of cash dividends and presents a positive correlation, the specific amount of dividends paid by peer companies will significantly affect the level of individual companies on the amount of dividends paid, which is in line with the previous empirical test, indicating that the empirical results have a certain reliability.

5.6. Heterogeneity Tests

The study sample was divided by size, and logistic regression for willingness to pay and linear regression for strength of payment were performed again, respectively, and the results are shown in Tables 11 and 12 below.

Table 11. Paytend and size

	Large-scale		Small-scale	
	(1)	(2)	(3)	(4)
	Paytend	Paytend	Paytend	Paytend
PeerPaytend	5.758***	5.682***	5.21***	5.359***
	(0.355)	(0.443)	(0.299)	(0.381)
PeerROA		-16.065***		-19.459***
		(3.204)		(2.651)
PeerTDR		-1.152**		-2.136***
		(0.546)		(0.503)
PeerDev		0.093		0.859
		(0.855)		(0.58)
PeerBM		-2.524***		-2.053***
		(0.763)		(0.588)
Size		0.41***		0.415***
		(0.052)		(0.063)
ROA		37.032***		24.773***
		(1.945)		(1.097)
TDR		-0.914**		-1.379***
		(0.504)		(0.27)
Dev		0.194		0.869***
		(0.247)		(0.188)
BM		1.299**		2.792***
		(0.531)		(0.324)
Constant	-2.769***	-11.316***	-2.941***	-11.047***
	(0.271)	(1.22)	(0.234)	(1.379)
R2	0.077	0.335	0.063	0.353
N	6591	6591	6591	6591
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

In willingness to pay, the coefficient of the main explanatory variable PeerPaytend is significant at the 1 per cent level in both large-scale and small-scale companies; in payment intensity, the coefficient of the main explanatory variable PeerPayout is significant at the 1 per cent level in both large-scale and small-scale companies. It indicates that regardless of size, listed companies show peer effect in willingness to pay and payout. In terms of the coefficients, in terms of willingness to pay, the coefficient of PeerPaytend for small-sized firms is overall smaller than the coefficient of PeerPaytend for large-sized firms, whereas in terms of payment intensity, the coefficient of PeerPayout, the main explanatory variable for small-sized firms, is overall larger than the coefficient of PeerPayout, the main explanatory variable for large-sized firms, suggesting that smaller-sized firms are may be less influenced by peer firms, while dividend payment intensity is more influenced by peer firms after the decision to pay dividends is made. Taken together, both large-scale firms and small-scale firms exhibit peer effects, and therefore they interact with each other in the design of dividend payment policies, and Hypothesis 2 is tested.

Table 12. Payout and size

	Large-scale		Small-scale	
	(1)	(2)	(3)	(4)
	Payout	Payout	Paytend	Paytend
PeerPayout	0.556***	0.544***	5.21***	5.359***
	(0.041)	(0.044)	(0.299)	(0.381)
PeerROA		0.29		-19.459***
		(0.279)		(2.651)
PeerTDR		0.186***		-2.136***
		(0.05)		(0.503)
PeerDev		0.001		0.859
		(0.073)		(0.58)
PeerBM		-0.058		-2.053***
		(0.065)		(0.588)
Size		0.018***		0.415***
		(0.004)		(0.063)
ROA		0.172		24.773***
		(0.118)		(1.097)
TDR		-0.331***		-1.379***
		(0.042)		(0.27)
Dev		-0.105***		0.869***
PeerROA		(0.022)		(0.188)
BM		-0.053		2.792***
		(0.039)		(0.324)
Constant	0.117***	-0.191**	-2.941***	-11.047***
	(0.013)	(0.1)	(0.234)	(1.379)
R2	0.03	0.059	0.063	0.353
N	6591	6591	6591	6591
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

5.7. Mechanism Analysis

The Herfindahl-Hirschman Index (HHI) is introduced to explore the relationship between the degree of industry competition and the strength of the peer effect, and the interaction terms PeerPaytend*HHHI and PeerPayout*HHI are added as new explanatory variables to the corresponding models for the regression of willingness to pay and strength of payment, and the results are shown in Table 13.

From the regression results, in terms of willingness to pay, PeerPay-tend, HHI and PeerPaytend*HHI are all significant at least at the 1% level, indicating that the degree of industry competition affects the strength of the peer effect on the company's willingness to distribute dividends; in terms of the strength of the payment, PeerPayou, HHI and PeerPayout*HHI are all significant at least at the 1% level. significant at the 1% level, indicating that the degree of industry competition affects the strength of the peer effect on the firm's dividend distribution effort. The coefficients of the variable HHI are all negative, proving the positive correlation between the degree of industry competition and the peer effect, and that firms in highly competitive industries tend to show stronger peer effects, and Hypothesis 3 is verified.

Table 13. HHI and Peer Effect

	(1)	(2)	(3)	(4)
	Paytend	Paytend	Payout	Payout
PeerPaytend	3.684***	2.743***		
	(0.54)	(0.656)		
PeerPayout			0.417***	0.375***
			(0.078)	(0.077)
HHI	-18.823***	-31.647***	-1.188***	-1.01***
	(5.445)	(6.459)	(0.335)	(0.339)
PPT*HHI	21.681***	40.287***		
	(6.97)	(8.28)		
PPO*HHI			3.497***	3.329***
			(0.941)	(0.933)
PeerROA		-21.06***		0.016
		(2.683)		(0.304)
PeerTDR		-2.18***		0.003
		(0.523)		(0.066)
PeerDev		1.161**		0.026
		(0.586)		(0.065)
PeerBM		-1.835***		-0.123*
		(0.601)		(0.07)
Size		0.442***		0.017**
		(0.063)		(0.007)
ROA		24.765***		0.515***
		(1.097)		(0.098)
TDR		-1.466***		-0.246***
		(0.272)		(0.033)
Dev		0.881***		-0.036*
		(0.189)		(0.019)
BM		2.716***		0.282***
		(0.326)		(0.035)
Constant	-1.637***	-9.542***	0.168***	-0.188
	(0.427)	(1.423)	(0.026)	(0.16)
R2	0.067	0.357	0.03	0.088
N	13182	13182	13182	13182
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

6. Conclusion

This paper introduces the theory of behavioural finance and focuses on the observed phenomenon that cash dividend payment behaviour among firms in the same industry influences each other, combining some irrational characteristics exhibited in dividend payment behaviour with the theory of peer effect. The results of this paper show that the type of cash dividend policy adopted by other companies in the same industry significantly affects the cash dividend decision made by this company. The study is conducted from the aspects of dividend payment willingness and dividend payment strength. Whether the peer company chooses to pay dividends and the specific amount of dividend payment will be referred to by the individual company and reflected in its own dividend distribution behaviour. To further analyse the factors affecting the strength of the dividend distribution peer effect, this paper takes into account the internal and external indicators of the company's operation, and regards the

company size as an internal indicator and the degree of competition in the industry as an external indicator. The results of the study show that both large-scale and small-scale companies in the industry show more significant peer effects, and it is believed that the dividend payment policies of listed companies of different sizes affect each other; the factor of industry competition also significantly affects the strength of the peer effect of dividend distribution behaviour.

Based on the above research, this paper draws the following insights: First, actively support listed companies to formulate appropriate dividend policy according to their own situation. Second, the Securities and Futures Commission (SFC) should pay attention to the existence of the peer effect in the process of guiding dividend payout behaviour and actively play its positive role. Third, operators must correctly view the existence of a number of irrational decision-making factors in the company's financial decision-making to establish a scientific and effective learning and evaluation mechanism, and constantly improve managers' understanding of irrational decision-making behaviour.

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