The Impact of COVID-19 on Earnings Management of Listed Companies

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Abstract: This paper takes A-share listed companies on Shanghai and Shenzhen stock exchanges from 2018 to the second quarter of 2021 as the research object, uses the exogenous event of COVID-19 outbreak in the first quarter of 2020 to construct A two-way fixed effect model, and empirically analyzes the impact of COVID-19 on earnings management of listed companies based on prospect theory. The results showed that earnings management of listed companies increased significantly after the outbreak of COVID-19. This effect is more significant in the sample with higher asset-liability ratio, better growth and better profitability. Further research shows that under the impact of COVID-19, high financing constraints will lead to increased earnings management degree of listed companies. This study provides evidence that COVID-19 affects earnings management of listed companies, helps to understand the motivation and mechanism of earnings management of specific listed companies, and also provides the direction for the government to effectively control and formulate policies.

Keywords*: COVID-19; earnings management; prospect theory; financing constraints

1. Introduction

In December 2019, a novel coronavirus-infected pneumonia case was found in Wuhan, Hubei Province; on March 11, 2020, the WHO identified the novel coronavirus pneumonia outbreak as the first global pandemic caused by a coronavirus. The epidemic is spreading rapidly. As of mid-November 2021, the number of confirmed cases worldwide has reached 255 million, and the number of deaths has reached 5.1277 million. The WTO said the global economic downturn and mass unemployment caused by the new crown epidemic was worse than the 2008 financial crisis. Under the leadership and the joint efforts of the whole nation, China took the lead in launching a people's war, a general war, and a blocking war for epidemic prevention and control, effectively curbing the spread of the epidemic and achieving world-renowned achievements.

As a typical exogenous event, the new crown pneumonia epidemic has caused a global impact on the economy and society. The measures taken by China to suspend work and school, limit large-scale gatherings, and reduce the frequency of travel to carry out epidemic prevention and control work have brought a lot to the production and operation of enterprises in various industries. Great negative impact, especially in manufacturing, service industries, and small, medium and micro enterprises. In past research, it was found that listed companies usually manage their earnings by manipulating non-recurring profits and losses. Loss-making companies mainly aim to turn losses around and avoid losses, while high-profit companies aim to smooth profits and avoid profit declines [1]. Under the huge impact of the new crown epidemic, will listed companies take certain measures to alleviate the difficulties in production and operation in the short term? Will you look for solutions from a financial standpoint? Will the degree of earnings management change significantly?

Based on this, this paper takes the 2018-2021 A-share listed companies in my country's Shanghai and Shenzhen stock exchanges as the initial research sample, uses the exogenous event of the outbreak of the new crown pneumonia epidemic in the first quarter of 2020, and uses the two-way fixed effect model analysis method to empirically test the event. Impact on corporate earnings management.

The innovation and contribution of this paper are mainly reflected in the following aspects. (1) According to the prospect theory, the interest function of the decision-making body of the enterprise will change with the change of the external environment. The COVID-19 outbreak has led firms to engage in significant earnings management, which provides new empirical evidence for examining the applicability of prospect theory. (2) Earnings management has always been a key research topic in the field of corporate finance. The research in this paper enriches the relevant literature on the impact of exogenous events on earnings management.

2. Literature and Research Assumptions

American accounting scholar Scott believes that earnings management is manifested in the choice of different accounting policies by corporate management in order to maximize its utility or maximize its market value. More generally accepted is the definition of earnings management by Healy and Wahlen (1999) [2]: when management prepares financial reports and

constructs economic transactions, it uses judgment to change financial reports, misleading stakeholders about the company's fundamental economic benefits. Understand, or influence, the performance of contracts based on financially reported figures.

Holthausen (1995) [3] summarized earnings management motivation as opportunistic motivation, effective contract view and information view. According to prospect theory (Kahneman and Tversky, 1979) [4], the "S-shaped" value curve takes the origin as the reference point, and divides the value space into two parts: gain and loss, and the slope of the loss interval is larger. That is, they are risk-averse when winning and risk-loving when losing. Bai Zhiqi et al. (2019) [5] based on the reference point theory of prospect compensation contracts, further confirmed that out of loss aversion, CEOs are motivated to seek alternative compensation for compensation incentives, and operate the company's performance through earnings management to obtain higher performance, remuneration. In addition, in the "dividend plan hypothesis" mentioned by Healy (1985) [6], management usually deferred income or obtained dividends by manipulating accrued profits, so as to maximize expected dividends. Chinese scholars Li Yanxi et al. (2007) [7] found through empirical research that the level of management compensation is highly positively correlated with the increased manipulated accruals. At the same time, Ding Fangfei (2021) [8] found through research that when the management space of accrual earnings is limited, the management will transmit information through real earnings management. From the perspective of competitive pressure, Wen Guangliang and Wang Jianfeng (2018) [9] believe that when listed companies perceive the pressure of industry competition, they may produce earnings management behaviors that upwardly adjust the forecasted performance in the annual report, in order to reduce investors' perception of management performance. Anticipated pressure build-up.

Most of the existing research focuses on the opportunistic motivation of earnings management, and believes that management intervenes in financial statements in order to maximize personal interests. Excessive earnings management will damage social interests and disrupt social order. Therefore, the market and government have adopted multiple methods to supervise corporate earnings management. Wang Zhan and Cai Fang (2019) [10] explored from the perspective of policy supervision and concluded that in order to meet the threshold for additional issuance, listed companies use earnings management to improve accounting performance under the stimulation of strong financing needs.

As the shutdown of production and production caused by the new crown epidemic has brought a great impact on various industries, catering, entertainment, manufacturing and other enterprises have faced problems such as production and operation difficulties, urgent capital needs, and high debt repayment pressure. Jiang Tao (2020) [11] found through research that the occurrence of major epidemics led to an increase in credit demand and a decrease in credit supply, which further increased the difficulty of corporate financing. Liu Shangxi (2021), based on the questionnaire survey data, concluded that the new crown epidemic has had a significant impact on corporate financing, and has had a greater impact on the central region and private, small and micro enterprises. However, when companies face external uncertainties, they usually adopt active business strategies to deal with them, that is, the motivation to carry out corporate earnings management will increase (Chen Deqiu and Chen Yunsen, 2018) [12]. According to prospect theory, under the negative impact of the outbreak of the new crown epidemic, the management of listed companies will be more inclined to pursue risk and carry out earnings management in order to improve company performance, reduce financing pressure, and stabilize market expectations. Therefore, we propose the following research hypothesis:

H1: The new crown epidemic triggers corporate earnings management behavior.

According to the questionnaire survey data, Liu Shangxi (2021) [13] concluded that the COVID-19 epidemic has had a significant impact on corporate financing, and has had a greater impact on the central region, as well as private, small and micro enterprises. From Financing Constraints and Enterprise Property Rights

From a qualitative point of view, due to the particularity of state-owned enterprises, the government will provide support in terms of policy and economy, so state-owned enterprises have relatively little operational risks and financing constraints. On the contrary, non-state-owned enterprises have higher difficulty in loan financing and greater financial pressure. Therefore, it is more dependent on the capital market for financing. This leads to the second research hypothesis:

H2: Under the influence of the new crown pneumonia epidemic, listed companies with higher financing constraints have stronger earnings management.

3. Research Data and Research Design

3.1. Research Data

This paper selects A-share listed companies in Shanghai and Shenzhen stock exchanges from 2018 to the second quarter of 2021 as the research object. The financial data in this paper are mainly from the CSMAR database. With reference to the existing literature, the data are processed as follows: excluding newly listed companies from 2018 to 2021; excluding ST and financial industry listed companies; excluding samples with missing data. All continuous variables were tailed at the 1% and 99th percentiles to avoid the influence of extreme values. We end up with 15,870 public company-quarter observations.

3.2. Research Design

To verify the research hypothesis H1 proposed in this paper, we set up the following empirical model (1):

$$|DA|_{it} = \alpha_0 + \alpha_1 Post_{it} + \alpha_2 Size_{i(t-1)} + \alpha_3 CFO_{it}$$
$$+\alpha_4 LEV_{it} + \alpha_5 Growth_{it} + \alpha_6 ROA_{it}$$
$$+\alpha_7 Invrec_{it} + \alpha_8 Big4_{it} + \alpha_9 Shratio_{it} \quad (1)$$
$$+\alpha_{10} Idtio_{it} + \alpha_{11} Dual_{it} + \alpha_{12} Bdsize_{it}$$
$$+\alpha_{13} Income_{it} + \delta_d + \omega_t + \varepsilon_{it}$$

For accrual earnings management (DA), this paper adopts the controllable accrual profit obtained by the modified Jones model (Dechow et al., 1995[14], and we define the absolute value of DA (|DA|) as the company's current year Manipulating accrued profit as the explained variable of regression analysis, the higher the |DA| value, the higher the degree of the company's earnings management. This paper uses a dummy variable to measure the new crown epidemic (Post). Since the new crown outbreak occurred in the first quarter of 2020, it is defined as 0 before the outbreak of the new crown and 1 after the outbreak.

Referring to the studies of Sun Jian et al. (2016)[15], Zhou Aimin et al. (2021)[16], and Sun Xuejiao et al. (2021)[17], this paper selects company size (Size), cash flow from operating activities (CFO), assets and liabilities Rate (LEV), Company Growth (Growth), Return on Assets (ROA), Earnings Management Flexibility (Invrec), Firm Type (Big4), Ownership Concentration (Shratio), Ratio of Independent Directors (Idtio), Dual Role of the Board Chairman (Dual), board size (Bdsize), and executive compensation (Income) are used as control variables. In addition, the model also controls the province effect, industry effect and time effect is a random error term. All variable symbols and definitions are listed in Table 1.

Table 1. Variable settings and definitions

Variable Type	Variable Name	Variable Symbol	Variable Definitions
Explained Variable	Earnings Management	|DA|	The absolute value of the residual accrued profit for maneuverability obtained by regression using the modified Jones model
		|DA+|	The absolute value of positive earnings management
		|DA-|	The absolute value of negative earnings management
Explanatory variable	COVID-19 outbreak	Post	0 before the outbreak, 1 otherwise
control variables	Company Size	Size	q-1 Natural logarithm of total assets at the end of the period
	Net cash flow ratio from operating activities	CFO	Cash flow from operating activities divided by total assets at the end of the period
	Asset-liability ratio	LEV	Total Liabilities divided by Total Assets
	Company growth	Growth	market value divided by book value
	Return on Assets	ROA	Net profit divided by Total assets
	Earnings Management Flexibility	Invrec	(Inventory + Accounts Receivable) / Total Assets
	Type of accounting firm	Big4	The value is 1 if audited by the Big Four accounting firm, otherwise the value is 0
	Ownership concentration	Shratio	Shareholding ratio of the largest shareholder
	Proportion of independent directors	Idtio	Number of Independent Directors/Number of Board of Directors
	Dual position	Dual	When the two positions of the chairman and the general manager are combined, take 1, otherwise take 0
	Board size	Bdsize	Natural logarithm of total board size
	executive compensation	Income	The natural logarithm of the total compensation received by top management

4. Empirical Analysis

4.1. Descriptive Statistics

Table 2 shows the descriptive statistics of the main variables in this paper. In order to exclude the interference of outliers on the analysis results, in the following analysis |DA|, Size, CFO, LEV, Growth, ROA, Invrec, Shratio, Roid, Bdsize and Income were all processed by Winsorize (1% level). The mean value of da abs, the characterization variable of accrual earnings management, is 0.029, and the median is only 0.019, indicating that the sample companies generally carry out earnings management with different degrees. The mean and median company size (Size) show little difference between sample companies. The average value of the

asset-liability ratio (Lev) is 0.422, indicating that Chinese listed companies generally prefer equity financing. The mean of Invre is 0.270, which means that the inventory and accounts receivable of the listed companies in the sample account for about 27.0% of the total assets. Only 5.8% of the sample companies hired the "Big Four" accounting firms. The average shareholding ratio of the largest shareholder is 22.9%, and from the perspective of the 25% quantile and the median value, more than half of the listed companies have a relatively high shareholding concentration. The distribution of the remaining variables is basically consistent with the existing literature.

Table 2: Descriptive statistics of main variables

variable	N	mean	p50	p25	p75	sd	min	max
|DA|	44436	0.0290	0.0190	0.00800	0.0380	0.0330	0	0.190

Post	44436	0.429	0	0	1	0.495	0	1
Size	44436	22.35	22.18	21.40	23.10	1.319	19.97	26.37
CFO	44436	0.209	0.132	0.0730	0.228	0.300	0.00400	2.319
LEV	44436	0.422	0.414	0.266	0.564	0.198	0.0640	0.887
Growth	44436	1.882	1.496	1.157	2.098	1.237	0.763	8.378
ROA	44436	0.0230	0.0170	0.00500	0.0380	0.0380	-0.138	0.152
Invrec	44436	0.270	0.254	0.147	0.369	0.160	0.0110	0.714
Big4	44436	0.0580	0	0	0	0.234	0	1
Shratio	44436	0.229	0.231	0	0.357	0.180	0	0.657
Roid	44436	0.379	0.364	0.333	0.429	0.0540	0.333	0.571
Dual	44436	0.289	0	0	1	0.453	0	1
Bdsize	44436	2.108	2.197	1.946	2.197	0.196	1.609	2.639
Income	44352	15.49	15.44	15.03	15.90	0.683	13.92	17.46

4.2. Correlation Analysis

Table 3 is the correlation coefficient table of the main variables in this paper. As can be seen from Table 3, the Pearson correlation coefficient between |DA| and Post is -0.011, which is statistically significant within the 5% level, indicating that the outbreak of the COVID-19 affects the degree of earnings management. Size, Big4, Bdsize, and Income are all significantly negatively correlated with |DA| at the 1% level, indicating that the larger the scale, hiring the Big Four Accounting Firms, the larger the board size, and the higher executive compensation, the lower the level of earnings management. Except that the correlation coefficient between |DA| and Shratio is not significant, the correlation coefficient with other variables can be significant at the 1% level. In addition, the maximum value of the correlation coefficient of each variable does not exceed 0.5, and the tested variance inflation factor VIF is less than 1.5, which also shows that the model does not have serious multicollinearity problems.

Table 3: Correlation analysis

	|DA|	Post	Size	CFO	LEV	Growth	ROA
|DA|	1						
Post	-0.011**	1					
	0.0218						
Size	-0.082***	-0.009*	1				
	0	0.0519					
CFO	0.051***	0.095***	0.131***	1			
	0	0	0				
LEV	0.057***	0.049***	0.420***	-0.138***	1		
	0	0	0	0			
Growth	0.079***	0.098***	-0.296***	0.174***	-0.276***	1	
	0	0	0	0	0		
Roa	-0.107***	-0.082***	0.013***	0.026***	-0.286***	0.201***	1
	0	0	0.00610	0	0	0	
Big4	-0.054***	0.00600	0.272***	-0.012***	0.108***	-0.053***	0.025***
	0	0.232	0	0.00890	0	0	0
Shratio	-0.00400	-0.026***	0.041***	-0.077***	0.011**	-0.016***	0.017***
	0.435	0	0	0	0.0247	0.00100	0.000500
Roid	0.017***	0.00800	-0.016***	-0.012***	0	0.048***	-0.00400
	0.000400	0.109	0.00100	0.00880	0.968	0	0.383
Dual	0.013***	-0.00700	-0.177***	0.012**	-0.123***	0.115***	0.037***
	0.00450	0.119	0	0.0120	0	0	0
Bdsize	-0.059***	-0.00600	0.244***	-0.025***	0.137***	-0.118***	-0.00200
	0	0.232	0	0	0	0	0.680

	Big4	Shratio	Roid	Dual	Bdsize	Invrec	Income
Invrec	0.124***	-0.051***	-0.071***	-0.071***	0.226***	-0.028***	-0.085***
	0	0	0	0	0	0	0
Income	-0.056***	0.081***	0.422***	-0.101***	0.178***	-0.055***	0.160***
	0	0	0	0	0	0	0

Continuation table 3

	Big4	Shratio	Roid	Dual	Bdsize	Invrec	Income
Big4	1						
Shratio	-0.014***	1					
	0.00360						
Roid	0.025***	0.021***	1				
	0	0					
Dual	-0.073***	-0.015***	0.115***	1			
	0	0.00210	0				
Bdsize	0.073***	-0.022***	-0.577***	-0.184***	1		
	0	0	0	0			
Invrec	-0.065***	0.037***	0.00200	0.038***	-0.073***	1	
	0	0	0.711	0	0		
Income	0.244***	-0.013***	-0.076***	-0.095***	0.207***	0.025***	1
	0	0.00760	0	0	0	0	

4.3. Regression Analysis

To test the hypotheses proposed in this paper, the variables were set according to the model in the research design section, with |DA| as the dependent variable, Post and other control variables as independent variables, and a two-way fixed-effects model (company and year) was used for regression analysis. Table 4 shows the regression results. Model (1) in Table 4 is a two-way fixed-effect model that only verifies the degree of the outbreak of COVID-19 (Post) on the earnings management of listed companies. The regression results of the total sample show that the regression coefficient of Post is 0.015, and it is significant at the 1% level. This shows that the outbreak of the new crown epidemic has led listed companies to generally improve their earnings management to alleviate the impact of the epidemic on enterprises. Model (2) gradually added company characteristics and corporate governance control variables. The results showed that the Post coefficients of each model were significantly positive at the 1% level, and with the addition of control variables, the models were gradually optimized. Among the control variables, the Lev regression coefficient is significantly positive at the 5% level, indicating that the higher the asset-liability ratio of listed companies, the more likely they are to carry out aggressive earnings management behaviors. The regression coefficient of Growth is significantly negative at the 1% level, indicating that listed companies with higher growth have lower earnings management margins or weaker earnings management motives. The Invrec regression coefficient is significantly positive at the 1% level, indicating that listed companies with higher inventory ratios and accounts receivable sales are more likely to conduct earnings management. The regression coefficient of ROA is significantly negative at the 1% level, indicating that the higher the total asset-liability ratio, the better the profitability of the company, the lower the possibility of earnings management. This is consistent with the findings of Chen Deqiu et al. (2018). From the perspective of corporate governance, Income's regression coefficient is significantly positive at the 1% level, which proves that listed companies that give executives higher salaries may have stronger earnings management motivations for management.

Table 4: Regression results

	(1)	(2)	(3)	(4)
VARIABLES	**|DA|**	**|DA|**	**|DA+|**	**|DA-|**
Post	0.015***	0.017***	0.015***	0.012***
	(24.83)	(23.95)	(17.25)	(9.98)
Size		-0.000	0.000	-0.001**
		(-0.73)	(0.63)	(-2.03)
Cfo		0.001	-0.002	0.005***
		(1.38)	(-1.45)	(4.12)
Lev		0.008**	0.005	0.024***
		(2.01)	(1.04)	(4.02)
Growth		0.002***	0.000	0.003***
		(5.30)	(1.09)	(5.16)
ROA		-0.194***	0.243***	-0.463***
		(-16.52)	(16.11)	(-31.76)
Invrec		0.022***	0.054***	-0.033***
		(4.42)	(8.09)	(-4.54)
Big4		-0.002	-0.005	-0.001
		(-0.72)	(-1.26)	(-0.25)
Shratio		0.001	-0.000	0.003
		(0.19)	(-0.04)	(0.23)
Roid		0.003	0.011	-0.007

		(0.35)	(0.88)	(-0.46)
Dual		0.000	0.000	-0.000
		(0.53)	(0.28)	(-0.33)
Bdsize		0.003	0.002	0.004
		(1.04)	(0.35)	(0.68)
Income		0.004***	0.000	0.005***
		(3.52)	(0.27)	(3.64)
Years	2018q1-2021q2	2018q1-2021q2	2018q1-2021q2	2018q1-2021q2
id_effect	yes	yes	yes	yes
time_effect	yes	yes	yes	yes
cluster	yes	yes	yes	yes
test_time	264.258	257.714	55.642	301.139
test_time_pval	0.000	0.000	0.000	0.000
r2_a	0.114	0.152	0.137	0.362

* p < 0.1, ** p < 0.05, *** p < 0.01

Further add models (3) and (4) to perform regression analysis on positive earnings management samples and negative earnings management samples respectively. The empirical results show that under both samples, the earnings management coefficient of listed companies is significantly positive at the 1% level, indicating that there is a significant positive correlation between the degree of positive earnings management and the degree of negative earnings management of listed companies and the outbreak of the new crown epidemic. After the outbreak of the new crown epidemic, some listed companies managed to manage their earnings upwards in order to meet the expectations of external investors or to obtain higher remuneration. At the same time, there were also companies with large scale and good profitability. Profits and downward earnings management.

Through the above empirical results, it is found that after the outbreak of the new crown epidemic, the motivation of listed companies to carry out earnings management will increase, indicating that the outbreak of the new crown epidemic has led listed companies to generally improve the degree of earnings management. The empirical results are consistent with the previous theory and strongly support the H1 proposed in this paper.

4.4. Further Analysis

In order to further verify the impact of the financing constraints of listed companies on earnings management under the new crown epidemic, this paper draws on the practice of Wei Hao et al. (2019) to measure the level of financing constraints of enterprises from the perspective of internal financing and external financing constraints. , using seven financial indicators to construct a comprehensive indicator ScoreA to measure financing constraints. According to the industry median of ScoreA in each quarter, listed companies are divided into high financing constraint group and low financing constraint group, and regressions are carried out respectively. The regression results are shown in Table 5.

Table 5: Grouped regression results

	(1)	(2)
VARIABLES	**High financing constraints**	**Low financing constraints**
	|DA|	|DA|
post	0.020***	0.018***
	(17.47)	(16.83)
size	0.000	0.000
	(0.19)	(0.61)
cfo	0.000	-0.000
	(0.26)	(-0.07)
lev	-0.006**	-0.010***
	(-2.15)	(-3.89)
growth	-0.000	0.001**
	(-0.35)	(2.11)
roa	-0.216***	-0.283***
	(-8.28)	(-11.82)
big4	-0.003	-0.004
	(-0.61)	(-0.98)
shratio	0.019*	0.000
	(1.73)	(0.04)
roid	0.012	-0.034**
	(0.89)	(-2.23)
dual	-0.001	0.002
	(-0.44)	(1.41)
bdsize	0.005	-0.007
	(1.22)	(-1.28)
invrec	0.028**	0.027***
	(2.37)	(3.20)
income	0.004***	0.004**
	(2.94)	(2.52)
Constant	-0.075***	-0.026
	(-2.79)	(-0.82)
Observations	23232	21120
Number of id	3172	3171
R-squared	0.18	0.24

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5 divides listed companies into a high financing constraint group and a low financing constraint group according to the constructed comprehensive index of corporate financing constraints, SCOREA, and conduct regressions respectively to study the impact of the impact of the epidemic on the degree of earnings management of listed companies. The study found that both in the high financing constraint group and the low financing constraint group, after the outbreak of the new crown epidemic, the degree of earnings management of listed companies increased significantly. This shows that the new crown epidemic has had an impact on listed companies across the industry. In addition, the Post coefficient of the high financing constraint group is higher than that of the low financing constraint group, that is, listed companies with higher financing constraints have a stronger degree of earnings management after the outbreak of the new crown epidemic, which is consistent with the H2 conclusion.

4.5. Robustness Check

In addition to the above analysis, this paper also conducts the following robustness tests:

1. In order to eliminate the impact of seasonality on the financial situation of enterprises, and in view of the outbreak of the new crown pneumonia epidemic in the

first half of 2020, the data from the first half of 2018 to 2021 was selected for the analysis of sub-sample earnings management. Column (1) in Table 6 reports the regression results of this sample. The regression coefficient of Post is 0.013, which is still significant at the 1% level, indicating that the outbreak of the new crown epidemic has caused listed companies to increase the level of earnings management. The conclusion is consistent with the text.

2. Substitute variables. The Jones model (Jones, 1991) is used to carry out the regression by industry and year, and the obtained residual is the earnings management (DA_J), which re-examines the previous conclusion. Column (2) in Table 6 shows that after the outbreak of the new crown epidemic, listed companies generally carried out earnings management, and the degree increased. The research hypotheses were tested again.

Table 6: Robustness check

VARIABLES	(1) $|DA|$	(2) $|DA\_J|$
Post	0.013***	0.017***
	(15.58)	(21.07)
Size	0.000	-0.001**
	(0.03)	(-2.03)
CFO	0.000	0.004***
	(1.57)	(2.90)
LEV	0.003**	0.010*
	(2.33)	(1.84)
Growth	0.000	0.003***
	(0.68)	(6.92)
ROA	0.157***	-0.285***
	(5.33)	(-15.28)
Big4	0.001	-0.002
	(0.25)	(-0.74)
Shratio	-0.007	0.004
	(-0.96)	(0.53)
Roid	-0.001	-0.000
	(-0.07)	(-0.03)
Dual	-0.001	-0.000
	(-0.62)	(-0.38)
Bdsize	0.000	0.004
	(0.15)	(1.00)
Invrec	0.019**	0.017**
	(2.43)	(2.05)
Income	0.002**	0.004***
	(2.18)	(3.58)
Constant	-0.021	-0.053**
	(-1.18)	(-2.32)
Observations	25344	44350
Number of id	3172	3172
R-squared	0.09	0.15

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5. Research Conclusions and Shortcomings

Using the data of 3,174 listed companies in my country from 2018 to the second quarter of 2021 as a sample, based on prospect theory, this paper empirically studies the impact of the exogenous event of the outbreak of the new crown epidemic on the degree of earnings management of listed companies. To control for differences between individuals and time, a two-way fixed-effects model was used to conduct empirical tests. The study found that after the outbreak of the new crown epidemic, listed companies significantly increased the degree of earnings management. After further distinguishing between positive earnings management and negative earnings management, it is found that the degree of positive earnings management and negative earnings management of listed companies has increased significantly after the outbreak of the new crown epidemic. After a series of robustness tests such as subsample tests and substitution variables, the empirical results remain unchanged.

The research in this paper provides evidence that the COVID-19 outbreak affects corporate earnings management. However, further research is needed on the following issues: (1) This paper only studies the changes in accrual earnings management after the outbreak of the new crown epidemic, so how will the real earnings management behavior change? (2) After the outbreak of the new crown epidemic, there are significant changes in earnings management, can it be explained by other theories? (3) The new crown pneumonia epidemic is one of the most serious public health events in the past ten years. Will the government give more subsidies and policy preferences for this. These unanswered questions await further research.

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