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Evidence from China

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Margin trading and value relevance of earnings: Evidence from China

Abstract: Information asymmetry and accounting information effectiveness are important issues in the capital market. Based on a sample of China's A-share listed companies from 2007 to 2021, this paper studies the impact of China's margin trading and short-selling policy on the value relevance of earnings and the mechanism of the phenomenon. We find that, compared with companies that are not included in margin trading and short selling lists, the earnings value relevance of listed companies increases significantly after allowing for short selling. In addition, margin trading and short selling improve the value relevance of earnings more significantly for firms with higher agency costs and lower information transparency. We show that margin trading and short-selling policy affect the effectiveness of accounting information by reducing agency costs and improving the transparency of firms' information.

KEY WORDS: Margin trading; short selling; value relevance of earnings; agency costs; information transparency

1. Introduction

Margin trading and short selling are mature and widespread mechanisms in developed countries that can effectively increase liquidity and reduce market risks. These mechanisms allow the views of both optimistic and pessimistic investors to be effectively reflected in stock prices (Miller, 1977), thereby reducing internal and external information asymmetry, improving stock pricing efficiency, and ensuring the stability of the capital market. Because of the imperfect institutional system and legal rules of China's capital market, margin trading and short selling were gradually implemented after 2005. During the period from 2006 to 2010, China continuously improved the regulatory system of margin trading and short selling and officially launched the trading system in March 2010. The implementation of margin trading means the end of the era of "unilateral quotation" in China's secondary market, which is a marked change in the trading system of China's securities market in recent years. This system liberalizes the trading control of investors using leverage to do long or short stocks. It is of great significance to increase the completeness of the trading system of China's securities market and enhance the vitality and effectiveness of the market. In August 2019, the scale of the underlying stocks of the margin trading business of China's securities market underwent the 6th expansion of capacity, from the initial 90 to 1,600. As of the end of 2022, the total number of margin trading and short selling targets in the Shanghai and Shenzhen stock markets in China was approximately 2,200, and the number of credit accounts exceeded 6.3 million, achieving full coverage of the constituent stocks of the CSI 300 Index. The development of margin trading and short-selling mechanisms is also an important practical issue to be considered in implementing China's "deleveraging" policy.

With the rapid development and wide coverage of margin trading, its economic effects have also become a focus of attention in practical and theoretical fields, including its impact

on information asymmetry. On the one hand, most of the short positions are held by investors who do not consider whether the stock price is overvalued, such as hedge funds, and therefore do not affect the information content of the stock price. On the other hand, manipulative short selling may depress stock prices, causing them to be lower than the fundamental value. For example, Henry and Koski (2010) found that higher short selling ratios were related to a higher degree of discount issuance. In addition, the negative information content of stock values did not significantly increase in the early stage of the implementation of the policy (Xu and Chen, 2012). The strict selection criteria for target stocks make it difficult for the short selling mechanism to apply, and the leverage effect brought by margin trading increases the risk of investors following the trend and chasing the rise, intensifying the risk of stock price collapse (Chu and Fang, 2016). Researchers have also found that margin trading and short-selling systems increase optimism bias in analysts' forecasts, reducing stock pricing efficiency (Chu et al., 2019).

The impact of margin trading and short selling on the information asymmetry of the capital market has not yet reached a unified conclusion, and there is no research or empirical verification of the impact of margin trading and short selling on the usefulness of accounting information. Therefore, we explore the value relevance of earnings as an indicator of the usefulness of accounting information and research the impact of margin trading and short selling on it.

Considering that the implementation of margin trading and short-selling trading provides us with a good quasinatural model, we use a difference-in-difference (DID) model to study the impact of margin trading and short selling on the value relevance of earnings. We find that compared to firms that are not allowing margin trading and short selling, the value relevance of earnings of listed companies significantly increased after being included in the marginal trading list. We show that margin trading and short selling strengthen investor attention to reduce information asymmetry, thus improving the value relevance of earnings. In addition, we also find that this effect is more pronounced in firms with higher agency costs and lower corporate transparency.

By studying the impact of margin trading and short selling on the value relevance of earnings, this paper shows the economic consequences of margin trading and short selling policy, which is useful in understanding the policy. In addition, we also expand the research on the influencing factors of the value relevance of earnings.

2. Theoretical Analysis and Hypothesis.

The value relevance of earnings refers to the correlation relationship between the accounting surplus of a company and its securities market value, representing the degree of dependence of a company's stock price on financial information. It is the main reflection of the usefulness of accounting information in the capital market. In 1968, Ball and Brown's research first confirmed the existence of the value relevance of earnings. Since then, the existence and influencing factors of the value relevance of earnings have been important issues for scholars. Currently, research on the influencing factors of the correlation of surplus value mainly focuses on two areas: the external environment of the capital market and capital

market participants. Regarding capital market participants, existing research believes that factors such as the equity structure (Fan and Wong, 2002), nature of controlling shareholders (Wang and Tong, 2006), corporate governance quality (Chen and Chen, 2007), and enterprise strategy (Ye et al., 2014) all have a significant impact on the value relevance of earnings. The research on capital market environmental factors mainly focuses on accounting policy reforms (Chen and Chen, 2007; Tan and Cai, 2009; Oliver, 2016) and market supervision environments, such as media reports (Miller, 2006; Bushee et al. 2010; Yan and Zeng, 2018) and analyst forecasts (Yu, 2007).

As an important component of the capital market, the margin trading and short selling system provides new operational paths for leveraged trading and securities lending for Chinese investors, which has important impacts on market volatility and liquidity and has certain enterprise governance effects. Regarding market volatility, some scholars believe that short selling will increase volatility due to many factors, such as the irrational emotions of investors (Bogen and Krooss, 1960; Allen et al., 1993), while other scholars believe that short-selling restrictions will keep well-informed pessimistic traders outside the securities market, causing a shortage of stocks and increasing volatility (Miller, 1977; Diamond and Verrecchia, 1987), and the long-term accumulation of negative news will cause a stock price crash, exacerbating market volatility (Hong and Stain, 2003). Regarding liquidity, the literature indicates that margin trading and short selling reduce the liquidity of stocks (Yao and Yao, 2016) or have no significant relationship with liquidity (Dong et al., 2014), but more scholars hold opposing views. For example, through research on the Hong Kong market, researchers found that the relaxation of short-selling constraints reduces stock trading costs and improves liquidity (Gao et al., 2006). Regarding corporate governance, existing research believes that mechanisms, especially short selling, can significantly reduce the level of earnings management of enterprises (Chen and Liu, 2014; Massa et al., 2015). In addition, margin trading and short selling can also improve a company's innovation efficiency and number of patent applications (Quan and Yin, 2017), reduce the company's expense stickiness (Hong and Sui, 2019), improve the company's M&A performance (Chen and Ma, 2017), and reduce the company's financial leverage by enlarging the negative impact of financial risks (Peng et al., 2021).

In addition, there are three main views in the literature regarding whether margin trading and short selling improve stock pricing efficiency and alleviate information asymmetry. The negative view points out that leverage trading amplifies investors' irrational emotions, and short selling may cause stock prices to be undervalued, leading to deviations from fundamentals. The positive view indicates that margin trading and short selling can effectively increase investors' attention to listed companies and promote their information disclosure, reducing information asymmetry in capital markets and promoting the effective transmission of accounting information. The neutral view believes that China's margin trading and short-selling policy does not have an impact on information asymmetry due to the short implementation period and strict selection criteria for target stocks. Therefore, we believe that China's margin trading and short selling policy may have multiple effects on the

value relevance of earnings.

Margin trading and short selling may reduce the value relevance of the earnings of listed companies. By introducing a leverage trading mechanism, some scholars believe that margin trading will amplify investors' emotions and provide more channels for investors to follow the trend and chase the rise, causing the stock price to deviate from the fundamentals and increasing the risk of a stock price collapse. Similarly, the introduction of a short-selling mechanism creates the possibility of manipulative short selling, so short-selling behavior may temporarily depress the stock price, making it lower than the fundamental value. Therefore, margin trading and short selling may cause the stock price to deviate from the fundamentals and reduce the value relevance of earnings.

Margin trading and short selling may also increase the value relevance of the earnings of listed companies. Short selling mechanisms can effectively reflect the views of both pessimistic and optimistic investors in stock prices (Miller, 1977), and because of the high cost and the infinite downwards risk, short positions are mainly held by investors who have internal information or sophisticated or institutional investors. They use more comprehensive or accurate information to make investment decisions, making stock prices more reflective of a company's true situation and making more future earnings information involved in stock prices (Drake et al., 2015). Chinese research also acknowledges that margin trading and short selling can improve the pricing efficiency of stocks by increasing liquidity, reducing information asymmetry, and widening shareholdings (Li et al., 2015). Therefore, the introduction of margin trading and short-selling policy can ultimately improve the value relevance of earnings.

Therefore, we propose the following opposing hypotheses:

H1: Margin trading and short selling significantly increase the value relevance of the earnings of listed companies.

3 Research Design

3.1 Sample Selection and Data Source

As margin trading and short selling in China officially began in 2010, this study selected A-share listed companies between 2007 and 2021 as research samples. Additionally, the selected samples are cleaned as follows. (i) We excluded listed companies in the financial industry. (ii) Samples of companies that have been specially treated by exchanges (ST, *ST, delisted) were excluded. (iii) Firms with negative net assets were excluded. (iv) Samples with missing data were deleted. (v) All continuous variables are winsorized at the 1% and 99% levels. After processing, a total of 34,180 company-year samples from 3,453 companies were obtained, including 19,849 samples from 1,627 companies in the experimental group and 15,231 samples from 1,826 companies in the control group. To eliminate the influence of heteroscedasticity and other factors, we performed cluster processing on individual dimensions for standard errors in all regressions. All capital market transaction data, financial data, and margin trading and short-selling data involved in this study come from the CSMAR database.

3.2 Model and Variable Definition

According to the literature (Easton and Harris, 1991; Peng and Tang, 2019), we use model (1) of earnings and market reaction to test the existence of earnings value correlation. Finally, we use Ohlson's (1995) price model to test our conclusion. In model (1), $R_{i,t}$ represents the annual investment return rate of company i 's stock in year t , considering cash dividends reinvested. $EPS_{i,t}/P_{i,t-1}$ is the accounting earnings variable that reflects the company's earnings level for year t . $EPS_{i,t}$ represents the earnings per share of company i in year t , while $P_{i,t-1}$ is the per-share stock price of company i at the beginning of year t . The parameter β_1 represents the level of the company's earnings value correlation, which is the value relevance of earnings, and represents the degree to which the company's earnings information is reflected in the company's stock price.

$$R_{i,t} = \beta_0 + \beta_1 EPS_{i,t}/P_{i,t-1} + \varepsilon_i \quad (1)$$

We construct dummy variable $Margin_{i,t}$, taking the value of 1 if company i 's stock is the target of margin trading and short-selling policy in year t and beyond and 0 otherwise. Following previous studies (Fan and Wong, 2002; Wang and Tong, 2006), we selected control variables that cover the main characteristics of listed companies and factors that affect the value relevance of earnings, including the company's asset size (Size), the proportion of shares held by the largest shareholder (TOP), net asset value per share (BVPS), debt-to-equity ratio (Lev), growth of company assets (Growth), shareholding of the management (Mshare), and proportion of institutional investors (IO). Considering the volatile nature of the stock market, we controlled for the impact of annual variables (Year).

Previous literature has mostly examined the impact of key variables on the value relevance of earnings by adding interaction terms between earnings indicators and key variables to the model (Fan and Wong, 2002; Wang and Tong, 2006). Therefore, we add the interaction between earnings indicators and margin trading and short-selling variables to model (1) and construct model (2) with control variables to test our hypothesis: the impact of the key variables of margin trading and short selling on the value relevance of earnings.

$$R_{i,t} = \beta_0 + \beta_1 EPS_{i,t}/P_{i,t-1} + \beta_2 Margin_{i,t} + \beta_3 Margin_{i,t} * EPS_{i,t}/P_{i,t-1} + \Sigma Controls_{i,t} + \varepsilon_i \quad (2)$$

In this model, the regression coefficient β_3 of the interaction term $Margin*(EPS/P)$ is the focus of this article, as it represents the change in value relevance of earnings after the inclusion in margin trading and short-selling targets compared to those that are not included. A significantly negative β_3 indicates that the inclusion of companies in margin trading and short-selling targets reduces the value relevance of earnings; a significantly positive β_3 indicates that the inclusion of companies in margin trading and short-selling targets increases the value relevance of earnings; if β_3 is not significant, it means that the inclusion of companies in margin trading and short-selling targets has no impact on the value relevance of

earnings.

4. Empirical Results Analysis

4.1 Descriptive statistics

The descriptive statistics of the variables in this paper are shown in Table 1. There are a total of 34,180 data points. The descriptive statistics of the explanatory and explained variables show that the mean of the investment return rate (R) is 0.213, with a minimum of -0.692 and a maximum of 3.062, indicating significant differences in the returns of different stocks. The mean of the earnings proxy variable (EPS/P) is 0.023, with a minimum of -0.579 and a maximum of 1.122, suggesting significant variations in the earnings of different companies. The mean of the virtual variable for margin trading and short selling (Margin) is 0.288, indicating that less than 30% of the samples were classified as margin trading and short selling targets, which is consistent with the actual situation.

Table 1: Sample descriptive statistics results

Variables	Size	Mean	St. Error	Min	Median	Max
$R_{i,t}$	34,180	0.213	0.682	-0.692	0.346	3.062
$EPS_{i,t}$	34,180	0.356	0.562	-1.390	0.260	2.692
$P_{i,t-1}$	34,180	16.279	15.653	2.40	11.19	93.99
$EPS_{i,t}/P_{i,t-1}$	34,180	0.023	0.056	-0.579	0.021	1.122
$Margin_{i,t}$	34,180	0.288	0.453	0	0	1
$Size_{i,t}$	34,180	9.623	0.590	4.709	9.547	12.437
$TOP_{i,t}$	34,180	34.581	14.933	8.53	32.35	74.57
$BVPS_{i,t}$	34,180	4.914	3.318	0.117	4.132	19.370
$Lev_{i,t}$	34,180	0.443	0.210	0.056	0.437	0.952
$Growth_{i,t}$	34,180	0.168	0.344	-0.334	0.093	2.353
$Mshare_{i,t}$	34,180	0.532	0.499	0	1	1

4. Empirical Results

4.1 Baseline Regression

We apply a fixed effects model to preliminarily verify the existence of the value relevance of earnings, and the results in the first and second columns of Table 2 show that regardless of whether company characteristics are considered, when only the stock investment return rate (R) is regressed against the enterprise accounting earnings level (EPS/P), the coefficient of EPS/P is significantly positive, indicating that there is a great correlation between the company's stock investment return rate and the company's earnings, which means that the value relevance of earnings exists.

After considering the influence of margin trading and short selling, it can be seen from the regression results in the third column of Table 2 that, without considering company characteristics, the coefficient of the interaction term $Margin * EPS/P$ is 0.3594 and significant

at the 5% level. In addition, from the results in the fourth column of Table 2, after considering company characteristics, the coefficient of the interaction term Margin*EPS/P is 0.5592 and significant at the 1% level. The above results all prove hypothesis 2, that margin trading and short selling increase the value relevance of the earnings of listed companies.

Table 2: Baseline results

VARIABLES	(1) R	(2) R	(3) R	(4) R
Margin*EPS/P			0.3594** (1.9813)	0.5592*** (2.9462)
EPS/P	1.8729*** (18.7043)	1.7094*** (15.4073)	1.7592*** (14.0817)	1.5210*** (11.6277)
Margin			-0.0734*** (-6.8692)	-0.0241** (-2.2246)
Size		-0.2622*** (-11.9343)		-0.2607*** (-11.9277)
TOP		0.0014*** (3.0242)		0.0014*** (2.9843)
BVPS		-0.0048** (-2.5202)		-0.0053*** (-2.7517)
Lev		0.2541*** (7.4291)		0.2508*** (7.4174)
Growth		0.1449*** (13.3049)		0.1466*** (13.3923)
Mshare		0.0176* (1.7257)		0.0171* (1.6774)
IO		0.0169*** (26.7727)		0.0169*** (26.6234)
Constant	1.7634*** (75.8115)	3.8588*** (20.1346)	1.7604*** (74.9136)	3.8553*** (20.2270)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Cluster	Yes	Yes	Yes	Yes
Observations	34,180	34,180	34,180	34,180
R-squared	0.5940	0.6184	0.5948	0.6187

This table presents robust regression estimation results for Models (1) and (2), in which the dependent variable is investment returns ($R_{i,t}$). Columns (1) and (2) present the results from estimating Model (1). Columns (3) and (4) present the results from estimating Models (2) and (3). T test statistics are reported under the coefficient estimates. All variables are truncated at the 1st and 99th percentiles. Variable definitions are provided in Table 1. Entity fixed effects and year fixed effects are included in the model but are not reported. Coefficients of interest are in bold. ***, **, and * represent significance at the 1, 5, and 10% levels, respectively, using a two-tailed t test.

4.2 Analysis of Internal Mechanisms

Based on previous research, we preliminarily concluded that margin trading and short selling could significantly improve the value relevance of earnings. Referring to the literature and theoretical analysis, we speculate that margin trading and short selling can affect the value relevance of earnings through two internal methods: reducing agency costs and improving corporate information transparency.

Following the literature (James et al., 2000; Li, 2007), we use the management expense ratio (MEA) and total asset turnover ratio (TAT) to measure agency costs. The regression results are shown in Table 3. Columns (1) and (3) represent the low agency cost group, while columns (2) and (4) represent the high agency cost group. From the regression results, for the group with higher agency costs, the coefficient of the interaction term Margin*EPS/P is significantly positive at the 1% level. Meanwhile, the coefficients of the interaction term Margin*EPS/P are not significant for the group with lower agency costs. These results indicate that the higher the agency costs of listed companies are, the more significantly margin trading and short selling can improve the value relevance of earnings.

Table 3 Cross-sectional heterogeneity: Agency Costs

	(1)	(2)	(3)	(4)
Group	Low MEA	High MEA	High TAT	Low TAT
VARIABLES	R	R	R	R
Margin*EPS/P	0.2286 (0.8283)	0.6807*** (2.8440)	0.2613 (0.8534)	0.6725*** (3.1589)
EPS/P	2.4343*** (10.8328)	0.9504*** (6.3143)	2.4416*** (10.3724)	0.8928*** (5.9094)
Margin	-0.0310* (-1.8248)	-0.0013 (-0.0828)	-0.0168 (-0.9112)	-0.0173 (-1.1409)
Size	-0.3463*** (-10.9175)	-0.2312*** (-8.5823)	-0.3298*** (-10.3225)	-0.2324*** (-8.8816)
TOP	0.0018** (2.4326)	0.0018*** (2.6076)	0.0023*** (3.2120)	0.0015** (2.1496)
BVPS	-0.0017 (-0.6204)	-0.0089*** (-3.1490)	-0.0027 (-0.9192)	-0.0076*** (-2.6751)
Lev	0.3987*** (8.3044)	0.2010*** (4.5787)	0.3339*** (6.6405)	0.2230*** (5.0953)
Growth	0.1554*** (10.4633)	0.1317*** (8.9347)	0.1473*** (9.2289)	0.1333*** (8.7862)
Mshare	0.0238* (1.7272)	0.0241 (1.4826)	0.0151 (1.0594)	0.0102 (0.6306)
IO	0.0179*** (19.5527)	0.0174*** (18.5077)	0.0170*** (18.7549)	0.0178*** (18.4959)
Constant	4.5053*** (15.6822)	3.6100*** (15.4732)	4.3547*** (15.5622)	3.6492*** (15.8328)
Year FE	Yes	Yes	Yes	Yes

Firm FE	Yes	Yes	Yes	Yes
Cluster	Yes	Yes	Yes	Yes
Observations	16,583	16,781	16,780	16,599
R-squared	0.6507	0.6308	0.6434	0.6378

This table presents robust regression estimation results for Model (1), in which the dependent variable is investment returns ($R_{i,t}$). T test statistics are reported under the coefficient estimates. All variables are truncated at the 1st and 99th percentiles. Variable definitions are provided in Table 1. Entity fixed effects and year fixed effects are included in the model but are not reported. Coefficients of interest are in bold. ***, **, and * represent significance at the 1, 5, and 10% levels, respectively, using a two-tailed t test.

In addition, information is the basis for investor decision-making and is a key factor affecting the efficiency of capital market allocation and the value relevance of earnings (Cohen et al., 2008). The literature (Wang et al., 2006) has shown that high audit quality can effectively enhance the transparency of corporate accounting information, and being audited by Big-4 accounting firms often guarantees higher audit quality. Therefore, we use whether a company is audited by Big-4 accounting firms as one of the variables to measure corporate transparency. Being audited by the Big Four accounting firms represents higher transparency. In addition, we also follow the literature (Hutton et al., 2009; Wang et al., 2009) and use the three-year cumulative absolute number of manipulative accruals (OPQUE), as measured by the modified Johns model, to measure the transparency of corporate accounting information. The smaller the OPQUE value is, the higher the accounting information transparency. The results are shown in Table 4.

Columns (1) and (3) in Table 4 represent the high information transparency group, while columns (2) and (4) represent the low information transparency group. From the regression results, regardless of whether the samples are grouped by OPQUE or by their accounting firms, the coefficient of the interaction term Margin*EPS/P is significantly positive for the low information transparency group, while it is not significant for the high information transparency group. These results suggest that, compared to companies with high information transparency, the promotion of the value relevance of earnings is more significant for companies with low information transparency.

Table 4 Cross-sectional heterogeneity: Corporate Information Transparency

	(1)	(2)	(3)	(4)
Group	Low OPQUE	High OPQUE	Big Four	NOT Big Four
VARIABLES	R	R	R	R
Margin*EPS/P	0.5384 (1.9434)	0.5629** (2.4432)	-0.9147 (-1.4241)	0.5767*** (2.9055)
EPS/P	2.3737*** (10.9216)	1.0221*** (7.1173)	3.2408*** (5.9714)	1.4704*** (11.1272)
Margin	-0.0006 (-0.0339)	-0.0190 (-1.0448)	-0.0456 (-1.0684)	-0.0250** (-2.2608)
Size	-0.2928*** (-9.1367)	-0.2481*** (-7.7254)	-0.2509* (-1.8927)	-0.2609*** (-12.1631)

Lev	0.2294*** (4.1226)	0.2558*** (5.0455)	0.5771*** (4.0192)	0.2389*** (7.0521)
Growth	0.1096*** (5.8850)	0.1567*** (10.5324)	0.1742*** (4.3193)	0.1487*** (13.5042)
Mshare	0.0120 (0.7236)	0.0236 (1.2009)	0.0621 (1.3528)	0.0158 (1.5305)
BVPS	-0.0084*** (-2.6629)	-0.0034 (-0.9058)	-0.0169** (-2.3188)	-0.0051** (-2.4985)
IO	0.0153*** (15.8928)	0.0184*** (17.7327)	0.0146*** (4.4694)	0.0172*** (26.3151)
TOP	0.0028*** (3.7135)	0.0022*** (2.8356)	0.0043 (1.6202)	0.0011** (2.3311)
Constant	4.1060*** (14.5600)	3.8026*** (13.4368)	3.3200*** (2.6991)	3.8801*** (20.7699)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Cluster	Yes	Yes	Yes	Yes
Observations	14,183	14,357	2,051	32,129
R-squared	0.6668	0.6515	0.6061	0.6253

This table presents robust regression estimation results for Model (1), in which the dependent variable is investment returns ($R_{i,t}$). T test statistics are reported under the coefficient estimates. All variables are truncated at the 1st and 99th percentiles. Variable definitions are provided in Table 1. Entity fixed effects and year fixed effects are included in the model but are not reported. Coefficients of interest are in bold. ***, **, and * represent significance at the 1, 5, and 10% levels, respectively, using a two-tailed t test.

5. Robustness Test

To verify the reliability of the previous conclusions, we conducted the following 5 robustness tests.

First, the profit model was changed to Ohlson's price model. When studying the value relevance of earnings, Ohlson's price model (3) has also been adopted by many scholars (Chen et al., 2019).

$$PM_{i,t} = \beta_0 + \beta_1 EPS_{i,t} + \varepsilon_{i,t} \quad (3)$$

where $PM_{i,t}$ represents the stock price. Considering that most listed companies disclose financial data in April and that it takes time for the market to absorb and react to financial data, we use the closing price of company i at the end of May in year t to represent $PM_{i,t}$. Other variables are defined as before. The results are presented in Column (1) of Table 5.

Second, we use alternative earnings and invest profit variables. There are studies using net profit adjusted by market value (NI) as the explanatory variable and cumulative abnormal return (CAR) as the explained variable to verify the value relevance of earnings using the profit model (Fan and Wong, 2002). The results are presented in Column (2) of Table 5.

Third, we changed the sample size. In 2019, the China Securities Regulatory Commission

(CSRC) guided the Shanghai and Shenzhen Stock Exchanges to revise the "Implementation Details for Margin Trading and Short Selling Policy", which adjusted the mechanism and details of margin trading and short selling of the capital market in China. The number of target stocks expanded from the previous 950 to 1600, making it the largest expansion in history. Considering the impact of policy adjustments on the number of target stocks and the trading details of margin trading and short selling, we divide the sample into two groups from 2019 and examine the impact before and after the revision of the details. The results of columns (3) and (4) in Table 5

The results of columns (3) and (4) in Table 5 show that the coefficient of the interaction term in the sample before 2019 is significantly positive at the 1% level, consistent with the previous conclusion. For the sample in 2019 and thereafter, the coefficient of the interaction term is not significant, indicating that after the policy adjustment, being included in the margin trading and short-selling target cannot improve the value relevance of earnings. This may be due to the rapid expansion of the number of margin trading and short selling targets in a short period, making it difficult for the market to fully verify the effect of the policy.

Table 5 Robustness Test

	(1)	(2)	(3)	(4)
Robustness Test			Before 2019	After 2019
VARIABLES	R	CAR	R	R
Margin*EPS/P			2.0287*** (6.9903)	0.0383 (0.1177)
Margin*EPS	6.1856*** (3.6482)			
Margin*NI		0.2442** (2.5288)		
EPS/P			1.5294*** (8.5518)	1.7775*** (8.8057)
EPS	3.5404*** (5.0300)			
NI		0.5198*** (8.3219)		
Margin	-1.3651 (-1.3213)	-0.0092 (-0.8887)	-0.0868*** (-5.7562)	-0.4395*** (-2.6512)
Size	-2.6477** (-2.1530)	-0.2591*** (-12.4655)	-0.3003*** (-11.3752)	-0.9968*** (-8.8657)
TOP	0.0103 (0.6185)	0.0007 (1.4764)	0.0017*** (2.9408)	0.0001 (0.0302)
BVPS	1.4893*** (13.9301)	-0.0049** (-2.5543)	-0.0077*** (-3.3807)	-0.0048 (-0.5513)
Lev	2.7851* (1.8688)	0.2502*** (7.0478)	0.2514*** (6.2552)	0.5174*** (4.2052)

Growth	1.7376*** (6.9568)	0.1515*** (7.6649)	0.1424*** (11.7150)	0.2686*** (7.2890)
Mshare	0.3543 (0.9606)	0.0205* (1.9287)	0.0203 (1.6023)	0.0124 (0.4541)
IO	0.2089*** (6.1699)	0.0134*** (25.4556)	0.0157*** (22.6488)	0.0348*** (16.3734)
Constant	34.2772*** (3.3302)	2.0467*** (11.5222)	4.2338*** (18.1959)	9.6918*** (9.2767)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Cluster	Yes	Yes	Yes	Yes
Observations	33,413	33,983	23,676	10,074
R-squared	0.5882	0.1729	0.6971	0.4274

This table presents robust regression estimation results. Column (1) presents the results from estimating Model (4), in which the dependent variable is stock price ($PM_{i,t}$). Column (2) presents the results from estimating Model (5), in which the dependent variable is cumulative abnormal return ($CAR_{i,t}$). Columns (3) and (4) present the results from estimating Model (2) in which the dependent variable is investment return ($R_{i,t}$). T test statistics are reported under the coefficient estimates. All variables are truncated at the 1st and 99th percentiles. Variable definitions are provided in Table 1. Entity fixed effects and year fixed effects are included in the model but are not reported. Coefficients of interest are in bold. ***, **, and * represent significance at the 1, 5, and 10% levels, respectively, using a two-tailed t test.

6. Conclusion

Based on the unique situation of China's margin trading and short-selling policy as a quasinnatural experiment, this paper uses a sample of A-share listed companies in China from 2007 to 2021 and applies a multiperiod DID model to investigate the specific mechanism of whether and how China's margin trading and short-selling policy can influence the value relevance of the earnings of listed companies. We find that compared to companies that are not included in the margin trading and short-selling target, firms show a significant increase in the value relevance of earnings after being allowed for marginal trading and short selling. Specifically, this effect is more pronounced in firms with higher agency costs and lower information transparency.

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