Hindawi
Discrete Dynamics in Nature and Society
Volume 2022, Article ID 3209502, 12 pages
https://doi.org/10.1155/2022/3209502

Research Article

The Impact of Dividend Policies and Financing Strategies on the Speed of Firms' Capital Structure Adjustment

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Received 25 November 2021; Accepted 8 January 2022; Published 17 February 2022

Academic Editor: Daqing Gong

Based on the framework of the dynamic adjustment model, this paper examines the impact of dividend policies and financing strategies on the speed of capital structure adjustment and explores the relationship between dividend distribution and financing behavior. The empirical results show that if the firm pays less cash dividends, the capital structure adjustment speed is faster, and the dividend distribution behavior conflicts with financing needs. If the firm pays more cash dividends, the capital structure adjustment speed is slower, and the high dividend policy conflicts with market timing financing strategies. In a word, the behavior of dividend distribution has a significant impact on the speed of capital structure adjustment, and the conflict between dividend distribution and financing strategy affects the speed of capital structure adjustment. This paper provides a new perspective for optimizing capital structure, regulating dividend distribution, and evaluating the rationality of financing behavior.

1. Introduction

Since Modigliani and Miller [1] proposed the MM theory that capital structure has nothing to do with company value in 1958, then scholars carried out a comprehensive study on capital structure. The main academic viewpoints include net income theory, agency theory, signal theory, and so on. These theories have played an important role in explaining corporate financing behavior and capital structure adjustment. However, these theories mainly explain capital structure from a static perspective. The authors of [2, 3, 4] constructed a dynamic model to test the speed of capital structure adjustment and enriched the market timing theory, pecking order theory, and trade-off theory. These theories have also become classic theories to explain the behavior of capital structure adjustment. The Chinese scholars mainly examined the adjustment speed and influencing factors of capital structure. Studies have shown that Chinese listed companies have a target capital structure, and the trade-off theory plays a leading role in the speed of capital structure adjustment [5–9]. The market timing theory and the pecking order theory have explanatory power under certain constraints [10, 11].

Dividend distribution is a key factor that affects corporate financing decisions and capital structure. However, current research on the speed of capital structure adjustments often takes dividend distribution behavior as a prevariable or defines it as financing constraint [8, 9], ignoring the linkage mechanism between dividend distribution, capital structure adjustment, and financing strategy. About the research on dividend, scholars mainly focus on the free cash flow hypothesis, tunneling, and excessive investment or other perspectives to interpret the motives of company dividend distribution [12–14], but these theories cannot fully explain the various anomalies arising from the capital market. For example, highly leveraged companies continue to increase their leverage with an unusually high dividend policy. We believe that the dividend payment and the capital structure adjustment process are carried out synchronously. That is to say, the company's internal financing ratio, debt capacity, and capacity for equity financing are also determined when dividends are distributed. If the dividend

distribution behavior is more consistent with the free cash flow hypothesis or tunneling theory or other theories, then the dividend distribution behavior and the capital structure optimization process will inevitably have a conflict of goals, resulting in a slower adjustment of the capital structure. Because more dividends means giving up internal financing and choosing debt or equity financing with relatively higher capital costs, it may induce the company to deviate from its optimal capital structure. Obviously, the influence of dividend distribution behavior on the speed of capital structure adjustment is still a question which should be verified by empirical test. Hence, this article applies the partial capital structure adjustment model to test the impact of dividend policy on the speed of capital structure adjustment and analyzes the joint mechanism for dividend distribution and financing strategies to impact the adjustment of capital structure. The empirical results and conclusions of this paper account for an empirical evidence for that there is a conflict between dividend distribution and financing behavior, which give clues to optimize capital structure.

The rest of this study is as follows: Section 2 is literature review and hypotheses development. Section 3 is research methodology. Section 4 is empirical results, and Section 5 is conclusions and discussion.

2. Literature Review and Hypotheses Development

The payment of dividend has always been a hot and difficult issue in the capital market. Scholars continue to explore the mystery from the aspects of influencing factors and motives of dividend distribution. In a perfect capital market, companies can flexibly refinance through the capital market after dividends distribution. Therefore, the dividend policy does not affect the company value [1]. However, the capital market in practice is not an efficient market, and dividend distribution could also become an arbitrage tool. For example, managers often have self-interested motives. They try to increase their salary through on-the-job consumption and overinvestment. These self-interested behaviors become more prominent when the free cash flow of the company is sufficient. Hence, the free cash flow hypothesis believes that controlling shareholders can distribute dividends to restrict managers' behavior. Therefore, the free cash flow hypothesis believes that the distribution of dividends is beneficial to increase the value of the company and reduce agency costs [12, 14, 15]. However, the opposite view is tunneling hypothesis. It believes large shareholders overdistribute cash to transfer resources and hollow out the company, which harms the interests of minority shareholders [16, 17]. In addition, scholars have also enriched the literature from the perspectives of signal effect, overinvestment, corporate governance, and so on [13, 14, 18–24].

About financial strategies, there are trade-off theory, pecking order theory, market timing theory, etc. The trade-off theory believes that the optimal capital structure is the result of weighing the benefit and the cost of per unit liability, which means tax shield effect, free cash flow, bankruptcy risks, and agency costs are mainly considered when weighing the increase in liabilities [25, 26]. The pecking order theoryis that the company will give priority to internal financing and then issue low-risk liabilities and risky bonds and finally issue stocks. That is to say, there is a close relationship between the adjustment of the capital structure and the financing sequence [3, 18, 27]. Smith and Watts [19] found that fast-growing companies preferred equity financing, which cannot be explained by the two theories. Rajan and Zingales [28] and Baker and Wurgler [2] found that when the company's stock price was overvalued, the company tended to adopt equity financing. The market timing behavior will affect the adjustment speed of the capital structure, and the weighted sum of past market-to-book ratios can better capture this dynamic process [2]. Flannery and Rangan [4] established a dynamic adjustment model of capital structure and found that capital structure adjustment is more affected by the trade-off theory, while the contribution of the pecking order theory and market timing theory to capital structure adjustment is relatively weak. Chinese scholars Lu and Xin [5] and Xiao and Zou [7] found that the Chinese listed companies have a target capital structure and an equity financing preference; Lian and Zhong [6] calculated and compared the adjustment speed of different industries; Jiang et al. [29] found that the degree of market competition of products would affect the adjustment of capital structure. Jiang et al. [9] examined the impact of the economic cycle and corporate financing constraints on the adjustment of capital structure and found that the adjustment speed has positive and counter-cyclical characteristics. Li and Yang [11] found that highly leveraged companies need equity financing to reduce leverage. Tian et al. [30] found that corporate financialization will affect the financing behavior and capital structure of companies, and the higher the degree of financialization, the greater the risk of a corporate stock crash, the slower the adjustment of the capital structure to the optimal capital structure. Liu et al. [31] analyzed the impact of financing constraints on the speed of capital structure adjustment.

In summary, scholars are focusing more on the motives and economic consequences of dividend distribution and financing behavior. Only several papers by Lu and Wang [10], Huang [8], and Fan et al. [32] have focused on the relationship point. Hence, we can see a research gap. Dividend distribution behavior is a key factor that affects financing decisions and capital structure. It is necessary to research furtherly on the impact of dividend distribution behavior to the speed of capital structure adjustment and pay attention to the mechanism between dividend policies and financing strategies on the capital structure, which is the basis to infer the relationship between dividend distribution and financing behavior.

We know that dividend distribution and capital structure adjustment can be carried out synchronously. That is to say, the endogenous financing ratio of the company is determined at the same time as the dividend is distributed. Therefore, the company needs to preassess debt financing, equity financing, and the weighted average cost of capital to optimize the capital structure. Based on the relevant

research, we believe that dividend distribution behavior may have a significant impact on capital structure adjustment. For the company pays less cash dividends, the company would have more freedom in funding arrangements. If the investment is conducive to increasing shareholder value, corporate financing behavior would be more consistent with the pecking order hypothesis. The company should be expected to adjust the target capital structure faster. If the company pays more cash dividends, that is to say the company will give up the lower cost of internal capital. At this time, the enterprise needs to fully consider the capital cost, market transaction cost, tax policy and other factors, and then make a comprehensive decision. The financing behavior of the enterprise may conform to the theoretical hypothesis of trade-off.

Due to the existence of external financing costs and institutional obstacles in the capital market, the expected speed of adjustment to the target capital structure should be slower. Since the dividend distribution behavior generally occurs before the company makes external financing decisions, the dividend distribution behavior should be coordinated with the financing strategy, and then the optimization goal of the capital structure can be achieved. Therefore, the adjustment of the capital structure contains information about dividend distribution and corporate financing strategies, either in coordination or in conflict. The conflict relationship is specifically manifested as follows: first, when the dividend is too little, the free cash flow of the enterprise is abundant, and the enterprise deviates from the optimal capital structure seriously, then the capital adjustment speed is slow. This shows that dividend distribution behavior may conflict with financing behavior. The reason is that the company's retention of excessive profits leads to financial redundancy and destroys the optimal capital structure. If it is not redundancy, the financing strategy would follow the pecking order theory and the coefficient of pecking order is expected to be significant. On the other hand, when the company's dividends are distributed too much, the company's funding gap is also very large, and the company also carries out a large number of debt financing or equity financing. So why do companies give up low-cost, easily accessible internal funds and adopt external financing with high capital costs? This also shows the conflict between dividend distribution behavior and capital demand. As we guess if the dividend is appropriate, the market timing is not significant. In a word, the dividend policy is closely related to financing behavior, and improper dividend policy may conflict with financing behavior.

Based on the above analysis, this article proposes the following hypotheses.

H1: dividend distribution has a significant impact on the speed of capital structure adjustment.

H2: dividend distribution behavior conflicts with corporate financing behavior, which in turn affects the speed of capital structure adjustment.

3. Research Methodology

3.1. Regression Model Specification. To test the impact of dividend distribution behavior on the speed of capital structure adjustment and observe whether dividend distribution behavior conflicts with financing behavior, this article mainly follows the empirical models of Flannery and Rangan [4] and Lian and Zhong [6] to set up our regression equations in model (1). According to the trade-off theory, if an enterprise has a target capital structure after considering the tax shield effect of liabilities, agency costs, and other factors, the actual capital structure of the enterprise should be continuously adjusted to the optimal target capital structure. In model (1), BDR represents the capital structure of the enterprise; BDR^* means the target capital structure; $\mathrm{BDR}_{i,t+1} - \mathrm{BDR}_{i,t}$ means the company's actual structure change from period $t+1$ to period t which can be denoted as DIS_BDR. $\mathrm{BDR}^*_{i,t+1} - \mathrm{BDR}_{i,t}$ represents the expected change of the target capital structure from period $t+1$ to period t, and the regression coefficient measures the speed of adjustment of the actual capital structure to the target capital structure, it also explains how the company applies the trade-off financial strategy. According to the pecking order theory, Frank and Goyal [3] believe that if a company has a preference order for finance, it will finance with internally generated funds and then issue safe debt, and the last resort is equity. As Flannery believed under the pecking order theory a firm's financing deficit explains contemporaneous changes in its book debt ratio. Therefore, the author designed the financing deficit which is also the funding gap. We define funding gap as DEF, as shown in model (1). The coefficient of DEF γ reflects that the financing strategy conforms to the pecking order. In order to test whether the company's financing strategy adopts market timing methods, model (1) refers to the measurement of Baker and Flannery, who calculate external finance weighted-average market-to-book ratio MB_efwa and the regression coefficient η is the indicator of market timing behavior in capital structure adjustment. The calculation of MB_efwa is shown in model (5). The target capital structure BDR^* is the predicted value in model (3). We control the impact of several factors including profitability, investment opportunities, depreciation and amortization, asset structure, R&D investment, size, and the level of the industrial asset-liability ratio. Finally, we substitute the formula of model (2) and (3) into model (1) to obtain the main regression equation, model (4). We believe that the significance of regression coefficients of BDR, DEF, MB_efwa reflects the different financing strategies and the impact of different financing strategies on the speed of capital structure adjustment. In order to test hypothesis 1, we performed group regression on the model (4) by dividend policies; for hypothesis 2, we compared the contribution of the regression coefficients to the speed of capital structure adjustment to infer the relationship between dividend policies and financing strategies.

The regression models are constructed as follows:

$$\mathrm{BDR}_{i,t+1} - \mathrm{BDR}_{i,t} = \lambda\left(\mathrm{BDR}^{*}_{i,t+1} - \mathrm{BDR}_{i,t}\right) + \gamma \mathrm{DEF}_{i,t+1} + \eta \mathrm{MB}\_\mathrm{efwa}\, i,t+1 + \varepsilon_{i,t+1}, \tag{1}$$

$$\mathrm{BDR}_{i,t+1} = \lambda \mathrm{BDR}^{*}_{i,t+1} + (1-\lambda)\mathrm{BDR}_{i,t} + \gamma \mathrm{DEF}_{i,t+1} + \eta \mathrm{MB}\_\mathrm{efwa}\, i,t+1 + \varepsilon_{i,t+1}, \tag{2}$$

$$\mathrm{BDR}^{*}_{i,t+1} = \alpha_0 + \alpha_1 \mathrm{EBIT}_{i,t} + \alpha_2 Q_{i,t} + \alpha_3 \mathrm{DEP}_{i,t} + \alpha_4 \mathrm{FA}_{i,t} + \alpha_5 \mathrm{RD}_{i,t} + \alpha_6 \mathrm{SIZE}_{i,t} + \alpha_7 \mathrm{IND}\_\mathrm{median}\, i,t. \tag{3}$$

$$\begin{aligned} \mathrm{BDR}_{i,t+1} = {} & \lambda\left(\alpha_0 + \alpha_1 \mathrm{EBIT}_{i,t} + \alpha_2 Q_{i,t} + \alpha_3 \mathrm{DEP}_{i,t} + \alpha_4 \mathrm{FA}_{i,t} + \alpha_5 \mathrm{RD}_{i,t} + \alpha_6 \mathrm{SIZE}_{i,t} + \alpha_7 \mathrm{IND}\_\mathrm{median}\, i,t\right) \\ & + (1-\lambda)\mathrm{BDR}_{i,t} + \gamma \mathrm{DEF}_{i,t+1} + \eta \mathrm{MB}\_efwa\, i,t+1 + \varepsilon_{i,t+1}, \end{aligned} \tag{4}$$

$$\mathrm{MB}\_efwa\, i,t = \sum_{n=1}^{t} \frac{\Delta e_n + \Delta d_n}{\sum_{m=1}^{t} \Delta e_m + \Delta d_m} \times \mathrm{MB}_{i,n}. \tag{5}$$

The variables' definitions and calculation methods of the above-mentioned models are shown as follows:

DIV_dum: if there is cash dividend distributed, the value is 1; otherwise, the value is 0;

DIV_out: cash dividend per share/earnings per share;

BDR: (short-term debt + long-term debt)/total assets; it is defined as in Flannery and Rangan, 2006 [4];

MDR: book value of (short-term plus long-term) debt/market value of assets (short-term plus long-term plus market value of equity);

DEF: (dividend payments + investments + change in working capital-operating cashflow)/total assets;

MB: the ratio of market value to book value of total asset, its proxy is Q value;

MB_efwa: calculate according to the formula (3), it means the external finance weighted-average market-to-book ratio, as defined by Baker and Wurgler, 2002 [2];

Δe: the difference of common stock and additional paid-in capital at time $t+1$ to time t;

Δd: the difference of accumulated retained earnings at time $t+1$ to time t;

EBIT: earnings before interest and taxes/total assets;

Q: (book liabilities plus market value of equity)/(book liabilities plus book value of equity);

DEP: depreciation as a proportion of total assets;

FA: fixed asset proportion: property, plant, and equipment/total assets;

RD: intangible asset as a proportion of total assets;

SIZE: the logarithm of total assets;

IND_median: median industry leverage which is calculated for each year based on the industry level, it is defined as in Frank and Goyal, 2003 [3].

For the coefficients of BDR, DEF, MB_efwa reflect the different financing strategies of tradeoff, the pecking order, and market timing behavior separately, we expect that there is a big difference between the two groups of cash dividend and none cash dividend; different financing strategy also makes great different contribution to the coefficient magnitude. Because the dividend payment behavior and the capital structure adjustment process can be carried out synchronously, the enterprise can predict the amount of external funds by adjusting the dividend. Exactly speaking the enterprise can predict debt capacity and the equity financing in advance. Appropriate dividend distribution behavior is expected to be coordinated with the financing strategy; thereby it is a useful tool to help to optimize the capital structure. Considering the factor of capital cost, we believe that when companies do notpay cash dividends, companies have more freedom in arranging internal funds. At this time, efficient investment is conducive to increasing the shareholder value, and the company is expected to adjust to the target capital structure more faster; the demand for capital is greater so the financing strategy will follow the pecking order theory. When the company pays more cash dividends, the company abandons internal capital with lower capital cost and seeks external capital. Due to the existence of external financing costs and institutional obstacles in the capital market, the adjustment to the target capital structure is expected be slower, high dividend policy, and high equity financing are always conflicting. So we expect that if the dividend distribution behavior is coordinated with the financing strategy, then the optimal capital structure adjustment speed is expected to be faster. On the contrary, the dividend distribution behavior conflicts with the financing behavior, the influence of the financing behavior on the capital structure will show an alienation adjustment effect. According to the regression equation we take coefficient of financing strategies as indicators of conflict and coordination to test the joint mechanism for dividend distribution and financing strategies to impact the adjustment of capital structure. For short, we expect the coefficient of DEF is significant and large when no dividends are paid and the coefficient of MB_efwa is insignificant when cash dividends are paid.

3.2. Sample Selection and Data. Considering the institutional evolution of the dividend policy and the practice of dividends, 2005 is a new starting point for cash dividend distribution in China. Therefore, this paper selects the data from 2005 to 2019 as the research period. Hence, our original

sample includes all Chinese A-share listed companies from 2005 to 2019. We select sample by the following criteria:

(1) A total of 36885 original samples were collected during year 2005 and year 2019

(2) Excluded samples from the financial, banking and insurance industries

(3) Excluded samples which were treated by ST, * ST, PT

(4) Excluded companies with missing data

Finally, 34178 samples were obtained. The data were processed by STATA15 to eliminate the influence of extreme values; the main continuous variables were winsorized at the 1% and 99% levels.

Some supplementary notes: the data comes from the (China Stock Market & Accounting Research Database) CSMAR database, which supplies the authoritative data information for public firms in China. The industry classification code refers to the "2012 China Securities Regulatory Commission Industry Classification Guidelines for Listed Companies" ("Guidelines" can be downloaded from the website of China Securities Regulatory Commission).

4. Empirical Results

4.1. Descriptive Statistics. To get the overall characteristics of data, Table 1 reports the descriptive statistical results before the tailing of the variables. It can be seen that there are individual extreme values in the sample, and it is appropriate to winsorize the data. In Table 1, we divide the sample into two groups. As shown in noncash dividend group, the mean of BDR is 0.319, the mean of MDR is 0.204, and the mean of IND_median is 0.439. All of them are greater than the cash group. Maybe the noncash dividend group depends more on debt capital, and the overall debt risk is greater, and internal financing accounts for a large proportion for finance. From the perspective of actual capital structure deviation, the actual capital structure deviation DIS_BDR of noncash group is 0.009, and the actual gap DEF is 0.028; the actual capital structure deviation DIS_BDR of cash group is 0.004, and the actual capital gap DEF is 0.056. That is to say the actual capital structure deviation of undistributed dividend companies is greater, but the actual capital need is relatively small. This data distribution gives a hint that the dividend distribution behavior is not promoted by financing needs and noncash dividend policy by companies may cause capital redundancy. Therefore, there may be conflicts between dividend policy and capital needs, and the magnitude of this conflict whether affects the adjustment speed of the optimal capital structure remains to be an empirical question. The mean size of noncash dividend group is 21.71, and the profitability EBIT is 2.7%; in corresponding, the mean size of the cash dividend group is 22.096, and the profitability EBIT is 7%. From the perspective of size and profitability, we find that companies that pay cash dividends are larger and have stronger profitability. That seems reasonable, but we find that companies that distribute cash dividends have a bigger funding gap. For Q value, the noncash dividend group is 2.459, and cash dividend group is 1.91. Hence, the market premium rate of cash dividend distribution companies is generally lower than noncash dividend distribution companies. If Q is the main driving factor for market timing financing strategy, we expect the noncash dividend group have a stronger motivation to take market timing financing strategy, but the fact is not. From the perspective of external finance weighted-average market-to-book ratio, the overall cumulative weighted market-to-book ratio of the cash group is higher than that of companies with noncash dividends. The possible reason is that the market timing has been carried out as a tunneling to transfer of benefits for major shareholder. The secret of dividend distribution is about a certain conflict of interest between market timing financing strategy and a large dividend payment behavior. When a company conducts market timing financing while paying large cash dividends, there may be suspicion of interest transfer by major shareholders. When the company has a big funding gap and serious financing constraints, the conflict will damage the interests of small-sized and medium-sized investors even more.

4.2. Regression Results

4.2.1. The Correlation Coefficients Matrix of Variables. Table 2 shows the Pearson correlation coefficients and the Spearman correlation coefficients between variables which are listed separately on the lower and upper triangular parts of the matrix. As shown in Table 2, the correlation coefficients between the variables are relatively small, which indicate there is no serious collinearity problem between the variables. More specifically, the capital structure proxy variables MDR, BDR, DIS_DBR, and IND_median are positively correlated to each other, indicating that these proxy variables can reflect the level of capital structure from different dimensions. MB_efwa and MDR's Pearson correlation coefficient is −0.121, with BDR is −0.046, and with IND_median is −0.162; MB_efwa and MDR's Spearman correlation coefficient is −0.095, and its Spearman correlation coefficient with BDR is −0.034, with IND_median is −0.073. These results give clues that there is an alternative relationship between equity and debt financing strategies. The company uses debt financing while abandoning equity financing, which leads to a relatively high level of corporate debt. The Pearson correlation coefficient of DEF with MDR is 0.072; with BDR is 0.099, and with DIS_BDR is 0.354, which shows that there is a positive correlation between corporate funding needs and leverage level, and the other diagonal shows the same results. The cash dividend distribution rate DIV_out has a negative correlation with MDR, BDR, DIS_BDR, and IND_median, which may accord with theoretical expectations that cash dividend is an important factor of capital structure adjustment. The correlation coefficients of other variables are shown in Table 2.

4.2.2. The Joint Mechanism for Dividend Policies and Financing Strategies to Impact the Adjustment of Capital Structure. To test the impact of dividend distribution behavior on the speed of capital structure adjustment, first we performed regression to equation (2), using capital structure variable BDR

Table 1: Descriptive statistics.

DIV_dum	Variables	Obs	Mean	Median	Max	Min	Std
0	MDR	7023	0.204	0.159	0.932	0	0.179
	BDR	7271	0.319	0.316	1.3	0	0.212
	DIS_BDR	5546	0.009	0.002	0.945	−0.81	0.106
	EBIT	7947	0.027	0.03	0.756	−1.347	0.079
	Q	9755	2.459	1.578	715.945	0.684	8.561
	DEP	7943	0.022	0.019	0.325	−0.019	0.016
	SIZE	9686	21.71	21.619	27.146	17.545	1.22
	FA	7946	0.244	0.212	0.916	0	0.179
	RD	7929	0.049	0.032	0.924	0	0.066
	IND_median	10018	0.439	0.411	0.718	0.115	0.102
	MB_efwa	10118	6.879	3.177	1142.203	0	39.957
	DEF	5884	0.028	0.018	1.246	−5.547	0.182
1	DIV_out	24060	0.404	0.296	107.407	0	1.204
	MDR	19936	0.16	0.106	0.873	−0.015	0.168
	BDR	20653	0.235	0.21	0.942	−0.023	0.195
	DIS_BDR	17575	0.004	0	0.642	−0.64	0.092
	EBIT	24059	0.07	0.06	0.767	−0.49	0.05
	Q	23272	1.91	1.558	19.824	0.153	1.147
	DEP	24045	0.02	0.016	0.152	−0.006	0.015
	SIZE	24060	22.096	21.897	28.636	18.679	1.333
	FA	24060	0.217	0.182	0.971	0	0.166
	RD	24022	0.045	0.031	0.864	−0.002	0.062
	IND_median	24060	0.418	0.398	0.718	0.12	0.104
	MB_efwa	24060	7.149	3.411	5995.658	0	98.308
	DEF	18923	0.056	0.038	1.043	−1.133	0.141
Total	DIV_out	34178	0.285	0.197	107.407	0	1.027
	MDR	26959	0.172	0.119	0.932	−0.015	0.172
	BDR	27924	0.257	0.237	1.3	−0.023	0.203
	DIS_BDR	23121	0.005	0	0.945	−0.81	0.095
	EBIT	32006	0.059	0.053	0.767	−1.347	0.061
	Q	33027	2.072	1.563	715.945	0.153	4.758
	DEP	31988	0.02	0.017	0.325	−0.019	0.015
	SIZE	33746	21.986	21.806	28.636	17.545	1.314
	FA	32006	0.224	0.188	0.971	0	0.17
	RD	31951	0.046	0.031	0.924	−0.002	0.063
	IND_median	34078	0.424	0.404	0.718	0.115	0.104
	MB_efwa	34178	7.069	3.359	5995.658	0	85.3
	DEF	24807	0.049	0.034	1.246	−5.547	0.152

and MDR as independent variables, using DIV_dum as group variable, and controlling the fixed effect. The regression results are shown in Table 3. In column (1), the coefficient BDR is 0.549 and is significant, indicating that the speed of capital structure adjustment is 0.451 $(1 - \lambda = 1 - 0.549)$. However, after controlling dividend distribution variable, the difference in regression coefficients of adjustment speed becomes very significant, as reported in column (2) and column (3). According to the results of column (2) and column (3), the capital structure adjustment speed of the noncash dividend group is 0.561 $(1 - \lambda = 1 - 0.439)$, while the capital structure adjustment speed of the cash dividend group is 0.435 (1–0.565), which shows the capital structure of companies that undistribute dividends is adjusted faster than the companies that distribute dividends. As reported in column (5) and column (6), when the independent variable is changed to be MDR, we get the same conclusion that the dividend distribution behavior indeed will affect the adjustment speed of capital structure, which is consistent with the hypothesis 1. Finally, the chow test was performed on the coefficient difference between the two group. The difference was significant at the 1% significance level.

The significance of BDR's coefficient is also an indicator of tradeoff financial strategy. The results show that all the company applies the tradeoff financial strategy. The coefficients of MB_efwa are significant in every column. Hence, it is apparent that the companies take market timing strategy to finance when they adjust the capital structure. According to the pecking order theory, if a company has a preference order for finance, it will finance with internally generated funds and then issue safe debt and then resort to equity. However, the coefficient of DEF to the actual capital structure change do not pass the significance test, so we do not find any empirical evidence for the pecking order strategy. These conclusions give clues that there may be conflicts between the company's dividend policy and financing behavior, which slows down the adjustment speed of capital structure. First, if funding gap is not a key factor affecting corporate debt financing, which shows there may

Table 2: Correlation coefficient matrix.

Variables	MDR	BDR	DIS_BDR	IND_median	MB_efwa	DEF	DIV_dum	DIV_out	EBIT	Q	DEP	SIZE	FA	RD
MDR	1	0.882***	0.174***	0.343***	−0.095***	0.046***	−0.113***	−0.03***	−0.24***	−0.478***	0.119***	0.532***	0.237***	−0.001
BDR	0.93***	1	0.235***	0.318***	−0.034***	0.084***	−0.181***	−0.04***	−0.241***	−0.319***	0.11***	0.432***	0.218***	0.015***
DIS_BDR	0.189***	0.223***	1	0.001	−0.004	0.269***	−0.023***	−0.005	−0.115***	−0.030***	−0.071***	0.017***	−0.045***	0.003
IND_median	0.328***	0.307***	−0.007	1	−0.073***	−0.011*	−0.090***	−0.03***	−0.082***	−0.195***	−0.103***	0.209***	−0.044***	−0.072*
MB_efwa	−0.121***	−0.046***	0.008	**−0.162****	1	−0.011*	−0.011**	−0.008	−0.010*	0.243***	−0.021***	0.096***	−0.050***	0.069***
DEF	0.072***	0.099***	0.354***	−0.024***	0.019***	1	0.078***	0.004	0.055***	−0.011*	−0.159***	−0.027***	−0.153***	−0.08***
DIV_dum	−0.108***	−0.151***	−0.029***	−0.076***	0.025***	0.074***	1	0.18***	0.322***	−0.081***	−0.058***	0.13***	−0.069***	−0.04***
DIV_out	−0.159***	−0.204***	−0.026***	−0.088***	−0.044***	0.029***	0.736***	1	−0.005	−0.005	0.019***	−0.004	0.014**	−0.007
EBIT	−0.228***	−0.207***	−0.110***	−0.032***	0.047***	0.049***	0.308***	0.171***	1	0.19***	0.016***	−0.026***	−0.007	0.001
Q	−0.668***	−0.414***	−0.038***	−0.278***	0.315***	0.033***	−0.014**	−0.003	0.214***	1	−0.066	−0.365	−0.112	0.024
DEP	0.102***	0.084***	−0.068***	−0.104***	−0.069***	−0.151***	−0.043***	0.054***	0.043***	−0.042***	1	0.041***	0.808***	0.071***
SIZE	0.530***	0.447	0.011	0.194***	0.157***	−0.012*	0.139***	0.020***	0.02***	−0.495***	−0.029***	1	0.084***	0.015***
FA	0.172***	0.153***	−0.039***	−0.075***	−0.100***	−0.137***	−0.041***	0.049***	0.025***	−0.082***	0.874***	−0.003	1	0.072***
RD	−0.055***	−0.056***	0.003	−0.192***	0.066***	−0.069***	0.007	0.027***	0.011	0.076***	0.215***	−0.063***	0.23***	1

Note. The Pearson correlation coefficient and the Spearman correlation coefficients between variables are listed separately on the lower and upper triangular parts of the correlation coefficient matrix; the symbols ***, **, and * denote significance (two-tailed) at the levels of 0.01, 0.05, and 0.1, respectively.

Table 3: Dividend distribution, financing strategies, and the adjustment of capital structure.

	(1)	(2)	(3)	(4)	(5)	(6)
BDR	0.549***	0.439***	0.565***			
	−53.48	−15.28	−46.71			
MDR				0.522***	0.364***	0.538***
				−49.09	−13.4	−42.6
DEF	0.016**	0.02	0.008	0.016***	0.019	0.011**
	−2.52	−1.18	−1.22	−3.22	−1.45	−2.02
MB_efwa	0.002***	0.003**	0.002***	0.001***	0.001*	0.001***
	−4.98	−2.81	−4.72	−3.65	−1.87	−2.94
EBIT	−0.140***	−0.102	−0.193***	−0.109***	−0.053	−0.169***
	−5.17	−1.39	−6.35	−5.27	−1.06	−6.62
Q	0.001	−0.001	0.002**	−0.001	−0.004**	0
	−1.29	−0.28	−2	−1.38	−2.11	−0.65
DEP	−0.432***	−0.397	−0.468***	−0.365***	−0.068	−0.450***
	−2.80	−0.97	−2.63	−2.61	−0.21	−2.72
SIZE	0.021***	0.028***	0.018***	0.024***	0.034***	0.024***
	−7.94	−3.76	−5.88	−10.42	−5.97	−8.37
FA	0.003	0.043	−0.002	0.012	0.022	0.023
	−0.24	−1.25	−0.11	−1.05	−0.86	−1.64
RD	0.022	0.065	0.025	0.015	−0.032	0.034
	−0.74	−0.65	−0.77	−0.68	−0.60	−1.27
IND_median	0.046**	−0.035	0.057***	0.044***	−0.008	0.040**
	−2.48	−0.70	−2.74	−2.97	−0.23	−2.31
_cons	−0.371***	−0.488***	−0.312***	−0.476***	−0.629***	−0.474***
	−6.23	−2.81	−4.53	−8.88	−4.81	−7.19
Year	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.37	0.261	0.386	0.474	0.372	0.487
N	19146	3933	15213	18719	3836	14833

Note. The vif test was performed, and there is no serious multicollinearity between the variables; the models controlled the fixed effects; the symbols ***, **, and* denote significance (two-tailed) at the levels of 0.01, 0.05, and 0.1, respectively.

be a mismatch between financing behavior and funding needs; second, if a company pays high dividends and finances excessive equity capital, it is possible that company is transferring benefits or harm the interests of small and medium shareholders. In both cases, dividend distribution behavior and financing behavior may conflict to each other.

It is necessary to assess the economic significance of financing strategies by comparing their ability to explain variations in capital structure adjustment variable to support hypothesis 2 furtherly. So we take the standardized coefficient of regression as explanatory variable for economic significance. First, we regressed model (3) and calculated the predicted values, then substituted them into model (2) and used standardized coefficient to regress and calculated the variation of each independent variable to the variation of the dependent variable, which is named as contribution times. The regression results are shown in Table 4.

In Table 4, the target capital structure BDR* of the noncash dividend group contributed 1.093 times to the capital structure adjustment, the external finance weighted-average market-to-book ratio MB_efwa contributed 0.708 times, and the funding gap variable DEF did not pass the significance test which has no significant effect. Because the three coefficients represent three financing strategy, so we infer that when the company does not distribute dividends or distributes less dividends, trade-off financing plays a leading role in the adjustment of capital structure, and the financing strategy does not meet the expectation of the pecking order. The possible reason is that there may be conflicts between dividend distribution behavior and financing strategy under the background of small capital need. The capital need is small, and the insufficient dividend distribution makes the internal capital of the enterprise relatively redundant, which hinders the correction of the optimal capital structure. In the cash distribution group in Table 4, the contribution of the target capital structure BDR* to the capital structure adjustment is 1.561 times, and the contribution of MB_efwa is 0.69 times, and the contribution of funding gap variable DEF is 0.085. It is obvious that after the company distributes dividends, the company's financing strategy depends on debt and equity, the trade-off is also an influencing factors. So if the company abandon the low cost of internal capital and adopt lots of equity financing, there is a conflict between high dividend payment and market timing of financing, which will affect the optimization of capital structure and it is possible that the dividend distribution is a tunneling to transfer benefits.

In summary, financing behavior is an important factor that determines the capital structure and the speed of capital structure adjustment, and dividend policies are closely related to corporate financing behavior. If there is a conflict between the dividend distribution policy and financing behavior, the speed of capital structure adjustment will be affected. Therefore, the dividend distribution behavior

Table 4: The joint moderating mechanism for dividend distribution behavior based on explanations of financing strategies.

	(1)		(2)	(3)
BDR	0.581*****	BDR	0.183*	0.162***
	−93.91		−1.9	−4.7
EBIT	−0.142***	BDR*	0.220**	0.306***
	−7.53		−2.35	−8.86
Q	0.003***	Contribution coefficient of BDR*	1.093	1.561
	−3.58	DEF	−0.01	0.017**
DEP	−0.488***		−0.54	−2.09
	−4.23	Contribution coefficient of DEF	−0.047	0.085
SIZE	0.023***	MB_efwa	0.142**	0.135***
	−13.44		−2.54	−4.8
FA	0.012	Contribution coefficient of MB_efwa	0.708	0.69
	−1.15			
RD	0.025			
	−1.23			
IND_median	0.043***			
	−3.28			
_cons	−0.366***	_cons	−0.126	−0.093**
	−10.08		−1.39	−2.35
Year	Yes	Year	Yes	Yes
R^2	0.409	R^2	0.166	0.235
N	22310	N	3907	14910

Note. In column (1), we use the full sample to regress model (3), so as to obtain BDR*, column (2) and column (3) are the results of model of (2) which are the coefficients of standardized regression equation for noncash dividend group and cash dividend group respectively. Standardized regression coefficient is to value the corresponding variable's ability to explain variations in dependent variable BDR. Contribution times = standardized regression coefficient/sd[BDR], sd[BDR] is the standard deviation of BDR. The symbols ***, **, and * denote significance (two-tailed) at the levels of 0.01, 0.05, and 0.1, respectively.

should be matched and coordinated with the financing strategy.

4.2.3. The Economic Consequences of Dividend Distribution and Specific Financing Types for the Adjustment Speed of Capital Structure. In model (1), λ represents the static speed of capital structure adjustment to the optimal capital structure, and at the same time it is interpreted as a substitute variable for firms to adopt the tradeoff financing strategy, which does not seem to be accurate enough. We guess that each company may have different adjustment speeds in different periods. For this reason, we use the method of Lian and Zhong [6] to construct a dynamic capital structure adjustment model, and set the adjustment coefficient in model (1) as $\lambda_{i,t+1}$ and construct a dynamic adjustment model of capital structure (6). To test directly the impact of dividend distribution behavior and specific financing methods on the speed of capital structure adjustment, we designed model (7). The independent variable in model (7) is the dividend distribution rate DIV_out, the interaction of DIV_out and the debt financing ratio(DFS), the interaction of DIV_out, and the equity financing ratio (EFS) (the debt financing ratio DFS is calculated with the increment of debt divide by the increment of total asset; the equity financing ratio EFS is calculated with the increment of issued shares divide by the increment of total asset). We also control for financial leverage by adding the interaction of high financial leverage variable H_lev, which is calculated with BDR minus its average BDR of the same year and industry. If the dividend distribution coefficient is significant, the dividend distribution behavior has an impact on the speed of capital structure adjustment. If the interaction term of the dividend distribution rate with the debt financing ratio or the equity financing ratio is significant, different financing methods have an impact on the capital structure. Because model (6) is not a linear equation, so we take nonlinear estimation method to estimate the parameter. Table 5 reports the nonlinear OLS estimation results.

$$\mathrm{BDR}_{i,t+1} - \mathrm{BDR}_{i,t} = \lambda_{i,t+1}\left(\mathrm{BDR}^{*}_{i,t+1} - \mathrm{BDR}_{i,t}\right), \tag{6}$$

$$\begin{aligned}\lambda_{i,t} = {} & \beta_0 + \beta_1 Q + \beta_2\,\mathrm{SIZE} + \beta_3 \mathrm{DIS\_BDR} + \beta_4 \mathrm{DIV\_out} + \beta_5 \mathrm{DIV\_out} \times \mathrm{DFS} + \beta_6 \mathrm{DIV\_out} \times \mathrm{EFS} \\ & + \beta_7 \mathrm{DIV\_out} \times \mathrm{DFS} \times H_{\_\mathrm{lev}} + \beta_8 \mathrm{DIV\_out} \times \mathrm{EFS} \times H_{\_\mathrm{lev}}.\end{aligned} \tag{7}$$

Table 5: The effect of dividend distribution and specific financing types to the adjustment of capital structure.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EBTT	−1.124***		−2.489***		−1.124***		−2.648***	
Q	−0.011***		−0.009***		−0.011***		0.007***	
DEP	−1.427***		−3.312***		−1.427***		−3.236***	
SIZE	0.055***		0.045***		0.055***		0.044***	
FA	0.305***		0.304***		0.305***		0.330***	
RD	0.151***		0.090***		0.151***		0.139***	
IND_median	0.399***		0.191***		0.399***		0.228***	
_cons	−1.020***		−0.523***		−1.020***		−0.518***	
Q		−0.057		0.001		−0.057		−0.02***
SIZE		−0.141		0.000***		−0.141		−0.000**
DIS_BDR		0.579		0.016**		0.586		0
DIV_out		0.068		−0.003		0.065		−0.009***
DIV_out ×DFS		0.016		0.003***		0.006		0.004***
DIV_out ×EFS		0.020		0.003**		0.024		−0.000
DIV_out× DFS×H_lev						0.013		0.000
DIV_out× EFS×H_lev						−0.002		0.005**
_cons		2.149		0.1658***		2.139		0.170***
Industry		Yes		Yes		Yes		Yes
Year		Yes		Yes		Yes		Yes
R^2		0.399		0.829		0.399		0.830
N		18761		13497		18761		13497

Note. Column (1) and column (2) are the initialization regression results for dynamic model of λ; column (5) and column (6) are initialization regression results for dynamic model of λ with adding financial leverage factor; column (3), column (4), column (7), column (8) are estimated by nonlinear estimation method; the symbols ***, **, and * denote significance (two-tailed) at the levels of 0.01, 0.05, and 0.1, respectively.

Table 6: Robustness results based on quantile regression.

Panel A : DIV_dum = 0	mean_OLS	$q = 0.25$	$q = 0.5$	$q = 0.75$	$q = 0.9$
BDR	0.474***	0.889***	0.948***	0.935***	0.875***
	−4.93	−29.8	−51.15	−33.1	−11.22
DEF	0.043	0.004	0.02	0.044	0.125
	−0.94	−0.12	−0.94	−1.35	−1.4
MB_efwa	0.005**	0.001	0	0	0.002
	−2.51	−0.58	−0.06	−0.46	−0.6
Controls	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes
Panel B::DIV_dum = 1	mean_OLS	$q = 0.25$	$q = 0.5$	$q = 0.75$	$q = 0.9$
BDR	0.550***	0.850***	0.962***	0.938***	0.879***
	−53.52	−179.07	−296.31	−172.95	−102.15
DEF	0.015**	0.014**	0.024***	0.046***	0.022**
	−2.39	−2.46	−6.17	−7.13	−2.19
MB_efwa	0.001***	−0.000**	0	−0.000**	0
	−4.87	−2.23	−1.22	−2.32	−1.4
Controls	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes

Note. The symbols ***, **, and * denote significance (two-tailed) at the levels of 0.01, 0.05, and 0.1, respectively. Due to space limit, the control variables are omitted from the report.

In columns (1), (2), (5), and (6), it is the initialization regression results for dynamic model of $\lambda_{i,t+1}$, the coefficients of equation (7) are not significant. But estimate the coefficients with iterative calculation, the coefficients of equation (7) become significant as showed in column (4) and column (8). The coefficient of DIV_out is -0.009 and significant, indicating that the dividend distribution behavior will slow down the adjustment speed of capital structure. The coefficient of DIV_out×DFS is 0.003 and significant. That gives clues that it is a effective way to return back to the optimal capital structure level by debt financing. The coefficient of DIV_out×EFS also support the equity financing. When we consider financial leverage, we find that if a highly leveraged company adopts debt financing, debt financing will not help to optimize the capital structure. For highly leveraged companies, only equity financing can affect the optimizing of the capital structure.

4.3. Robustness Test. In Table 6, we take DIV_dum as a group variable to evaluate the impact of the company's dividend distribution behavior on the speed of capital structure

adjustment. We perform quantile regression. The regression results are shown in Table 6.

According to the regression results in Table 6, it can be seen that the adjustment of capital structure of companies with noncash dividends is faster than that of companies with cash dividends. The dominant factor in capital structure adjustment is tradeoff financing. The debt financing is not significant. The pecking order theory assumes that there may be a conflicting relationship between the company's dividend distribution behavior and the capital needs. In the regression of the cash dividend, the capital structure adjustment speed of low-dividend distribution companies is faster than that of high-dividend distribution companies. The simultaneous implementation of high dividend policy and equity financing strategy makes companies exhibit financing conflicts, and this conflict relationship reduces the speed of capital structure adjustment. Based on the above verification, it can be seen that the research conclusions of this article are robust.

5. Conclusions and Discussion

The dividend policy is a key factor that affects corporate financing decisions and capital structure adjustments. This is because the company's internal financing ratio is determined while the company's dividends are paid, and the amount of debt financing and equity financing can be assessed in advance through calculating the funding needs and weighting the average cost of capital. It can be seen that the process of dividend distribution is also a process of capital structure optimization. So does the dividend distribution affect the speed of capital structure adjustment? Does dividend distribution behavior coordinate with financing behavior in China?

Based on the dynamic adjustment model and the empirical results, this paper draws the following conclusions: first, the payment of dividends has a significant impact on the speed of capital structure adjustment. When companies pay less cash dividends, capital structure adjustments are faster; when companies pay more cash dividends, capital structure adjustments are slower. Second, dividend distribution behavior may conflict with financing behavior, which, in turn, affects the speed of capital structure adjustment. When the company's dividends are distributed too little, the company's capital redundancy will lead to an imbalance of the target capital structure, the adjustment of the capital structure will slow down, and the behavior of dividend distribution will conflict with capital needs. When the company's dividend distribution is excessive, if the company adopts market timing financing, the company's dividend distribution behavior may conflict with the equity financing behavior. The above-mentioned research conclusions provide empirical evidences for us to analyze the motivation of capital structure adjustment and judge the conflicting relationship between dividend distribution and financing behavior. At last, we need to declare that: although a series of robustness tests have been done, there are still some robustness risks for some shortcomings in the measurement. We estimate the relationship of dividend policies and financing strategies by construct expectation model with the dynamic adjustment model, and by which we infer the conflict relationship. As we know financing behavior, capital structure adjustment and dividend distribution behavior are intertwined, and dividend distribution is a key factor that affects corporate financing decisions and capital structure. So we need to study deeply about the impact mechanism of conflict and construct a more appropriate model to capture the adjustment speed and conflicts.

Data Availability

All the data contained in this study can be obtained upon request to the corresponding author.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Acknowledgments

Zouyan was supported by the general project of the Beijing Municipal Education Commission's Social Science Program "Research on M&A Behaviors of Enterprises in the Beijing-Tianjin-Hebei Region under the Background of the Epidemic: Motivation, Premium and Economic Consequences" (Project Approval Number: SM202110037009). Bai Qinghui was supported by the Humanities and Social Sciences Project of the Ministry of Education of China, "The Path Choice of China's Manufacturing Industry to Reduce Tax Burden: The Mechanism of the Three Types of Key Taxes and Fees and Corporate Behavior Investigations" (Project Number: 17YJC790001).

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