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Consequences of Earnings Management Triggered by Delisting Regulation: Evidence in China

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Consequences of earnings management triggered by delisting regulation: Evidence in China

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ABSTRACT

This paper investigates the consequences of earnings management triggered by earnings-based delisting regulations in China. Our main finding is that there is a positive relationship between earnings management to avoid delisting by firms subject to delisting regulations and the subsequent performance, measured by operating performance and recurrence of losses. The results are robust to the various performance measures, including gross margin, assets turnover, and probability of bankruptcy, indicating that performance improvement is supported by fundamentals. Although previous literature documents that firms subject to delisting opportunistically manage their earnings to circumvent regulations, the implementation of earnings management in the context of delisting regulations is in the best interest of shareholders. We confirm this argument by showing positive market consequences of earnings management induced by delisting regulations.

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1. Introduction

In China, delisting regulations set by the China Securities Regulatory Commission (CSRC) determine whether companies with consecutive losses can stay listed in the stock market. Based on the regulations, after two consecutive annual losses, companies that continue to report annual losses in the subsequent one (two) year(s) will be suspended (delisted) from trading definitively. The delisting rule in China relies heavily on earnings numbers, but its effectiveness is somehow controversial. Earning-based rules often induce earnings management behaviors to circumvent regulations (e.g., Chen and Yuan, 2004; Haw et al., 2005; Yu et al., 2006), so does delisting regulations (e.g., Jiang and Wang, 2008, Wang et al., 2005 and Wu et al., 2007). Prior research concludes that earnings management is an opportunistic strategy to avoid delisting by showing the existence of earnings management in the context of delisting regulations (e.g., Jiang and Wang, 2008; Liu and Lu, 2007).

Although earnings management triggered by delisting regulations is well-documented and defined as an opportunistic strategy, an important and unexplored issue is its subsequent consequences. As mentioned by Christie and Zimmerman (1994), "many of the empirical results interpreted as evidence of opportunism can also be interpreted as occurring for efficiency reasons." Therefore, it is important and necessary to study the consequences of earnings management caused by earnings based delisting rules. On the one hand, earnings management could be conducted by unqualified companies to opportunistically stay listed by deteriorating firms' future performance, which will result in inferior subsequent performance. In this case, earnings management leads unqualified companies to continue to be listed, which is the implicit

reason for the ineffectiveness of delisting regulations caused by circumvention.[1] We interpret this type of earnings management as "opportunism". On the other hand, the qualified companies with temporary negative shocks may also manage their earnings to avoid delisting, and those companies will deliver good future performance after successful circumvention of the regulations. Thus, for qualified firms, they would be delisted if they do not manage their earnings to circumvent delisting regulations. In that case, earnings management to avoid delisting is optimal for shareholders because good companies would be delisted otherwise. Thus, in the context of delisting regulations, the consequences of earnings management can be favorable or not harmful for shareholders, and we interpret this type of earnings management as "non-opportunism". Unless there are significantly negative consequences, as predicted by the opportunism explanation, we cannot question the appropriateness of earnings management to avoid delisting. In fact, if shareholders are confident about the future of their companies, they would want managers to manage earnings to circumvent the delisting regulations.

In this paper, we analyze the consequences of earnings management induced by delisting regulations in China. We collect the data from listed firms that have been subject to the delisting regulations due to consecutive annual losses over two years from 2002 to 2013 but have circumvented the delisting regulations successfully by reporting annual profits in the subsequent year. Our main finding is that there is a positive relationship between earnings management to avoid delisting and the subsequent performance, measured by operating performance and recurrence of losses. We use companies with small profits and companies that earned profits after only one year of losses, which share the most similarities with companies subject to the regulations, as the control sample, and a strong positive effect of earnings management on subsequent performance is observed. The results are robust to the different performance measures, including gross margin, assets turnover, and probability of bankruptcy, indicating that performance improvement is supported by fundamentals. Thus, although previous literature concludes that all earnings management to avoid delisting is opportunistic, we find that such earnings management has favorable long-term consequences for the firm.

To gain more insights about the positive consequences of earnings management triggered by delisting regulations, we perform several further tests. First, we try to identify a more direct link between the positive consequences and earnings management to avoid delisting. We show that the favorable consequences come from the companies who would be delisted without earnings management, defined as companies with negative pre-managed earnings.[2] Second, because the upwards earnings management is usually presumed to be opportunistic to avoid delisting, we make further investigation on the directions of earnings management. Our results show that the favorable consequences mainly come from companies with upwards earnings management. Third, we study the market consequences of earnings management triggered by delisting regulations to examine shareholders' wealth effects. The positive market consequences are observed, indicating earnings management in fact increases shareholders' wealth. Finally, we compare the effects of earnings management across different regulation regimes. Positive effects on performance are observed only after the implementation of delisting regulations and only in companies subject to the regulations. Consequently, our results confirm that the implementation of earnings management induced by delisting regulations is in the best interest of shareholders.

Our paper contributes to the competing explanations of earnings management from the perspective of consequences. In academia, whether managers exploit earnings management in an opportunistic manner is one of the longstanding questions of positive accounting research (Watts and Zimmerman 1978; Christie and Zimmerman 1994). In emerging markets such as China, earnings management is more likely to be interpreted as opportunism brought by inferior institutions (Chen and Yuan 2004; Haw et al. 2005; Liu and Lu 2007; Jiang and Wang 2008). However, existing studies end after examining the existence of earnings management in certain contexts such as delisting regulations (Jiang and Wang 2008). Our paper takes one step further by examining the consequences of opportunistic earnings management caused by delisting regulations, complementary to the literature.

By investigating the consequences of accounting targets, our paper also provides insights into regulation efficiency in which earnings numbers play a decisive role. In general, earnings management is always a strategic response to earnings-based regulations (Chen and Yuan 2004; Haw et al. 2005). However, only the delisting decision is purely based on the number of consecutive annual losses rather than on a discretionary regulatory judgment of the company's quality in the context of delisting regulations.[3] The rigidity of the regulations on earnings provides us a chance to examine the regulation efficiency when the outcome depends on earnings numbers. Previous research has shown that earnings-based regulations may generate negative consequences (Kao et al. 2009; Haw et al. 2005; Chen and Yuan 2004), and regulations have been revised accordingly. However, although earnings management has been used to circumvent delisting regulations, the decisive role of earnings numbers has not changed after several major revisions of the regulations. The consequences of earnings management can thus help regulators evaluate the delisting criteria and improve the regulation efficiency.

For policy makers, our results also provide insights on circumvention in response to quantity regulations. Bright-line criteria in quantity regulations trigger extensive circumvention, even in developed markets. From 2003 to 2008, the *SEC* set regulation standards based on the public float of "non-accelerated filers" of the Sarbanes-Oxley Act. Gao et al. (2009) showed that this bright-line standard also triggers circumvention in capital markets. Shleifer (2010) and Shleifer and Glaeser (2001)

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[1] This is also the implicit rationale of Jiang and Wang (2008).

[2] The pre-managed earnings are defined as net income deducted by earnings management.

[3] Although other regulations in China are based on earnings, such as IPO, SEO and rights issues, the accounting numbers are only prerequisites rather than a definitive and inflexible factor.

discussed the importance of quantity regulations in emerging markets, although the bright-line criteria arose extensive circumvention.[4] According to Glaeser et al. (2001), the cost of court enforcement is high in emerging markets, and potential corruption is abundant, which make qualitative regulations difficult. Nonetheless, our paper can help regulators evaluate quantity regulations from an alternative angle by studying the consequences of earnings management triggered by regulations.

The rest of the paper is organized as follows. We provide a description about the background of delisting regulations in China in Section 2. Section 3 reviews the literature and develops the testable hypotheses. The research design is described in Section 4. We present the empirical analysis and robustness check in Section 5. The further analysis is outlined in Section 6, and we conclude in Section 7.

2. Institutional background

In modern stock markets, companies are not allowed to be listed on the stock exchange if they do not meet certain specifications, which is known as delisting regulations. In China, delisting regulations crucially depend on earnings numbers. The Company Law of 1993, which designates the CSRC to set the delisting rules, mandates that listed companies reporting three consecutive annual losses are suspended from trading on the exchanges. If firms do not return to profits before the deadline, they will be delisted. Although the decisive role of earnings has been established, delisting regulations were not enforced in practice. In 1998, the Special Treatment (hereafter "ST") policy, warning of delisting risk, came into effect. Like delisting, ST is also based on consecutive annual losses but with a shorter horizon. Companies with two consecutive annual losses are labeled as "ST", a red flag of suspension. For ST firms, various trading and financial restrictions are imposed. For example, the daily stock price movement of ST stocks is restricted to no more than 5% in either direction.[5] Furthermore, ST firms cannot raise additional capital from the stock market.

In January 2001, the CSRC promulgated "Implementation Procedures for Suspension and Termination of Losses Listed Companies" (hereafter "Implementation Procedures"), which came into effect in 2002. The "Implementation Procedures" concludes the deadline for suspension companies. If the suspended companies report another annual loss in the following year, the listed status will be terminated by delisting. With the "Implementation Procedures", earning-based delisted regulations were finalized.

Earning-based regulations are used widely in Chinese capital market. In addition to delisting regulations, rights issues and SEO regulations are also based on earnings numbers, in which applicants must meet certain accounting criteria. However, only delisting regulations apply earning numbers as a decisive role. With four-year consecutive annual losses, any companies would be delisted automatically even for state-owned enterprises. For example, Nanjing Tanker, a listed company controlled by central government, was delisted in 2014 due to a fourth consecutive annual loss.[6]

The rigidity and decisiveness of accounting numbers distinguish delisting regulations from other bright-line earnings-based regulations. In rights issues and SEOs, accounting numbers are only prerequisites, with which the regulators make the final decisions. A guarantee of approval is not provided for applicants who meet the standards of the regulations, and regulators are able to adjust their decisions based on the earnings managed (Chen and Yuan 2004; Haw et al. 2005). In contrast, no discretions from regulators are involved in the delisting regulations. In another words, accounting numbers determine whether a company is delisted or not automatically.

3. Literature review and hypothesis development

3.1. Literature review

Our paper investigates the consequences of earnings management triggered by an earnings-based delisting regulations, and thus is related to the literature of delisting regulations. Delisting regulations are discretionary in most developed markets. Although the delisting standards in American Stock Exchanges (AMEX), NYSE and Nasdaq use various information including accounting numbers and stock prices, they all remain some flexibility. For example, Chen and Schoderbek (1999) find that some firms repeatedly violate the stated AMEX guidelines without being delisted, and Macey et al. (2008) find some firms trading for months (or even years) after violating the listing requirements.[7] In China, delisting regulations choose earnings numbers as bright-line standard, and any firms with violations would be delisted automatically. The rigidity of earning-based delisting regulations leads to the severer earnings management to circumvent the regulations, which is also viewed as regulation inefficiency (Jiang and Wang 2008). Our paper, along this line, analyzes the consequences of the earnings management triggered by delisting regulations in China. Moreover, our paper is also in line with Gao et al. (2009), who study the consequences of a similar regulation standard relying on a bright line threshold in developed markets, the Sarbanes-Oxley Act of 2002 (SOX) proposed by *SEC*.[8]

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[4] In particular, China is well known for its use of quantity regulations (Wong, 2016).

[5] The restriction is 10% for non-ST stocks.

[6] https://www.ajot.com/news/nanjing-tanker-to-be-delisted-first-by-central-government-backed-firm

[7] There are also some firms who violate the delisting regulations and are removed immediately.

[8] Further analysis reveals that the circumvention in SOX regulations is motived by maximization of shareholders' wealth rather than protection of insiders' private benefits.

Our paper is also related to the strand of literature on earnings management. Earnings management around zero has been well-documented as target beating around various market thresholds, including prior comparable income and analyst consensus forecasts, zero in earnings (Degeorge et al. 1999). In the literature, not only the existence of earnings management to beat the market target (e.g., Hayn 1995; Degeorge et al. 1999; Burgstahler and Dichev 1997) but also the subsequent consequences (Baber et al. 2006) have been investigated. For regulatory standards, regulators heavily rely on the bright-line targets such as earnings numbers, especially in China (Wong 2016). Thus, earnings management is well-documented in the contexts of right issues, SEO as well as delisting regulations (e.g., Chen and Yuan 2004; Chen and Wang 2007; Haw et al. 2005; Liu and Lu 2007; Yu et al. 2006).[9] Although those regulations in China are all earnings-based in general, earnings numbers play a more decisive role in delisting regulations.[10] Thus, we may expect heterogenous consequence of earnings management triggered by different regulations. For example, the consequences would vary across different regulation contexts, as shown in Frye and Shleifer (1997). In fact, Peng et al. (2011) show that connected transactions boosting earnings have unfavorable market reactions to right-issuers but have favorable reactions among ST companies. Thus, the focus of our paper is the consequences of earning management, which is of more interest in the context of delisting regulations.

3.2. Hypothesis development

As we discussed in the introduction, there are two competing rationales for earnings management: opportunism and non-opportunism. In the literature of earnings management, opportunism rationale plays a dominating role. For example, opportunistic managers may manage earnings to increase their compensation or secure their job (e.g., Bartov, 2004; Dye, 1988; Lambert, 1984). Empirically, a vast majority of the empirical evidence is consistent with the opportunism explanation (e.g., Healy 1985; Han and Shiing-Wu 1998; Teoh et al. 1998; Shivakumar 2000; Leuz et al. 2003). In Chinese market, earnings management induced by earnings-based regulations has been shown with negative consequences (e.g., Chen and Yuan 2004; Haw et al. 2005), confirming opportunism rationale. Following the same logic, Jiang and Wang (2008), presuming the opportunism rationale, show the existence of earnings management with delisting regulations but provide no evidence of negative consequences.

In contrast, non-opportunism rationale argues that earnings management may not always be opportunistic but efficient in certain scenario to the maximization of firm value.[11] As noted by Christie and Zimmerman (1994) "many of the empirical results interpreted as evidence of opportunism can also be interpreted as occurring for efficiency reasons." Moreover, Trueman and Titman (1988) and Chaney and Lewis (1995) propose theoretical analysis to the non-opportunism explanations. Empirically, Aboody et al. (1999) and Shivakumar (2000) show that investors view earnings management as a value-maximizing activity, and Tucker and Zarowin (2006) and Louis and White (2007) find that earnings management improves informativeness by signaling private information.

Although Jiang and Wang (2008) document opportunistic earnings management in the context of delisting regulations, our paper investigate consequences of earnings management triggered by delisting regulations. If some unqualified companies with poor future performance conduct earnings management to opportunistically stay listed, we will observe inferior subsequent performance. For this reason, there will be negative relationships between subsequent consequences and earnings management, and we interpret it as "opportunism". However, qualified companies with temporary negative shocks may also manage their earnings to avoid delisting, and those companies will deliver good future performance after successful circumvention of the regulations. In that case, opportunistic earnings management to avoid delisting is optimal for shareholders since good companies stay delisted due to earnings management. Thus, there are positive (non-negative) relationships between subsequent consequences and earnings management, and we interpret it as "non-opportunism".

Given the arguments of opportunism and non-opportunism rationales above, we develop the following testable hypotheses:

H1a. there are negative relationships between subsequent consequences and earnings management to circumvent delisting regulations (opportunism rationale).

H1b. there are non-negative/positive relationships between subsequent consequences and earnings management to circumvent delisting regulations (non-opportunism rationale).

The hypotheses developed above reflect two scenarios. On the one hand, earnings management could be conducted by unqualified companies to opportunistically stay listed by deteriorating firms' future performance, which will result in inferior subsequent performance. On the other hand, the qualified companies with temporary negative shocks may also manage their earnings to avoid delisting, and those companies will deliver good future performance after successful circumvention of the regulations. Because the intent "is not observable and is difficult to infer" in earnings management (Dichev et al. 2013), it would be difficult to distinguish the opportunism and non-opportunism rationales without any observations about the consequences. Therefore, our investigations on consequences of earning management triggered by delisting regulations will provide more insight to regulation efficiency.

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[9] Some papers also study the consequence for earnings management. For example, Chen and Yuan (2004) find that firms are able to manage earnings to meet the regulatory standards and gain the governmental approval of rights issues, but their subsequent performance was generally below the industry norms.

[10] As we discussed in the institutional background section.

[11] To be precise, non-opportunism rationale refers to earnings management without negative effects, while efficiency rationale refers to earnings management with positive effects. For example, earnings management improves the ability of earnings to reflect economic value (Subramanyam 1996).

4. Research design

4.1. Sample selection

To investigate the consequences of earnings management, we focus on companies that returned to profits with annual losses in only two preceding years (hereafter UNST companies). UNST companies were subject to delisting regulations but have successfully escaped. Companies with two consecutive annual losses are labeled with ST status, warning of delisting risk. ST companies are the potential targets of delisting regulations with restrictions imposed on trading and financing; moreover, with one more annual loss, ST companies would be suspended from listing. If ST companies return to profits in the following year, both the ST status and restrictions would be removed. UNST companies are no longer subject to delisting regulation until another two consecutive annual losses.

For the control sample, we need to identify companies that have a similar earnings management pattern except for the delisting regulations. Due to earnings management triggered by delisting regulations, discontinuity around zero is more significant in China (Jiang and Wang 2008). However, since it is common that listed companies manage earnings to avoid losses, there is a discontinuity around zero even without earning-based delisting regulations (Burgstahler and Dichev 1997; Hayn 1995). Because regulatory standard coincides with zero, we are required to isolate the effects triggered by delisting regulations from tendency to avoid losses in general. Otherwise, our evidence is the consequence of earnings management around zero rather than triggered by delisting regulations. Thus, we choose control companies that manage their earnings to avoid losses as UNST companies but facing less delisting pressure or no delisting pressure at all. To be specific, we select companies that return to profit after only one annual loss (hereafter UNFIRST companies) and companies with small profits (ROE less than 2%) as the control samples.[12]

Both UNST companies and UNFIRST companies have motivations to manage earnings upward, but the latter is less influenced by delisting regulations because they have one fewer annual loss than the former. Companies with small profits are widely presumed to manage their earnings to avoid losses (Burgstahler and Dichev 1997; Degeorge et al. 1999), and they are not subject to earnings-based delisting regulations. Thus, UNFIRST companies and small profit companies intend to manage earnings around zero without pressure from delisting regulations. For this reason, delisting regulations distinguish UNST companies from UNFIRST and small profit companies, so we believe that UNFIRST and small profit companies are eligible as control companies.

The delisting regulations were finalized by the CSRC in January 2001 and implemented on January 1, 2002. Our sample period is from 2003 to 2014, which ensures that the two consecutive annual losses for UNST companies occurred after awareness of the delisting regulations. In our sample, UNST companies are companies subject to ST from 2002 to 2013 due to two consecutive annual losses that returned to earning profits from 2003 to 2014. We eliminate all firms in financial industry and utility industry because those industries have sector specific regulations. Moreover, we also exclude the cross-listed firms for different regulatory regimes.

Table 1 provides the collection and distribution of the sample. Panel A presents the sample selection of 2268 firm-year observations in our sample, including 269 UNST firm years, 737 UNFIRST firm years and 1262 small profit firm years. Panel B shows the distribution of our sample. We can observe the UNST companies are unevenly distributed across the sample period, and the variation appears to be consistent with the macro economy condition. In the sample period, the GDP growth kept rising and peaked at the year 2007 (14.23%), and due to the global financial crisis, the GDP growth slows down to 9.65% and 9.23% in 2008 and 2009, respectively. In 2010, the GDP growth returned to 10.64%.[13] For this reason, firms are more likely to suffer two consecutive losses in 2008 and 2009 and return to profits in 2010, so we have the most UNST firms in 2010 in our sample. Panel C breaks down the sample by industry. Most of the sample is involved in the manufacturing industry, which largely reflects the overall distribution of listed companies in China.[14]

4.2. Main variables and methodology

Drawing from delisting regulations, we select accounting discretion to measure earnings management. In particular, we employ widely used accruals models.[15] Among the various available models, the modified Jones model (Dechow et al. 1995) is most effective in detecting earnings management (Bartov et al. 2000; Xia 2003). Thus, we select the modified Jones model to estimate discretionary accruals. First, we use industry-year data of companies that only reported profits to estimate the coefficients β_1, β_2 and β_3 via equation (1) to obtain a standard relationship between accounting numbers.

$$\frac{TA_t}{A_{t-1}} = \beta_1 \times \frac{1}{A_{t-1}} + \beta_2 \times \frac{\Delta REV_t}{A_{t-1}} + \beta_3 \times \frac{PPE_t}{A_{t-1}} + \varepsilon \tag{1}$$

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[12] Following Burgstahler and Dichev (1997), Degeorge et al. (1999) and Jiang and Wang (2008), we define companies with small profits as companies that report an ROE less than 2% with a preceding annual profit that does not overlap with UNFIRST companies.

[13] The data are from https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2019&locations=CN&start=2003

[14] We also divide the manufacturing industry into sub-industry groups in Panel C of Table 1.

[15] Previous research also shows that companies with losses use accounting discretion to circumvent the delisting regulation in China (Li et al., 2011; Liu and Lu, 2007).

Table 1
Collection and Distribution of Sample.

This table presents information on the sample of UNST companies, Small profit companies and UNFIRST companies during 2003–2014. Columns 1, 2 and 3 report the number of firms and frequency of Small profits companies, UNFIRST companies and UNST companies respectively. UNST companies are companies with 2 consecutive annual losses in year t-2 and t-1, but return to profits in year t. UNFIRST companies are companies with only one annual loss in year t-1 and return to profits in year t. Small profits companies are companies with no annual loss in previous 2 years and ROE is positive but less than 2% in year t. Columns 4 report numbers on the total sample of firms. Panel A reports the process of sample collection. Panel B reports the sample by year. Panel C reports the sample by industry sector.

Panel A: Sample Collection

	(1)	(2)	(3)	(4)
	Small Profits Companies	UNFIRST Companies	UNST Companies	Total
Firms with Earnings Management DATA Less	1619	997	414	3030
Firm with Missing Controls	278	204	120	602
Firms in Utility and Financial Industry	74	55	24	153
Firm Cross-Listed Oversea	5	1	1	7
Total	1262	737	269	2268

Panel B: Sample Distribution By Year

Year	(1)		(2)		(3)		(4)	
	Small Profits Companies		UNFIRST Companies		UNST Companies		Total	
	No.	Frequency	No.	Frequency	No.	Frequency	No.	Frequency
2003	110	8.72%	59	8.01%	28	10.41%	197	8.69%
2004	106	8.40%	46	6.24%	22	8.18%	174	7.67%
2005	112	8.87%	26	3.53%	5	1.86%	143	6.31%
2006	88	6.97%	74	10.04%	30	11.15%	192	8.47%
2007	61	4.83%	42	5.70%	33	12.27%	136	6.00%
2008	120	9.51%	39	5.29%	13	4.83%	172	7.58%
2009	84	6.66%	112	15.20%	27	10.04%	223	9.83%
2010	75	5.94%	76	10.31%	36	13.38%	187	8.25%
2011	109	8.64%	40	5.43%	14	5.20%	163	7.19%
2012	148	11.73%	68	9.23%	21	7.81%	237	10.45%
2013	124	9.83%	93	12.62%	20	7.43%	237	10.45%
2014	125	9.90%	62	8.41%	20	7.43%	207	9.13%
Total	1,262	100.00%	737	100.00%	269	100.00%	2,268	100.00%

Panel C: Sample Distribution By Industry

Industry	(1)		(2)		(3)		(4)	
	Small Profits Companies		UNFIRST Companies		UNST Companies		Total	
	No.	Frequency	No.	Frequency	No.	Frequency	No.	Frequency
Agriculture	26	2.06%	21	2.85%	8	2.97%	55	2.43%
Mining	43	3.41%	21	2.85%	15	5.58%	79	3.48%
Manufacture								
Food & Beverage	58	4.60%	46	6.24%	15	5.58%	119	5.25%
Textile & Apparel	41	3.25%	22	2.99%	9	3.35%	72	3.17%
Timber & Furnishings	6	0.48%	4	0.54%	2	0.74%	12	0.53%
Paper & Printing	34	2.69%	15	2.04%	5	1.86%	54	2.38%
Petrochemical	153	12.12%	99	13.43%	38	14.13%	290	12.79%
Electronics	64	5.07%	45	6.11%	13	4.83%	122	5.38%
Metal & Non-Metal	151	11.97%	78	10.58%	22	8.18%	251	11.07%
Machinery	230	18.23%	114	15.47%	45	16.73%	389	17.15%
Pharmaceutical	62	4.91%	38	5.16%	14	5.20%	114	5.03%
Others	0	0.00%	2	0.27%	0	0.00%	2	0.09%
Construction	29	2.30%	11	1.49%	9	3.35%	49	2.16%
Transportation	22	1.74%	24	3.26%	2	0.74%	48	2.12%
IT	60	4.75%	32	4.34%	10	3.72%	102	4.50%
Retail	114	9.03%	49	6.65%	13	4.83%	176	7.76%
Real Estate	105	8.32%	53	7.19%	33	12.27%	191	8.42%
Social Service	32	2.54%	34	4.61%	8	2.97%	74	3.26%
Media	14	1.11%	13	1.76%	4	1.49%	31	1.37%
Conglomerate	18	1.43%	16	2.17%	4	1.49%	38	1.68%
Total	1,262	100.00%	737	100.00%	269	100.00%	2,268	100.00%

Then, we calculate the non-discretionary accruals (NDA$_t$) value in equation (2) using the estimated coefficients β_1, β_2 and β_3.

$$NDA_t = \hat{\beta}_1 \times \frac{1}{A_{t-1}} + \hat{\beta}_2 \times \frac{\Delta REV_t - \Delta REC_t}{A_{t-1}} + \hat{\beta}_3 \times \frac{PPE_t}{A_{t-1}} \qquad (2)$$

Finally, we estimate the discretionary accruals (DA) in equation (3) using the NDA$_t$ value estimated in equation (2).

$$DA_t = \frac{TA_t}{A_{t-1}} - NDA_t \qquad (3)$$

where.

TA$_t$ represents NI$_t$-CFO$_t$;

NI$_t$ represents the net income in year t;

CFO$_t$ represents the cash flow from operations in year t;

A$_{t-1}$ represents the total assets at the end of year t-1;

NDA$_t$ represents the non-discretionary accruals by lagged total assets at the end of year t-1;

DA$_t$ represents the discretionary accruals by lagged total assets at the end of year t-1;

ΔREV$_t$ represents the change in sales between years t and t-1;

ΔREC$_t$ represents the change in accounts receivable between years t and t-1;

PPE$_t$ represents the gross value of property, plant and equipment at the end of year t.

Given that UNFIRST companies and small profit companies are control sample, we actually follow the same procedure as Kothari et al. (2005). Since earnings management and performance might be correlated, our performance comparable control sample also reduces the noise in discretionary accrual models (Kothari et al. 2005). Because both UNFIRST companies and small profit companies are comparable in performance, the difference between UNST companies and control sample provides clear evidence about effects from earning-based delisting regulations. To test the effects of earnings management, we run an OLS regression of the future performance on the earnings management (DA) in equation (4).

$$\begin{aligned} Perform_{t+1} = {} & \beta_0 + \beta_1 \times EM_t + \beta_2 \times UNST_t \times EM_t + \beta_3 \times UNFIRST_t \times EM_t + \beta_4 \times UNST_t + \beta_5 \times UNFIRST_t \\ & + \beta_6 \times Size_t + \beta_7 \times Lev_t + \beta_8 \times Age_t + \beta_9 \times MB_t + \beta_{10} \times ROE_t + \beta_{11} \times NOI_t + \beta_{12} \times Related_t + \varepsilon \end{aligned} \qquad (4)$$

In equation (4), the dependent variable is the future performance of firms after the year of returning to profits. We construct the performance measures by using both continuous variables and dummy variable. The first measure is EBIT$_{t+1}$, a continuous variable, defined as earnings before interests and tax scaled by total assets in year t+1. Although operating cash flows and net income are more popular performance measures in the literature, both include non-recurring items, which are not as clean as EBIT.[16] EBIT is a commonly employed indicator focusing on core profitability by excluding non-operating factors (Eberhart et al. 2004; Huson et al. 2004). Because the purpose of earning-based delisting regulations is to remove poor performer (Jiang and Wang 2008), the relationships between earnings management and core profitability are of more importance. Consequently, we employ EBIT for our main analysis.

The second performance measure is recurrence of losses in the future, Loss$_{t+1}$. With delisting regulations, recurrences of losses after return to profits suggest that UNST companies might play games with accounting numbers by "borrowing" profits from future to stay listed. In this case, earnings management in UNST firms may results in losses when the profits are "returned". Therefore, we construct a dummy variable, Loss$_{t+1}$, to investigate how earnings management affects the recurrence of losses in the future. The variable Loss$_{t+1}$ equals 1 if a firm ends with negative earnings in year t+1, and zero otherwise.

Moreover, the future performance in the next one year (t+1) may not be reliable enough, since UNST firms may persistently manage the earnings to circumvent delisting regulations and to boost performance in a longer period. To address this concern, we extend the future performance measures to 3 years for both EBIT and losses. Avg_EBIT$_{t+3}$ is the 3-year average of EBIT$_{t+1}$, EBIT$_{t+2}$ and EBIT$_{t+3}$ in the next three years, and Avg_Loss$_{t+3}$ is a dummy variable, which equals 1 if there are losses in either year t+1, t+2 or t+3. Because opportunistic earnings management would reverse eventually, the 3-year future performance is more informative about the consequence of earnings management in UNST firms.

The main independent variables in equation (4) are earnings management and firms subject to delisting regulations. EM$_t$ measures earnings management level, and we use the discretionary accruals (DA$_t$) estimated in the modified Jones model (Dechow et al. 1995) in the main analysis. Since DA$_t$ may reverse accruals in previous years with losses, EM$_t$ consists of DA$_{t-1}$ and DA$_{t-2}$, the discretionary accruals in previous two years. UNST$_t$ and UNFIRST$_t$ represent dummies for UNST companies and UNFIRST companies, respectively.

Our analysis focuses on the earnings management triggered by delisting regulations rather than earning management around zero in general, so the variable of interest is the regression coefficient associated with the interaction term, UNST$_t$×DA$_t$, which captures the effects from delisting regulations exclusively. Under delisting regulations, UNST firms have inferior performance and are "specially treated". If UNST firms do not improve their performance, they will be delisted. However, if UNST firms only manage the earnings to stay listed, earnings management itself does not improve firm performance.

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[16] Although EBIT is used for our main analysis, we also consider operating cash flows and ROA as alternative performance measures in this paper.

For this reason, we may expect a negative coefficient for the interaction term, $UNST_t \times DA_t$ given that earnings management is opportunistic (Jiang and Wang 2008).[17] However, if the coefficient of interaction term is significantly positive (or non-negative), earnings management results in good future performance in the context of delisting regulations.

To make our results robust, we consider various control variables including: (1) $Size_t$, the natural logarithm of total assets in year t; (2) Lev_t, the total liabilities scaled by the total assets in year t; (3) Age_t, the natural logarithm of one plus years listed; (4) MB_t, the market-to-book value in year t; (5) ROE_t, the net income scaled by total equity in year t; (6) NOI_t, non-operating incomes scaled by total assets in year t; and (7) $Related_t$, related transactions scaled by sales in year t.[18] Moreover, the industry effect and year effect are both controlled. Financial data are obtained from the China Stock Market and Accounting Research (CSMAR) database and Chinese Research Data Services (CNRDS) database. All the continuous variables are winsorized at the top and bottom 1% to mitigate the influence of extreme values.

4.3. Descriptive statistics

Panel A in Table 2 reports the descriptive statistics of the variables of interest in our study. Both the mean and median of the DA_t are positive, suggesting that average companies in our sample manage their earnings upwards.[19] For future performance, the average values of $EBIT_{t+1}$ and Avg_EBIT_{t+3} are 0.5% and 1.1%, respectively. The mean of $Loss_{t+1}$ is 0.301, which means nearly-one-third of our sample companies return to losses right after the year t. The average value of Avg_Loss_{t+3} is 0.517, indicating that over half of our sample has suffered losses at least once in the following 3 years. In general, the performance measures suggest that our sample companies are inferior. Moreover, operating performance is relatively low for our sample. Panel B in Table 2 presents the correlation coefficients among variables. DA_t is significantly negatively correlated with all four performance measures except for $EBIT_{t+1}$, and the results are consistent with opportunistic earnings management.[20]

5. Empirical results

This section presents our main empirical findings. We begin with a between-group analysis across UNST companies, UNFIRST companies and small profit companies and then present the formal regression results.

5.1. Between-group analysis

Table 3 reports the descriptive statistics and between-group analysis for the subsamples. Panel A in Table 3 presents the descriptive statistics for UNST companies, UNFIRST companies and small profit companies, respectively. The average values of DA_t are all positive across subsamples, indicating that all firms in the three subsamples manage their earnings upward. It is not surprising that UNST companies have highest mean of DA_t.

Panel A in Table 3 also summarizes earnings management in previous years (DA_{t-1} and DA_{t-2}). For UNST companies, the means of DA_{t-1} and DA_{t-2} are −0.120 and −0.070, respectively, indicating downwards earnings management in years with losses. DA_{t-1} is more negative than DA_{t-2} among UNST firms, which is consistent with higher delisting pressure when companies are in persistent losses. For UNFIRST companies, there are also downwards earnings management in years with losses, and the mean of DA_{t-1} is −0.050. For small profit companies, the level of earnings management is higher in previous years. The means of DA_{t-1} and DA_{t-2} are 0.015 and 0.014, respectively, while the mean of DA_t is 0.010.

Panel B in Table 3 presents the between-group analysis among the three subsamples. First, compared with either UNFIRST companies or small profit companies, UNST companies manage their earnings upwards, but the differences in DA_t across three subsamples are not statistically significant. Second, DA_{t-1} and DA_{t-2} are significantly more negative for UNST companies than for UNFIRST companies. The cross-sectional difference confirms that the higher delisting pressure results in higher level of earnings management. In year t-1, UNST companies have been in losses for two years, while UNFIRST companies suffer losses just for the first time. The future performance does not follow the same pattern as earnings management across subsamples. EBIT is lower, and the likelihood of recurrence of losses is higher in UNST companies, indicating that they are inferior to UNFIRST companies and small profit companies. Although there are no significant differences in $Loss_{t+1}$ and Avg_Loss_{t+3} between UNFIRST companies and small profit companies, EBIT is significantly higher for UNFIRST companies.

From the between-group analysis, we do not obtain consistent results for earnings management and future performance across subsamples. Three groups of firms face different delisting pressures but have similar levels of discretionary accruals in the year when they avoid losses. For future performance, we do observe significant differences across subsample. The reasons may come from various sources including different firm natures or information. Thus, a formal analysis is needed for our study.

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[17] Of course, if we use Losses rather than EBIT as the dependent variable, the sign of regression coefficient of the interaction term will be opposite.

[18] In addition to delisting regulations, non-operating incomes and related transactions have been exploited to circumvent earnings-based regulations (Chen and Yuan, 2004; Haw et al., 2005; Peng et al., 2011). For this reason, they are added as control variables.

[19] Prior studies have also documented the same pattern of earnings management around zero (Burgstahler and Dichev, 1997; Degeorge et al., 1999; Hayn, 1995; Jiang and Wang, 2008).

[20] When we use losses as performance measures, the correlation is negative.

Table 2
Summary of Descriptive Statistics.

This table presents the summary statistics of variables for the full sample (Panel A) and Pearson correlation coefficients (Panel B). The sample consists of UNST companies and small profit companies, including 2268 firm-years from 2003 to 2014. The sample consists of UNST firms, UNFIRST companies and small profits companies. UNST companies are companies with 2 consecutive annual losses in year t-2 and t-1, but return to profits in year t. UNFIRST companies are companies with only one annual loss in year t-1 and return to profits in year t-1. Small profits companies are companies with no annual loss in previous 2 years and ROE is positive but less than 2% in year t. Variables are defined in Appendix A. *, **, *** denote significance at the10%, 5%, and 1% level.

Panel A: Summary of Descriptive Statistics

	N	mean	sd	P50
DA$_t$	2268	0.01	0.118	0.004
DA$_{t-1}$	2221	-0.023	0.123	-0.013
DA$_{t-2}$	2127	0.005	0.112	0.004
EBIT$_{t+1}$	2268	0.005	0.068	0.019
Avg_EBIT$_{t+3}$	2259	0.011	0.052	0.019
Loss$_{t+1}$	2268	0.301	0.459	0
Avg_Loss$_{t+3}$	2259	0.517	0.5	1
Size$_t$	2268	21.386	1.203	21.234
Lev$_t$	2268	0.079	0.103	0.039
Age$_t$	2268	2.231	0.541	2.35
MB$_t$	2268	3.469	5.033	2.263
ROE$_t$	2268	0.031	0.192	0.014
NOI$_t$	2268	0.025	0.059	0.006
Related$_t$	2268	0.15	0.393	0

Panel B: Correlation Coefficient

	DA$_t$	DA$_{t-1}$	DA$_{t-2}$	EBIT$_{t+1}$	Avg_EBIT$_{t+3}$	Loss$_{t+1}$	Avg_Loss$_{t+3}$	Size$_t$	Lev$_t$	Age$_t$	MB$_t$	ROE$_t$	NOI$_t$	Related$_t$
DA$_t$	1													
DA$_{t-1}$	-0.091***	1												
DA$_{t-2}$	0.049**	0.094***	1											
EBIT$_{t+1}$	-0.026	0.01	0.025	1										
Avg_EBIT$_{t+3}$	-0.039*	-0.040*	0.007	0.672***	1									
Loss$_{t+1}$	0.040*	-0.023	-0.021	-0.698***	-0.464***	1								
Avg_Loss$_{t+3}$	0.043**	-0.001	-0.036*	-0.468***	-0.548***	0.635***	1							
Size$_t$	-0.044**	0.166***	0.143***	0.058***	0.049**	-0.011	0.01	1						
Lev$_t$	0.063***	-0.001	0.006	0.077***	0.076***	0.037*	0.035*	0.335***	1					
Age$_t$	0.027	-0.057***	-0.083***	0.005	0.004	0.069***	0.062***	0.098***	0.126***	1				
MB$_t$	0.043**	-0.066***	-0.046**	-0.013	-0.040*	0.054***	0.026	-0.247***	-0.087***	0.147***	1			
ROE$_t$	-0.069***	0.047**	0.058***	0.076***	0.046**	-0.053***	-0.058***	0.043**	0.008	0.012	0.117***	1		
NOI$_t$	0.287***	-0.381***	-0.126***	-0.060***	-0.032	0.099***	0.101***	-0.206***	0.095***	0.164***	0.150***	-0.145***	1	
Related$_t$	0.063***	-0.038*	-0.062***	0.063***	0.035*	-0.008	0.001	0.009	0.038*	0.121***	0.095***	0.069***	0.098***	1

Table 3

Summary of Descriptive and Between Group Analyses for Subsample.

This table presents summary of descriptive for subsamples (Panel A) and between group analysis (Panel B). Panel A reports descripts of UNST companies, UNFIRST companies and Small Profit companies. UNST companies are companies with 2 consecutive annual losses in year t-2 and t-1, but return to profits in year t. UNFIRST companies are companies with only one annual loss in year t-1 and return to profits in year t. Small profits companies are companies with no annual loss in previous 2 years and ROE is positive but less than 2% in year t. In Panel B, two-tail t-test is applied to examine the statistical significance of difference in mean between groups. Variables are defined in Appendix A. *, **, *** denote significance at the10%, 5%, and 1% level.

Panel A: Summary of Descriptive of Subsamples

	UNST Companies				UNFIRST Companies				Small Profit Companies			
	N	mean	sd	p50	N	mean	sd	p50	N	mean	sd	p50
DA_t	269	0.016	0.161	0.011	737	0.007	0.136	−0.001	1262	0.010	0.095	0.007
DA_{t-1}	267	−0.120	0.156	−0.096	735	−0.050	0.115	−0.044	1219	0.015	0.103	0.011
DA_{t-2}	267	−0.070	0.121	−0.062	714	0.018	0.106	0.013	1146	0.014	0.108	0.012
$EBIT_{t+1}$	269	−0.006	0.102	0.020	737	0.010	0.074	0.026	1262	0.004	0.053	0.017
Avg_EBIT_{t+3}	267	0.006	0.072	0.013	735	0.015	0.056	0.023	1257	0.010	0.044	0.017
$Loss_{t+1}$	269	0.405	0.492	0	737	0.294	0.456	0	1262	0.283	0.451	0
Avg_Loss_{t+3}	267	0.610	0.489	1	735	0.524	0.500	1	1257	0.492	0.5	0
$Size_t$	269	20.791	1.270	20.624	737	21.355	1.245	21.175	1262	21.531	1.121	21.374
Lev_t	269	0.092	0.131	0.031	737	0.080	0.105	0.039	1262	0.075	0.094	0.039
Age_t	269	2.355	0.403	2.398	737	2.298	0.484	2.398	1262	2.165	0.586	2.303
MB_t	269	5.473	9.346	4.036	737	4.453	5.861	2.89	1262	2.467	2.121	1.886
ROE_t	269	0.045	0.385	0.034	737	0.061	0.241	0.026	1262	0.011	0.006	0.011
NOI_t	269	0.078	0.102	0.040	737	0.034	0.07	0.012	1262	0.008	0.013	0.003
$Related_t$	269	0.280	0.593	0.002	737	0.159	0.414	0	1262	0.117	0.313	0

Panel B: Between Group Analysis

	UNFIRST vs UNST	Small Profit vs UNST	UNFIRST vs Small Profit
DA_t	−0.009	−0.006	−0.003
DA_{t-1}	0.070***	0.135***	−0.065***
DA_{t-2}	0.087***	0.083***	0.004
$EBIT_{t+1}$	0.016***	0.011**	0.006*
Avg_EBIT_{t+3}	0.009**	0.004	0.004*
$Loss_{t+1}$	−0.111***	−0.122***	0.012
Avg_Loss_{t+3}	−0.087**	−0.118***	0.031
$Size_t$	0.564***	0.740***	−0.176***
Lev_t	−0.012	−0.017**	0.005
Age_t	−0.057*	−0.190***	0.134***
MB_t	−1.020**	−3.005***	1.985***
ROE_t	0.016	−0.035***	0.050***
NOI_t	−0.044***	−0.070***	0.026***
$Related_t$	−0.121***	−0.163***	0.042**

5.2. Main results

Based on the competing rationales, the hypotheses developed in Section 3 are about relationships between subsequent consequences and earnings management induced by delisting. Opportunism rationale predicts significantly negative effects on performance from earnings management in UNST companies. In contrast, for non-opportunism rationale, there would be either insignificant effects or significantly positive effects.

We performed cross-sectional regressions to determine the influence of earnings management on subsequent performance.[21] We include the interaction term of $UNST_t$ and DA_t to test the effect of earnings management triggered by delisting regulations. The interaction term of $UNFIRST_t$ and DA_t is also included as a control. To account for reverse of accruals in previous years, we also include DA_t, DA_{t-1}, DA_{t-2}, and various interaction terms in the regression. If the earnings management is opportunistic, we should observe significantly negative (positive) regression coefficient of $UNST_t \times DA_t$ on EBIT (recurrence of losses). However, if the regression coefficient of $UNST_t \times DA_t$ is positive on EBIT or negative on losses, there are favorable consequences of earnings management with delisting regulations, which supports the non-opportunism rationale.

The regression results of equation (4) are presented in Table 4. Columns (1)-(4) and columns (5)-(8) present OLS results and Logit results for EBIT and Losses, respectively. Across all the regressions, there are no adverse effects on future performance, and earnings management in UNST companies has significantly favorable future performances, which is consistent with H1b.

When future performance is measure by EBIT, the coefficients associated with $UNST_t \times DA_t$ are always significantly positive with various control variables, indicating a positive relationship between the earnings management triggered by delisting regulations and subsequent future performance. In economic senses, the positive coefficients for $UNST_t \times DA_t$ are significant enough to cover the negative effects from DA_t, which are always significantly negative (columns (1) to (4)).

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[21] Given the nature of dependent variables, we run OLS regression for EBIT and Logit regression for recurrence of losses, respectively.

Table 4
Earnings Management and Subsequent Performance.

This table presents the relationship between earning management and subsequent performance for UNST companies, UNFIRST companies and small profits companies:

$$Perform_{t+1} = \beta_0 + \beta_1 \times EM_t + \beta_2 \times UNST_t \times EM_t + \beta_3 \times UNFIRST_t \times EM_t + \beta_4 \times UNST_t + \beta_5 \times UNFIRST_t + \beta_6 \times Size_t + \beta_7 \times Lev_t + \beta_8 \times Age_t + \beta_9 \times MB_t + \beta_{10} \times ROE_t + \beta_{11} \times NOI_t + \beta_{12} \times Related_t + \varepsilon$$

UNST companies are companies with 2 consecutive annual losses in year t-2 and t-1, but return to profits in year t. UNFIRST companies are companies with only one annual loss in year t-1 and return to profits in year t. Small profits companies are companies with no annual loss in previous 2 years and ROE is positive but less than 2% in year t. Dependent variable is one year lead (average of three year lead) operating performance calculated by EBIT and recurrence of losses by Loss. DA is the discretionary accruals estimated by modified Jones (Dechow et al. 1995) model. The sample consists of UNST companies, UNFIRST companies and small profits companies. UNST and UNFIRST are dummy variables for UNST companies and UNFIRST companies respectively. Variables are defined in Appendix A. Industry and year fixed effects are included. Column (1)-(4) and Column (5)-(8) are OLS regression results and Logit regression results for EBIT and Loss respectively. *, **, *** denote significance at the 10%, 5%, and 1% level. Firm level clustered standard errors are in the parenthesis.

VARIABLES	(1) EBIT$_{t+1}$	(2) EBIT$_{t+1}$	(3) Avg_EBIT$_{t+3}$	(4) Avg_EBIT$_{t+3}$	(5) Loss$_{t+1}$	(6) Loss$_{t+1}$	(7) Avg_Loss$_{t+3}$	(8) Avg_Loss$_{t+3}$
DA$_t$	−0.038**	−0.039**	−0.042***	−0.034**	1.346**	1.319*	1.220**	0.990
	(−2.456)	(−2.378)	(−2.778)	(−2.469)	(2.090)	(1.926)	(1.987)	(1.452)
UNST$_t$ × DA$_t$	0.079**	0.088**	0.063**	0.053*	−1.871*	−2.031*	−3.355***	−3.216***
	(2.152)	(2.249)	(2.193)	(1.850)	(−1.776)	(−1.816)	(−2.851)	(−2.581)
UNFIRST$_t$ × DA$_t$	0.024	0.022	0.030	0.023	−1.117	−0.922	−0.350	0.060
	(0.905)	(0.793)	(1.357)	(1.064)	(−1.236)	(−0.984)	(−0.396)	(0.064)
UNST$_t$	−0.009	−0.003	−0.002	−0.006	0.348**	0.266	0.290*	0.319
	(−1.281)	(−0.415)	(−0.489)	(−0.914)	(2.122)	(1.320)	(1.708)	(1.516)
UNFIRST$_t$	0.004	0.002	0.005*	0.004	−0.011	0.052	0.034	0.065
	(1.372)	(0.562)	(1.894)	(1.322)	(−0.090)	(0.407)	(0.315)	(0.554)
DA$_{t-2}$		0.007		0.002		−0.096		−0.061
		(0.536)		(0.176)		(−0.152)		(−0.112)
DA$_{t-1}$		−0.037***		−0.039***		1.225*		1.607**
		(−2.743)		(−3.170)		(1.790)		(2.409)
UNST$_t$ × DA$_{t-2}$		−0.039		−0.051		0.043		−0.030
		(−0.687)		(−1.196)		(0.034)		(−0.024)
UNST$_t$ × DA$_{t-1}$		0.100**		0.013		−1.877*		−0.790
		(2.001)		(0.350)		(−1.694)		(−0.655)
UNFIRST$_t$ × DA$_{t-2}$		0.008		0.021		0.219		−1.384
		(0.256)		(0.851)		(0.214)		(−1.466)
UNFIRST$_t$ × DA$_{t-1}$		−0.001		0.010		−0.357		−0.735
		(−0.020)		(0.473)		(−0.357)		(−0.736)
Size$_t$	0.001	0.001	0.000	0.000	−0.051	−0.050	0.005	0.016
	(0.616)	(0.569)	(0.072)	(0.230)	(−0.979)	(−0.972)	(0.098)	(0.274)
Lev$_t$	0.056***	0.062***	0.042***	0.043***	0.373	0.232	0.024	−0.109
	(3.152)	(3.433)	(2.771)	(2.784)	(0.713)	(0.435)	(0.043)	(−0.191)
Age$_t$	−0.004	−0.004	−0.003	−0.001	0.288***	0.216*	0.203**	0.040
	(−1.507)	(−1.029)	(−1.317)	(−0.364)	(2.917)	(1.784)	(1.991)	(0.309)
MB$_t$	−0.000	−0.000	−0.000	−0.000	0.010	0.011	0.005	0.003
	(−0.041)	(−0.224)	(−1.076)	(−0.503)	(0.988)	(0.966)	(0.404)	(0.210)
ROE$_t$	0.023**	0.024**	0.010	0.013*	−0.566**	−0.582**	−0.698**	−0.770**
	(2.132)	(2.309)	(1.228)	(1.670)	(−2.149)	(−2.141)	(−2.027)	(−2.197)
NOI$_t$	−0.069*	−0.080*	−0.030	−0.064**	2.095**	2.413**	3.681***	4.761***
	(−1.679)	(−1.878)	(−0.982)	(−2.078)	(2.123)	(2.251)	(2.943)	(3.808)
Related$_t$	0.014***	0.013***	0.008**	0.008**	−0.296**	−0.285**	−0.223*	−0.241*
	(3.344)	(3.066)	(2.285)	(2.361)	(−2.336)	(−2.229)	(−1.831)	(−1.950)
Constant	−0.033	−0.031	−0.015	−0.024	−0.443	−0.310	−0.193	−0.103
	(−0.800)	(−0.752)	(−0.427)	(−0.647)	(−0.382)	(−0.265)	(−0.157)	(−0.080)
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	2,268	2,127	2,259	2,118	2,266	2,125	2,257	2,116
Adj R^2/Pseudo R^2	0.060	0.065	0.044	0.052	0.0584	0.0586	0.0429	0.0488

For UNFIRST companies, however, the coefficients of UNFIRST$_t$×DA$_t$ are positive but not statistically significant, and the absolute values of the coefficients are smaller than those of DA$_t$. Moreover, different levels of delisting pressure cause the relationships between earnings management and future performance to be heterogeneous among different samples. Comparing to small profit and UNFIRST companies, UNST companies face highest level of delisting pressure, so the coefficients for UNST$_t$×DA$_t$ are not only significantly positive but also with large magnitude relative to those for DA$_t$.[22] For robustness reason,

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[22] Small profits companies do not have previous losses at all, and hence almost face no delisting pressure. Consistent with opportunistic rationale, the coefficients for DA$_t$ are significantly negative. For UNFIRST companies, the delisting pressure becomes larger due to one previous loss, so the coefficients for UNFIRST$_t$×DA$_t$ are positive but not significant, with a smaller magnitude relative to those of DA$_t$.

we also use the three-year average of EBIT(Avg_EBIT$_{t+3}$) to measure operating performance and find that the coefficients for UNST$_t \times$DA$_t$ are still significantly positive and larger than those of DA$_t$.

In addition to EBIT, we also use the recurrence of losses to measure future performance. Columns (5) to (8) in Table 4 report results from the Logit regression. When we use the recurrence of losses as dependent variable, the coefficients associated with UNST$_t \times$DA$_t$ are all negative and statistically significant across all regressions, favorable effects suggested by non-opportunism rationale, which is consistent with the EBIT results. Although coefficients for DA$_t$ are positive, the coefficients UNST$_t \times$DA$_t$ bear enough economic significance to cover the adverse effects in each single regression. Moreover, we also check the impacts of lagged earnings management by including UNST$_t \times$DA$_{t-1}$ and UNST$_t \times$DA$_{t-2}$ as independent variables. The coefficients of UNST$_t \times$DA$_{t-1}$ are positive and statistically significant for one year lead performance, and the coefficients of UNST$\times$DA$_{t-2}$ are not statistically significant. For other control variables, non-operating incomes are adversely related with future performance, indicating that non-operating parts are opportunistic as in Chen and Yuan (2004) and Haw et al. (2005). However, we observe positive effect from related transactions, which is consistent with Peng et al. (2011).

5.3. Robustness check

In this section, we use operating cash flows and net incomes as performance measures for robustness check, in which the underlying performance measures about fundamentals are studied.

5.3.1. Operating cash flows and net income
The first two alternative performance measures are operating cash flows and net income. Operating cash flows is labelled as OCF that is constructed as the operating cash flow deflated by total assets, and net income is measured by ROA, which is the net income deflated by total assets. Due to the timing and matching problem, OCF is a "noisy" performance measure (Dechow 1994), so we use it for robustness check. ROA shares many similarities with EBIT in property, so we expect similar patterns for ROA. For both OCF and ROA, we also consider the average values for 3 years.

Table 5 report the regression results for both OCF and ROA, which is consistent with our main results by using EBIT. In general, we find positive effects for OCF$_{t+1}$, which are both statistically significant and economically meaningful. The magnitudes of the coefficients of UNST$_t \times$DA$_t$ are about twice as large as those of DA$_t$, and effects of 3-year average OCF are still positive. Similar results for ROA are also observed. Thus, our results are robust for operating cash flows and net incomes.

5.3.2. Gross margin and asset turnover
Our analysis in previous sections relies on the operating performance directly. In this subsection, we consider two alternative measures, gross margin (MAR) and assets turnover (ATO), respectively, for robustness check. Gross margin is the gap between sales and cost of goods sold, which is likely connected to market competition (Grullon et al. 2019). Companies with potentials may be tagged as "ST" due to a temporary negative shock (Jiang and Wang 2008), so gross margin could be informative about future market conditions. Assets turnover measures efficiency and is informative about the managers' efforts (e.g., Irvine et al. 2016; Ang et al. 2000). Thus, positive effects on both MAR and ATO would provide more supports against opportunistic view in an indirect but insightful way.

Table 6 reports the regression results for both MAR$_{t+1}$ and ATO$_{t+1}$.[23] The regression coefficients associated with UNST$_t \times$DA$_t$ are all significantly positive across different measures and different time horizons, which confirms the non-opportunistic view in previous analysis. In fact, earnings management in UNST companies signals future market conditions, as shown by MAR, and there are real efforts involved in the positive consequences given the efficiency improvement measured by ATO.

5.3.3. Bankruptcy
Finally, we consider the probability of bankruptcy for UNST companies as the robustness check. Although bankruptcy is rare for listed companies in China, financial distress does matter for UNST companies.[24] For this reason, we apply the Altman Z-score (Altman 1968) to measure likelihood of bankruptcy and replace it as the dependent variable in our main regression. Altman Z-score is multiple discriminant analysis based on financial ratios, which has been widely used. The final discriminant function estimated by (Altman 1968) is as follows:

$$Z = 0.012 \cdot X_1 + 0.014 \cdot X_2 + 0.033 \cdot X_3 + 0.006 \cdot X_4 + 0.999 \cdot X_5 \tag{5}$$

where.
X_1 = Working Capital/Total Assets;
X_2 = Retained Earnings/Total Assets;
X_3 = Earnings before Interest and Taxes/Total Assets;
X_4 = Market Value of Equity/Book Value of Total Liabilities;
X_5 = Sales/Total Assets.

We then replace performance measures with the next year Z-score (ZScore$_{t+1}$) and the 3-year average Z-score (Avg_ZScore$_{t+3}$) in the regression equation (4).

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[23] The average values of three years, Avg_MAR$_{t+3}$ and Avg_ATO$_{t+3}$, are also included for consistency.
[24] Recurrence of losses is somehow related to financial distress but is not exactly the same.

Table 5
Earnings Management, Operating Cash Flows, Net Income and Earnings Smoothing.

This table presents the effects of earning management on operating cash flow, net income and earnings smoothing for UNST companies, UNFIRST companies and small profits companies:

$$Perform_{t+1} = \beta_0 + \beta_1 \times EM_t + \beta_2 \times UNST_t \times EM_t + \beta_3 \times UNFIRST_t \times EM_t + \beta_4 \times UNST_t + \beta_5 \times UNFIRST_t$$
$$+ \beta_6 \times Size_t + \beta_7 \times Lev_t + \beta_8 \times Age_t + \beta_9 \times MB_t + \beta_{10} \times ROE_t + \beta_{11} \times NOI_t + \beta_{12} \times Related_t + \varepsilon$$

UNST companies are companies with 2 consecutive annual losses in year t-2 and t-1, but return to profits in year t. UNFIRST companies are companies with only one annual loss in year t-1 and return to profits in year t. Small profits companies are companies with no annual loss in previous 2 years and ROE is positive but less than 2% in year t. Dependent variable is one year lead (average of three year lead) operating performance calculated by operating cash flow (OCF) and net income (ROA). Smooth measures earnings smoothing over three years after year t. DA is the discretionary accruals estimated by modified Jones (Dechow et al. 1995) model. The sample consists of UNST companies, UNFIRST companies and small profits companies. UNST and UNFIRST are dummy variables for UNST companies and UNFIRST companies respectively. Variables are defined in Appendix A. Industry and year fixed effects are included. Column (1)-(4), Column (5)-(8) and Column (9) to Column (10) are OLS regression results for OCF, ROA and earnings smooth respectively. *, **, *** denote significance at the 10%, 5%, and 1% level. Firm level clustered standard errors are in the parenthesis.

VARIABLES	(1) OCF$_{t+1}$	(2) OCF$_{t+1}$	(3) Avg_OCF$_{t+3}$	(4) Avg_OCF$_{t+3}$	(5) ROA$_{t+1}$	(6) ROA$_{t+1}$	(7) Avg_ROA$_{t+3}$	(8) Avg_ROA$_{t+3}$
DA$_t$	−0.048	−0.049	−0.012	−0.011	−0.039**	−0.041**	−0.046***	−0.037**
	(−1.633)	(−1.464)	(−0.664)	(−0.578)	(−2.483)	(−2.447)	(−2.747)	(−2.563)
UNST$_t$ × DA$_t$	0.097*	0.106**	0.016	0.017	0.093**	0.104**	0.066**	0.059*
	(1.845)	(1.982)	(0.513)	(0.563)	(2.206)	(2.318)	(1.983)	(1.763)
UNFIRST$_t$ × DA$_t$	−0.015	−0.023	−0.022	−0.024	0.026	0.023	0.037	0.026
	(−0.341)	(−0.493)	(−0.782)	(−0.821)	(0.885)	(0.765)	(1.473)	(1.121)
UNST$_t$	0.010	0.019**	−0.003	−0.004	−0.015**	−0.008	−0.009*	−0.010
	(1.431)	(2.261)	(−0.674)	(−0.653)	(−2.134)	(−0.954)	(−1.910)	(−1.360)
UNFIRST$_t$	0.006	0.004	0.004	0.002	0.001	−0.002	0.002	0.000
	(1.629)	(0.880)	(1.504)	(0.683)	(0.385)	(−0.429)	(0.704)	(0.076)
DA$_{t-2}$		−0.021		−0.015		0.005		−0.000
		(−0.930)		(−1.049)		(0.334)		(−0.001)
DA$_{t-1}$		−0.011		−0.035**		−0.039***		−0.037***
		(−0.362)		(−2.245)		(−2.748)		(−2.751)
UNST$_t$ × DA$_{t-2}$		0.025		−0.008		−0.038		−0.034
		(0.461)		(−0.200)		(−0.606)		(−0.680)
UNST$_t$ × DA$_{t-1}$		0.075		0.025		0.114**		0.032
		(1.413)		(0.714)		(2.173)		(0.739)
UNFIRST$_t$ × DA$_{t-2}$		0.033		0.002		0.008		0.021
		(0.854)		(0.073)		(0.218)		(0.760)
UNFIRST$_t$ × DA$_{t-1}$		−0.012		−0.008		−0.009		−0.004
		(−0.262)		(−0.332)		(−0.326)		(−0.189)
Size$_t$	0.005***	0.005***	0.005***	0.005***	0.001	0.001	−0.000	−0.000
	(2.756)	(2.598)	(3.515)	(3.522)	(0.372)	(0.334)	(−0.088)	(−0.031)
Lev$_t$	0.032	0.039*	0.030**	0.034**	0.021	0.029	−0.002	0.001
	(1.610)	(1.877)	(2.070)	(2.347)	(1.128)	(1.537)	(−0.128)	(0.044)
Age$_t$	0.001	−0.001	−0.000	−0.001	−0.005*	−0.004	−0.004	−0.002
	(0.191)	(−0.159)	(−0.126)	(−0.344)	(−1.670)	(−1.016)	(−1.468)	(−0.519)
MB$_t$	−0.001	−0.001	−0.001	−0.000	0.000	0.000	−0.000	0.000
	(−1.538)	(−1.397)	(−1.528)	(−1.070)	(0.562)	(0.359)	(−0.243)	(0.204)
ROE$_t$	0.015	0.015	0.000	0.002	0.023*	0.025**	0.010	0.013
	(1.181)	(1.158)	(0.023)	(0.283)	(1.939)	(2.112)	(1.157)	(1.520)
NOI$_t$	−0.126**	−0.125**	−0.104***	−0.133***	−0.117**	−0.129***	−0.075**	−0.106***
	(−2.489)	(−2.333)	(−3.176)	(−4.150)	(−2.561)	(−2.785)	(−2.117)	(−2.914)
Related$_t$	−0.001	−0.001	0.001	0.001	0.016***	0.015***	0.010***	0.010***
	(−0.123)	(−0.225)	(0.250)	(0.240)	(3.615)	(3.301)	(2.916)	(2.908)
Constant	−0.096**	−0.090**	−0.070**	−0.072**	−0.035	−0.034	−0.026	−0.032
	(−2.323)	(−2.088)	(−2.296)	(−2.246)	(−0.790)	(−0.764)	(−0.657)	(−0.768)
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	2,268	2,127	2,261	2,120	2,268	2,127	2,261	2,120
Adj R^2	0.060	0.067	0.105	0.110	0.061	0.068	0.047	0.056

Table 7 presents the regression results for Altman Z-Score. Higher Z-score means that firms are less likely to fall in financial distresses, so we expect positive effects on Z-score. For the Z-Score in year t+1, the coefficients for UNST$_t$×DA$_t$ are significantly positive, indicating lower likelihood of bankruptcy in the future. The results are robust for 3 year average Z-score. Thus, earnings management triggered by delisting regulations in UNST companies is related with lower probability of bankruptcy, measured by Altman Z-Score,

Table 6

Earnings management, Gross Margin and Assets Turnover.

This table presents the effects of earning management on gross margin and assets trunover for UNST companies, UNFIRST companies and small profits companies:

$$Perform_{t+1} = \beta_0 + \beta_1 \times EM_t + \beta_2 \times UNST_t \times EM_t + \beta_3 \times UNFIRST_t \times EM_t + \beta_4 \times UNST_t + \beta_5 \times UNFIRST_t$$
$$+ \beta_6 \times Size_t + \beta_7 \times Lev_t + \beta_8 \times Age_t + \beta_9 \times MB_t + \beta_{10} \times ROE_t + \beta_{11} \times NOI_t + \beta_{12} \times Related_t + \varepsilon$$

UNST companies are companies with 2 consecutive annual losses in year t-2 and t-1, but return to profits in year t. UNFIRST companies are companies with only one annual loss in year t-1 and return to profits in year t. Small profits companies are companies with no annual loss in previous 2 years and ROE is positive but less than 2% in year t. Dependent variable is one year lead (average of three year lead) operating performance calculated by gross margin (MAR) and assets turnover (ATO). DA is the discretionary accruals estimated by modified Jones (Dechow et al. 1995) model. The sample consists of UNST companies, UNFIRST companies and small profits companies. UNST and UNFIRST are dummy variables for UNST companies and UNFIRST companies respectively. Variables are defined in Appendix A. Industry and year fixed effects are included. Column (1)-(4) and Column (5)-(8) are OLS regression results for MAR and ATO respectively. *, **, *** denote significance at the 10%, 5%, and 1% level. Firm level clustered standard errors are in the parenthesis.

VARIABLES	(1) MAR$_{t+1}$	(2) MAR$_{t+1}$	(3) Avg_MAR$_{t+3}$	(4) Avg_MAR$_{t+3}$	(5) ATO$_{t+1}$	(6) ATO$_{t+1}$	(7) Avg_ATO$_{t+3}$	(8) Avg_ATO$_{t+3}$
DA$_t$	−0.009	−0.041	0.063	0.099	−0.266**	−0.263**	−0.202*	−0.182
	(−0.078)	(−0.354)	(0.454)	(0.703)	(−2.232)	(−1.974)	(−1.908)	(−1.540)
UNST$_t$ × DA$_t$	0.474*	0.547**	0.536*	0.521*	0.529**	0.576**	0.336*	0.356*
	(1.811)	(2.056)	(1.755)	(1.671)	(2.308)	(2.486)	(1.778)	(1.867)
UNFIRST$_t$ × DA$_t$	−0.108	−0.109	−0.340	−0.405	0.134	0.132	0.096	0.070
	(−0.655)	(−0.661)	(−1.334)	(−1.577)	(0.705)	(0.658)	(0.568)	(0.398)
UNST$_t$	−0.102**	−0.081	−0.114**	−0.112*	0.054	0.082*	0.034	0.055
	(−2.525)	(−1.634)	(−2.204)	(−1.785)	(1.402)	(1.942)	(0.988)	(1.498)
UNFIRST$_t$	−0.020	−0.048*	−0.044	−0.068*	0.080***	0.068***	0.064***	0.049**
	(−0.884)	(−1.938)	(−1.294)	(−1.844)	(3.267)	(2.636)	(2.772)	(2.034)
DA$_{t-2}$		0.071		−0.134		−0.090		−0.080
		(0.571)		(−0.611)		(−0.829)		(−0.740)
DA$_{t-1}$		−0.264*		−0.223		−0.273**		−0.283**
		(−1.939)		(−1.204)		(−2.156)		(−2.403)
UNST$_t$ × DA$_{t-2}$		−0.203		−0.261		0.796***		0.719***
		(−0.450)		(−0.471)		(2.921)		(2.849)
UNST$_t$ × DA$_{t-1}$		0.530		0.389		0.176		0.106
		(1.602)		(0.856)		(0.848)		(0.579)
UNFIRST$_t$ × DA$_{t-2}$		0.042		0.297		−0.160		−0.146
		(0.153)		(0.740)		(−0.675)		(−0.664)
UNFIRST$_t$ × DA$_{t-1}$		0.003		−0.074		0.145		0.070
		(0.013)		(−0.272)		(0.753)		(0.385)
Size$_t$	0.048***	0.049***	0.056***	0.060***	0.071***	0.073***	0.068***	0.071***
	(4.347)	(4.206)	(3.579)	(3.638)	(4.575)	(4.566)	(4.635)	(4.650)
Lev$_t$	−0.061	−0.038	−0.236	−0.216	−0.745***	−0.711***	−0.706***	−0.679***
	(−0.457)	(−0.265)	(−1.142)	(−0.990)	(−5.968)	(−5.530)	(−6.136)	(−5.773)
Age$_t$	−0.043***	−0.051**	−0.051***	−0.048*	0.019	0.046	0.010	0.036
	(−2.691)	(−2.243)	(−2.645)	(−1.671)	(0.733)	(1.399)	(0.404)	(1.145)
MB$_t$	0.002	0.003	0.004	0.005	−0.002	−0.003	−0.002	−0.002
	(0.551)	(1.135)	(0.803)	(1.184)	(−0.889)	(−1.363)	(−0.639)	(−0.747)
ROE$_t$	0.116*	0.118*	0.114	0.122*	0.067	0.067	0.058	0.053
	(1.881)	(1.946)	(1.599)	(1.798)	(1.397)	(1.406)	(1.207)	(1.073)
NOI$_t$	−0.775***	−0.806***	−0.688**	−0.793**	0.439	0.487	0.377	0.360
	(−2.928)	(−3.042)	(−2.043)	(−2.279)	(1.379)	(1.503)	(1.335)	(1.254)
Related$_t$	0.054**	0.050*	0.044	0.039	−0.024	−0.021	−0.036	−0.030
	(1.984)	(1.874)	(1.035)	(0.920)	(−0.948)	(−0.823)	(−1.592)	(−1.321)
Constant	−1.281***	−1.279***	−1.492***	−1.582***	−1.204***	−1.307***	−1.083***	−1.192***
	(−4.135)	(−3.989)	(−3.222)	(−3.242)	(−3.709)	(−3.825)	(−3.522)	(−3.677)
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	2,266	0.083	2,256	2,117	2,266	2,125	2,256	2,117
Adj R²	0.083	2,125	0.051	0.049	0.198	0.206	0.210	0.217

6. Further analysis

6.1. Pre-managed earnings

Our main results provide positive consequences of earnings management triggered by delisting regulations for UNST companies in general. However, the earnings management behaviors are not exclusively for delisting regulations. In this sub-section, we partition our sample according to the signs of pre-managed earnings, which are calculated as net income deducted by DA$_t$, to further study the roles of earnings management in avoiding delisting. When the pre-managed earnings

Table 7
Earnings Management and Altman Z-score.

This table presents the effects of earning management on bankruptcy for UNST companies, UNFIRST companies and small profits companies:

$$ZScore_{t+1} = \beta_0 + \beta_1 \times EM_t + \beta_2 \times UNST_t \times EM_t + \beta_3 \times UNFIRST_t \times EM_t + \beta_4 \times UNST_t + \beta_5 \times UNFIRST_t$$
$$+ \beta_6 \times Size_t + \beta_7 \times Lev_t + \beta_8 \times Age_t + \beta_9 \times MB_t + \beta_{10} \times ROE_t + \beta_{11} \times NOI_t + \beta_{12} \times Related_t + \varepsilon$$

UNST companies are companies with 2 consecutive annual losses in year t–2 and t–1, but return to profits in year t. UNFIRST companies are companies with only one annual loss in year t–1 and return to profits in year t. Small profits companies are companies with no annual loss in previous 2 years and ROE is positive but less than 2% in year t. Dependent variable is one year lead (average of three year lead) Altman Z-Score calculated as Altman (1968). DA is the discretionary accruals estimated by modified Jones (Dechow et al. 1995)model. The sample consists of UNST companies, UNFIRST companies and small profits companies. UNST and UNFIRST are dummy variables for UNST companies and UNFIRST companies respectively. Variables are defined in Appendix A. Industry and year fixed effects are included. *, **, *** denote significance at the10%, 5%, and 1% level. Firm level clustered standard errors are in the parenthesis.

VARIABLES	(1) $ZScore_{t+1}$	(2) $ZScore_{t+1}$	(3) $ZScore_{t+1}$	(4) $ZScore_{t+1}$	(5) Avg_ZScore_{t+3}	(6) Avg_ZScore_{t+3}	(7) Avg_ZScore_{t+3}	(8) Avg_ZScore_{t+3}
DA_t	−0.306**	−0.288**	−0.273**	−0.264*	−0.256**	−0.225*	−0.223**	−0.200*
	(−2.446)	(−2.126)	(−2.184)	(−1.920)	(−2.308)	(−1.912)	(−1.989)	(−1.666)
$UNST_t \times DA_t$	0.507**	0.583***	0.490**	0.538**	0.316*	0.347*	0.290	0.312
	(2.379)	(2.673)	(2.237)	(2.403)	(1.682)	(1.861)	(1.522)	(1.632)
$UNFIRST_t \times DA_t$	0.128	0.102	0.123	0.112	0.106	0.059	0.102	0.074
	(0.604)	(0.484)	(0.620)	(0.554)	(0.571)	(0.324)	(0.580)	(0.421)
$UNST_t$	0.016	0.059	0.031	0.055	−0.001	0.032	0.012	0.029
	(0.500)	(1.480)	(0.787)	(1.269)	(−0.037)	(0.881)	(0.337)	(0.769)
$UNFIRST_t$	0.076***	0.050*	0.071***	0.053**	0.062***	0.036	0.057**	0.037
	(3.124)	(1.900)	(2.826)	(2.001)	(2.701)	(1.459)	(2.409)	(1.491)
DA_{t-2}		−0.174		−0.162		−0.129		−0.115
		(−1.569)		(−1.474)		(−1.185)		(−1.056)
DA_{t-1}		−0.399***		−0.327**		−0.404***		−0.332***
		(−2.954)		(−2.480)		(−3.320)		(−2.779)
$UNST_t \times DA_{t-2}$		0.923***		0.846***		0.846***		0.772***
		(3.982)		(3.283)		(3.777)		(3.099)
$UNST_t \times DA_{t-1}$		0.488**		0.239		0.334*		0.106
		(2.436)		(1.091)		(1.766)		(0.545)
$UNFIRST_t \times DA_{t-2}$		−0.053		−0.102		−0.058		−0.091
		(−0.217)		(−0.432)		(−0.252)		(−0.411)
$UNFIRST_t \times DA_{t-1}$		0.125		0.102		0.088		0.055
		(0.583)		(0.499)		(0.440)		(0.287)
$Size_t$			0.046***	0.048***			0.038**	0.040**
			(2.858)	(2.894)			(2.474)	(2.542)
Lev_t			−0.842***	−0.801***			−0.772***	−0.739***
			(−6.751)	(−6.208)			(−6.777)	(−6.309)
Age_t			0.021	0.043			0.016	0.042
			(0.788)	(1.322)			(0.632)	(1.307)
MB_t			−0.000	−0.002			−0.000	−0.000
			(−0.020)	(−0.652)			(−0.163)	(−0.177)
ROE_t			0.060	0.064			0.054	0.049
			(1.184)	(1.287)			(1.101)	(0.973)
NOI_t			0.327	0.347			0.310	0.251
			(1.018)	(1.060)			(1.104)	(0.885)
$Related_t$			−0.009	−0.009			−0.024	−0.018
			(−0.333)	(−0.328)			(−1.019)	(−0.755)
Constant	0.401***	0.420***	−0.560*	−0.645*	0.451***	0.466***	−0.332	−0.433
	(4.457)	(4.481)	(−1.685)	(−1.842)	(5.024)	(5.179)	(−1.037)	(−1.286)
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	2,263	2,122	2,263	2,122	2,241	2,102	2,241	2,102
Adj R²	0.157	0.165	0.183	0.191	0.168	0.177	0.192	0.201

are negative, companies are in losses without earnings management. In this case, earnings management helps companies avoid delisting successfully. When the pre-managed earnings are positive, companies would return to profits even without earnings management. In this case, earning management is not crucial to successful circumvention. Thus, positive effects from negative pre-managed group would provide more direct support to our main results.

Table 8 presents the results of the subsamples partitioned by pre-managed earnings. Panel A reports the results for negative pre-managed earnings, and Panel B reports the results for positive pre-managed earnings. In Panel A, the coefficients associated with $UNST_t \times DA_t$ are always positive for EBIT and negative for losses. In contrast, in Panel B, the signs for the coefficients associated with $UNST_t \times DA_t$ are still positive for EBIT and negative for losses, but most of the coefficients are not statistically significant. However, for UNFIRST companies, we observe favorable impacts from earnings management in the positive pre-managed earnings group, and most coefficients are statistically significant.

Table 8

Pre-Managed Earnings, Earnings Management and Subsequent Performance.

This table presents the partitioned relationship between earning management and subsequent performance for UNST companies, UNFIRST companies and small profits companies:

$$Perform_{t+1} = \beta_0 + \beta_1 \times EM_t + \beta_2 \times UNST_t \times EM_t + \beta_3 \times UNFIRST_t \times EM_t + \beta_4 \times UNST_t + \beta_5 \times UNFIRST_t$$
$$+ \beta_6 \times Size_t + \beta_7 \times Lev_t + \beta_8 \times Age_t + \beta_9 \times MB_t + \beta_{10} \times ROE_t + \beta_{11} \times NOI_t + \beta_{12} \times Related_t + \varepsilon$$

UNST companies are companies with 2 consecutive annual losses in year t-2 and t-1, but return to profits in year t. UNFIRST companies are companies with only one annual loss in year t-1 and return to profits in year t. Small profits companies are companies with no annual loss in previous 2 years and ROE is positive but less than 2% in year t. Dependent variable is one year lead (average of three year lead) operating performance calculated by EBIT and recurrence of losses by Loss. DA is the discretionary accruals estimated by modified Jones (Dechow et al. 1995) model. The sample consists of UNST companies, UNFIRST companies and small profits companies. UNST and UNFIRST are dummy variables for UNST companies and UNFIRST companies respectively. Variables are defined in Appendix A. Industry and year fixed effects are included. OLS regression results and Logit regression results for EBIT and Loss respectively. Panel A and Panel B are the subsamples for negative pre-managed earnings and positive pre-managed earnings respectively. Pre-managed earnings are calculated as net income minu DAs. *, **, *** denote significance at the10%,5%, and 1% level. Firm level clustered standard errors are in the parenthesis.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Panel A: Pre-Managed Income <0								Panel B: Pre-Managed Income >0							
VARIABLES	EBIT$_{t+1}$	EBIT$_{t+1}$	Avg_EBIT$_{t+3}$	Avg_EBIT$_{t+3}$	Loss$_{t+1}$	Loss$_{t+1}$	Avg_Loss$_{t+3}$	Avg_Loss$_{t+3}$	EBIT$_{t+1}$	EBIT$_{t+1}$	Avg_EBIT$_{t+3}$	Avg_EBIT$_{t+3}$	Loss$_{t+1}$	Loss$_{t+1}$	Avg_Loss$_{t+3}$	Avg_Loss$_{t+3}$
DA$_t$	0.027	0.032	0.022	0.052*	−0.417	−0.448	−0.296	−0.414	−0.046	−0.054*	−0.049**	−0.052**	1.647	1.719	0.881	1.027
	(0.908)	(0.947)	(0.700)	(1.754)	(−0.371)	(−0.355)	(−0.257)	(−0.318)	(−1.556)	(−1.724)	(−2.085)	(−2.229)	(0.980)	(0.993)	(0.657)	(0.700)
UNST$_t$ × DA$_t$	0.185**	0.189**	0.124*	0.090	−6.389**	−6.614**	−6.903***	−6.760**	0.094	0.098	0.066	0.073*	−2.277	−2.415	−2.263	−2.630
	(2.244)	(2.144)	(1.816)	(1.286)	(−2.267)	(−2.148)	(−2.693)	(−2.448)	(1.459)	(1.438)	(1.508)	(1.651)	(−1.038)	(−1.048)	(−1.044)	(−1.096)
UNFIRST$_t$ × DA$_t$	0.049	0.014	0.058	0.010	−1.289	−0.933	0.483	0.786	0.090**	0.100**	0.089***	0.104***	−3.460*	−3.379*	−1.615	−2.049
	(0.773)	(0.208)	(1.031)	(0.181)	(−0.664)	(−0.462)	(0.303)	(0.458)	(2.312)	(2.470)	(2.773)	(3.276)	(−1.798)	(−1.701)	(−0.975)	(−1.170)
UNST$_t$	−0.021	−0.015	−0.015*	−0.014	0.802***	0.694**	0.796**	0.681*	−0.007	−0.001	0.002	−0.002	0.271	0.086	0.247	0.251
	(−1.628)	(−1.192)	(−1.650)	(−1.324)	(2.638)	(2.160)	(2.442)	(1.921)	(−0.724)	(−0.078)	(0.328)	(−0.196)	(1.027)	(0.259)	(0.930)	(0.725)
UNFIRST$_t$	−0.007	−0.010	−0.008	−0.008	0.191	0.299	0.091	0.115	0.013***	0.012**	0.013***	0.013***	−0.258	−0.222	−0.126	−0.151
	(−0.985)	(−1.233)	(−1.324)	(−1.293)	(0.884)	(1.313)	(0.457)	(0.542)	(2.737)	(2.450)	(3.460)	(3.452)	(−1.283)	(−1.067)	(−0.730)	(−0.829)
DA$_{t-2}$		0.002		−0.018		0.007		−0.464		0.025		0.030**		−0.434		−0.050
		(0.111)		(−0.766)		(0.008)		(−0.618)		(1.418)		(2.342)		(−0.434)		(−0.059)
DA$_{t-1}$		−0.015		−0.023		0.945		0.596		−0.053***		−0.056***		1.668		2.630**
		(−0.668)		(−1.134)		(1.010)		(0.632)		(−3.000)		(−3.508)		(1.553)		(2.456)
UNST$_t$ × DA$_{t-2}$		0.047		0.023		−1.607		−0.187		−0.095		−0.104**		0.522		0.047
		(0.645)		(0.332)		(−0.859)		(−0.099)		(−1.178)		(−2.176)		(0.281)		(0.026)
UNST$_t$ × DA$_{t-1}$		0.046		0.010		−1.452		−0.921		0.145**		0.035		−3.262**		−1.688
		(0.765)		(0.216)		(−0.837)		(−0.481)		(2.083)		(0.723)		(−2.010)		(−1.030)
UNFIRST$_t$ × DA$_{t-2}$		0.082		0.081*		−0.606		−0.783		−0.040		−0.025		0.651		−2.124
		(1.515)		(1.908)		(−0.401)		(−0.564)		(−1.042)		(−0.987)		(0.427)		(−1.514)
UNFIRST$_t$ × DA$_{t-1}$		−0.038		−0.009		−0.053		−0.297		0.026		0.029		−0.844		−1.514
		(−0.753)		(−0.219)		(−0.032)		(−0.193)		(0.774)		(1.225)		(−0.619)		(−1.079)
Size$_t$	−0.001	−0.000	−0.001	0.000	−0.036	−0.068	0.036	0.009	0.002	0.001	0.000	−0.000	−0.061	−0.020	−0.009	0.041
	(−0.386)	(−0.159)	(−0.253)	(0.112)	(−0.455)	(−0.839)	(0.435)	(0.105)	(1.013)	(0.609)	(0.063)	(−0.137)	(−0.876)	(−0.281)	(−0.134)	(0.581)
Lev$_t$	0.116***	0.115***	0.091***	0.089***	−0.994	−0.994	−0.945	−0.938	0.013	0.022	0.002	0.004	1.426*	1.147	0.660	0.341
	(4.624)	(4.431)	(3.844)	(3.652)	(−1.306)	(−1.280)	(−1.234)	(−1.186)	(0.546)	(0.894)	(0.118)	(0.212)	(1.894)	(1.489)	(0.904)	(0.443)
Age$_t$	−0.004	−0.002	−0.004	−0.002	0.310**	0.267	0.068	−0.134	−0.004	−0.005	−0.003	−0.002	0.259*	0.155	0.324**	0.139
	(−0.875)	(−0.358)	(−1.044)	(−0.326)	(2.235)	(1.447)	(0.469)	(−0.691)	(−1.237)	(−1.201)	(−1.121)	(−0.588)	(1.834)	(0.908)	(2.416)	(0.815)
MB$_t$	−0.001	−0.001	−0.000	−0.000	0.029	0.025	0.013	0.012	0.000	0.000	−0.001	−0.000	0.005	0.010	0.004	0.000
	(−1.127)	(−1.027)	(−0.226)	(−0.236)	(1.510)	(1.243)	(0.618)	(0.557)	(0.778)	(0.337)	(−1.325)	(−0.521)	(0.362)	(0.686)	(0.308)	(0.031)
ROE$_t$	0.038**	0.039**	0.013	0.015	−1.244*	−1.160*	−1.520**	−1.463*	0.021	0.023*	0.007	0.012	−0.643*	−0.618*	−0.448	−0.513
	(2.014)	(1.996)	(0.964)	(1.034)	(−1.776)	(−1.704)	(−1.982)	(−1.909)	(1.641)	(1.826)	(0.758)	(1.455)	(−1.930)	(−1.803)	(−1.292)	(−1.413)
NOI$_t$	−0.235***	−0.213**	−0.101	−0.097	7.198***	6.776***	7.282***	6.874***	−0.070	−0.088*	−0.063*	−0.113***	2.604**	2.995**	3.677**	5.705***
	(−2.867)	(−2.574)	(−1.371)	(−1.332)	(3.053)	(2.957)	(3.325)	(3.110)	(−1.578)	(−1.939)	(−1.841)	(−3.578)	(2.352)	(2.374)	(2.506)	(3.673)
Related$_t$	0.010**	0.009*	0.006	0.005	−0.352*	−0.327*	−0.291	−0.299	0.020***	0.019***	0.010**	0.010***	−0.394**	−0.382*	−0.210	−0.245
	(2.209)	(1.936)	(1.381)	(1.203)	(−1.924)	(−1.785)	(−1.568)	(−1.579)	(2.929)	(2.755)	(1.980)	(2.151)	(−1.966)	(−1.892)	(−1.253)	(−1.405)
Constant	0.004	−0.012	0.002	−0.022	−0.913	−0.151	−0.353	0.733	−0.060	−0.036	−0.024	−0.019	0.198	−0.457	−0.204	−1.014
	(0.070)	(−0.183)	(0.043)	(−0.391)	(−0.528)	(−0.085)	(−0.198)	(0.386)	(−1.203)	(−0.719)	(−0.594)	(−0.437)	(0.124)	(−0.285)	(−0.128)	(−0.603)
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1,038	963	1,035	960	1,038	963	1,035	960	1,230	1,164	1,224	1,158	1,228	1,162	1,222	1,156
Adj R²/Pseudo R²	0.095	0.099	0.069	0.084	0.085	0.085	0.050	0.056	0.069	0.077	0.057	0.075	0.084	0.084	0.065	0.074

Table 9
Direction of Earnings Management.

This table presents the partitioned relationship between earning management and subsequent performance for UNST companies, UNFIRST companies and small profits companies:

$$Perform_{t+1} = \beta_0 + \beta_1 \times EM_t + \beta_2 \times UNST_t \times EM_t + \beta_3 \times UNFIRST_t \times EM_t + \beta_4 \times UNST_t + \beta_5 \times UNFIRST_t$$
$$+ \beta_6 \times Size_t + \beta_7 \times Lev_t + \beta_8 \times Age_t + \beta_9 \times MB_t + \beta_{10} \times ROE_t + \beta_{11} \times NOI_t + \beta_{12} \times Related_t + \varepsilon$$

UNST companies are companies with 2 consecutive annual losses in year t-2 and t-1, but return to profits in year t. UNFIRST companies are companies with only one annual loss in year t-1 and return to profits in year t. Small profits companies are companies with no annual loss in previous 2 years and ROE is positive but less than 2% in year t. Dependent variable is one year lead (average of three year lead) operating performance calculated by EBIT and recurrence of losses by Loss. DA is the discretionary accruals estimated by modified Jones (Dechow et al. 1995) model. The sample consists of UNST companies, UNFIRST companies and small profits companies. UNST and UNFIRST are dummy variables for UNST companies and UNFIRST companies respectively. Variables are defined in Appendix A. Industry and year fixed effects are included. OLS regression results and Logit regression results for EBIT and Loss respectively. Panel A and Panel B are the subsamples for downwards earnings management and upwards earnings management respectively. *, **, *** denote significance at the 10%, 5%, and 1% level. Firm level clustered standard errors are in the parenthesis.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Panel A: Downward Earnings Management								Panel B: Upwards Earnings Management							
	$EBIT_{t+1}$	$EBIT_{t+1}$	Avg_EBIT_{t+3}	Avg_EBIT_{t+3}	$Loss_{t+1}$	$Loss_{t+1}$	Avg_Loss_{t+3}	Avg_Loss_{t+3}	$EBIT_{t+1}$	$EBIT_{t+1}$	Avg_EBIT_{t+3}	Avg_EBIT_{t+3}	$Loss_{t+1}$	$Loss_{t+1}$	Avg_Loss_{t+3}	Avg_Loss_{t+3}
DA_t	−0.055*	−0.066**	−0.050**	−0.054**	2.097	2.327	0.967	1.207	0.008	0.007	0.010	0.036	0.021	0.079	−0.090	−0.232
	(−1.776)	(−2.028)	(−2.004)	(−2.159)	(1.224)	(1.308)	(0.688)	(0.782)	(0.277)	(0.226)	(0.336)	(1.303)	(0.020)	(0.068)	(−0.082)	(−0.188)
$UNST_t \times DA_t$	0.012	−0.007	0.032	0.045	0.136	0.521	−0.367	−0.529	0.118*	0.134*	0.102*	0.073	−3.268*	−3.706*	−5.164***	−5.016**
	(0.150)	(−0.089)	(0.551)	(0.809)	(0.052)	(0.186)	(−0.154)	(−0.203)	(1.780)	(1.824)	(1.821)	(1.278)	(−1.686)	(−1.699)	(−2.662)	(−2.391)
$UNFIRST_t \times DA_t$	0.001	0.008	0.005	0.015	−0.057	0.114	0.092	−0.226	0.044	0.021	0.047	0.008	−1.946	−1.527	−0.221	0.375
	(0.029)	(0.157)	(0.124)	(0.381)	(−0.024)	(0.046)	(0.047)	(−0.109)	(0.825)	(0.370)	(1.035)	(0.184)	(−1.126)	(−0.847)	(−0.149)	(0.236)
$UNST_t$	−0.011	−0.010	0.004	0.001	0.320	0.285	0.359	0.319	−0.018	−0.012	−0.014	−0.015	0.600**	0.492*	0.618**	0.606**
	(−0.851)	(−0.639)	(0.476)	(0.098)	(0.997)	(0.706)	(1.102)	(0.769)	(−1.516)	(−0.991)	(−1.643)	(−1.526)	(2.362)	(1.796)	(2.309)	(2.074)
$UNFIRST_t$	0.004	0.004	0.005	0.005	0.028	0.032	0.062	0.015	0.000	−0.002	−0.001	−0.001	0.105	0.203	0.011	0.039
	(0.771)	(0.660)	(1.278)	(1.251)	(0.122)	(0.134)	(0.304)	(0.071)	(0.064)	(−0.363)	(−0.194)	(−0.106)	(0.564)	(1.062)	(0.064)	(0.203)
DA_{t-2}		0.026		0.036***		−0.359		−0.061		0.004		−0.018		−0.065		−0.336
		(1.394)		(2.667)		(−0.356)		(−0.070)		(0.178)		(−0.831)		(−0.076)		(−0.459)
DA_{t-1}		−0.048***		−0.052***		1.692		2.761**		−0.024		−0.029		0.902		0.718
		(−2.603)		(−3.071)		(1.553)		(2.482)		(−1.065)		(−1.481)		(0.993)		(0.795)
$UNST_t \times DA_{t-2}$		−0.042		−0.074		−0.201		−1.471		−0.038		−0.022		−0.189		0.899
		(−0.515)		(−1.623)		(−0.096)		(−0.778)		(−0.522)		(−0.357)		(−0.110)		(0.539)
$UNST_t \times DA_{t-1}$		0.071		0.004		−1.531		−1.248		0.110*		0.024		−2.101		−0.752
		(0.927)		(0.083)		(−0.886)		(−0.674)		(1.891)		(0.582)		(−1.454)		(−0.485)
$UNFIRST_t \times DA_{t-2}$		−0.023		−0.009		0.602		−1.778		0.029		0.038		0.103		−1.068
		(−0.550)		(−0.325)		(0.371)		(−1.126)		(0.621)		(1.018)		(0.075)		(−0.875)
$UNFIRST_t \times DA_{t-1}$		0.041		0.047		−1.524		−2.274		−0.033		−0.012		0.378		0.376
		(1.085)		(1.645)		(−1.001)		(−1.465)		(−0.759)		(−0.345)		(0.252)		(0.266)
$Size_t$	0.002	0.001	0.000	−0.000	−0.060	−0.024	0.003	0.067	0.000	0.000	−0.000	0.000	−0.045	−0.056	0.014	−0.004
	(0.791)	(0.444)	(0.027)	(−0.198)	(−0.805)	(−0.305)	(0.037)	(0.874)	(0.049)	(0.017)	(−0.147)	(0.096)	(−0.594)	(−0.742)	(0.181)	(−0.054)
Lev_t	0.023	0.030	0.001	0.004	1.213	0.998	0.895	0.451	0.083***	0.090***	0.075***	0.074***	−0.164	−0.301	−0.708	−0.732
	(0.896)	(1.125)	(0.044)	(0.235)	(1.452)	(1.152)	(1.115)	(0.531)	(3.405)	(3.539)	(3.541)	(3.376)	(−0.239)	(−0.424)	(−1.005)	(−1.009)
Age_t	−0.002	−0.001	−0.002	0.000	0.226	0.032	0.273*	0.008	−0.006	−0.006	−0.005	−0.004	0.351***	0.345**	0.153	−0.004
	(−0.662)	(−0.129)	(−0.700)	(0.012)	(1.496)	(0.172)	(1.842)	(0.043)	(−1.548)	(−1.195)	(−1.411)	(−0.794)	(2.659)	(2.039)	(1.128)	(−0.021)
MB_t	0.001	0.001	−0.000	0.000	0.003	0.011	0.003	0.004	−0.001	−0.001	−0.000	−0.000	0.016	0.013	0.002	−0.000
	(1.588)	(1.214)	(−0.254)	(0.445)	(0.196)	(0.603)	(0.152)	(0.196)	(−1.624)	(−1.463)	(−0.922)	(−0.721)	(1.047)	(0.845)	(0.139)	(−0.018)
ROE_t	0.022	0.030	0.008	0.016	−1.108**	−1.403***	−0.898	−1.237**	0.024**	0.024**	0.012	0.014	−0.468	−0.455	−0.666	−0.679
	(1.120)	(1.592)	(0.608)	(1.325)	(−2.215)	(−2.632)	(−1.500)	(−1.997)	(2.057)	(2.159)	(1.242)	(1.426)	(−1.476)	(−1.401)	(−1.559)	(−1.600)
NOI_t	−0.186**	−0.246***	−0.145**	−0.213***	6.343***	8.269***	6.293**	9.464***	−0.071	−0.064	−0.032	−0.042	2.484	2.400	4.454***	4.601***
	(−2.149)	(−2.814)	(−2.244)	(−3.845)	(3.329)	(4.249)	(2.364)	(3.991)	(−1.279)	(−1.123)	(−0.703)	(−0.903)	(1.506)	(1.423)	(2.697)	(2.694)

Table 9 (*continued*)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Panel A: Downward Earnings Management								Panel B: Upwards Earnings Management							
Related$_t$	0.013*	0.013*	0.008	0.010*	−0.292	−0.316	−0.243	−0.327*	0.015***	0.014***	0.007**	0.006*	−0.320**	−0.303*	−0.226	−0.233
	(1.651)	(1.674)	(1.351)	(1.865)	(−1.360)	(−1.472)	(−1.268)	(−1.647)	(3.285)	(2.921)	(1.968)	(1.661)	(−2.056)	(−1.910)	(−1.403)	(−1.433)
Constant	−0.060	−0.042	−0.022	−0.018	0.232	−0.211	−0.364	−1.210	−0.009	−0.007	−0.002	−0.016	−0.911	−0.634	−0.109	0.608
	(−1.116)	(−0.777)	(−0.481)	(−0.405)	(0.138)	(−0.122)	(−0.209)	(−0.673)	(−0.147)	(−0.109)	(−0.043)	(−0.303)	(−0.559)	(−0.379)	(−0.066)	(0.347)
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1,065	1,006	1,059	1,000	1,064	1,005	1,058	999	1,203	1,121	1,200	1,118	1,202	1,120	1,199	1,117
Adj R^2/Pseduo R^2	0.083	0.087	0.054	0.075	0.098	0.100	0.071	0.083	0.072	0.078	0.059	0.071	0.065	0.065	0.043	0.050

Table 10
Market Consequences of Earnings Management.

This table presents the relationship between earning management and subsequent performance for UNST companies, UNFIRST companies and small profits companies:

$$BHAR_{t+12/24/36} = \beta_0 + \beta_1 \times EM + \beta_2 \times UNST \times EM + \beta_3 \times UNFIRST \times EM + \beta_4 \times UNST + \beta_5 \times UNFIRST + \beta_6 \times Size_t$$
$$+\beta_7 \times Lev_t + \beta_8 \times Age_t + \beta_{10} \times MB_t + \beta_{11} \times ROE_t + \beta_{12} \times NOI_t + \beta_{13} \times Related_t + \beta_{13} \times Turnover_{t+12/24/36} + \varepsilon$$

UNST companies are companies with 2 consecutive annual losses in year t-2 and t-1, but return to profits in year t. UNFIRST companies are companies with only one annual loss in year t-1 and return to profits in year t. Small profits companies are companies with no annual loss in previous 2 years and ROE is positive but less than 2% in year t. Dependent variable is 12/24/36 month lead market performance calculated by BHAR (buy-and-hold abnormal returns). EM is the discretionary accruals estimated by modified Jones (Dechow et al. 1995) model in year t, year/t and year/t^{-2}(−|-). The sample consists of UNST companies, UNFIRST companies and small profits companies. UNST and UNFIRST are dummy variables for UNST companies and UNFIRST companies respectively. Variables are defined in Appendix A. Industry and year fixed effects are included. Firm level clustered standard errors are in the parenthesis. *, **, *** denote significance at the10%, 5%, and 1% level.

VARIABLES	(1) BHAR$_{t+12}$	(2) BHAR$_{t+12}$	(3) BHAR$_{t+24}$	(4) BHAR$_{t+24}$	(5) BHAR$_{t+36}$	(6) BHAR$_{t+36}$
DA$_t$	−0.329**	−0.305*	−0.756***	−0.770***	−0.925***	−0.751**
	(−2.052)	(−1.863)	(−3.178)	(−3.042)	(−2.933)	(−2.444)
UNST$_t$ × DA$_t$	0.439**	0.425**	0.803*	0.854*	1.366*	1.259*
	(2.088)	(2.001)	(1.836)	(1.856)	(1.928)	(1.757)
UNFIRST$_t$ × DA$_t$	0.469**	0.403**	0.424	0.428	0.874**	0.579
	(2.400)	(2.011)	(1.258)	(1.232)	(2.061)	(1.363)
UNST$_t$	0.004	0.012	0.011	0.052	0.090	0.210
	(0.112)	(0.286)	(0.162)	(0.630)	(0.909)	(1.479)
UNFIRST$_t$	−0.035	−0.032	−0.087**	−0.066	0.014	0.002
	(−1.355)	(−1.137)	(−2.060)	(−1.435)	(0.230)	(0.035)
DA$_{t-2}$		0.038		−0.009		0.424
		(0.242)		(−0.037)		(1.472)
DA$_{t-1}$		−0.227		−0.191		−0.278
		(−1.351)		(−0.676)		(−0.741)
UNST$_t$ × DA$_{t-2}$		0.248		0.090		0.853
		(0.977)		(0.175)		(1.053)
UNST$_t$ × DA$_{t-1}$		0.131		0.506		0.628
		(0.519)		(0.993)		(0.862)
UNFIRST$_t$ × DA$_{t-2}$		−0.193		−0.241		−0.076
		(−0.914)		(−0.696)		(−0.165)
UNFIRST$_t$ × DA$_{t-1}$		0.254		0.421		0.246
		(1.162)		(1.170)		(0.499)
Size$_t$	−0.022**	−0.014	−0.071***	−0.061***	−0.112***	−0.116***
	(−1.993)	(−1.262)	(−3.723)	(−2.995)	(−4.217)	(−4.183)
Lev$_t$	−0.232***	−0.210**	−0.145	−0.071	0.222	0.203
	(−2.648)	(−2.287)	(−0.725)	(−0.345)	(0.728)	(0.652)
Age$_t$	−0.016	0.011	−0.013	0.018	−0.010	0.028
	(−0.754)	(0.373)	(−0.290)	(0.297)	(−0.150)	(0.349)
MB$_t$	−0.004**	−0.003*	−0.010***	−0.010***	−0.019***	−0.019***
	(−2.150)	(−1.827)	(−3.031)	(−2.787)	(−3.703)	(−3.619)
ROE$_t$	−0.050	−0.058	−0.063	−0.076	−0.182**	−0.228**
	(−1.180)	(−1.344)	(−0.817)	(−0.972)	(−2.123)	(−2.524)
NOI$_t$	−0.400***	−0.337**	0.078	0.207	−0.824*	−0.615
	(−2.687)	(−2.071)	(0.218)	(0.552)	(−1.787)	(−1.451)
Related$_t$	0.002	0.011	−0.051	−0.043	−0.036	−0.027
	(0.110)	(0.505)	(−1.319)	(−1.109)	(−0.642)	(−0.494)
Turnover$_{t+12}$	0.001	0.002				
	(1.022)	(1.265)				
Turnover$_{t+24}$			−0.006***	−0.006***		
			(−3.015)	(−2.954)		
Turnover$_{t+36}$					−0.019***	−0.019***
					(−5.854)	(−5.736)
Constant	0.393*	0.175	1.525***	1.246***	2.343***	2.373***
	(1.655)	(0.699)	(3.611)	(2.793)	(3.820)	(3.706)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Obs	2,268	2,127	1,891	1,775	1,618	1,524
Adj R^2	0.028	0.024	0.054	0.057	0.104	0.116

Table 8 also provides further evidence about how delisting pressure affects the consequences of earnings management for small profit companies. In the negative pre-managed earnings group, the adverse effects from DA$_t$ disappear, and the coefficients associated with DA$_t$ all become positive in Panel A. The reason is that small profit companies would be closer to delisting due to the losses without earnings management.

6.2. Direction of earnings management

In this subsection, we make further analysis by taking account of the directions of earnings management. Because UNST companies try to return to profits, we expect an upwards direction of earnings management triggered by delisting regulations. We divide our sample by the directions of earnings into upwards earnings management, in which DA_t is positive, and downwards earnings management, in which DA_t is negative. Panel A in Table 9 presents the consequences of earnings management for downwards earnings management, and Panel B presents consequences for upwards earnings management. We observe significant favorable effects from upwards earnings management for UNST companies. In Panel B, the coefficients associated with $UNST_t \times DA_t$ are all positive for EBIT and negative for recurrence of losses. Although the results from EBIT are not as strong as those from losses, most of coefficients are statistically significant. In Panel A, however, the coefficients associated with $UNST_t \times DA_t$ are not significant across all columns in downwards earnings management.

6.3. Market consequences

For regulators, the purposes of any regulations should be on the best interest of investors. In the context of delisting regulations, opportunistic earnings management to avoid delisting may be optimal for shareholders because good companies would be delisted otherwise. To gain more insight about this issue, we need to examine the wealth effects of shareholders. Accounting measures are ex post and subject to manipulation, while market consequences reflect investors' expectation of the future. For this reason, in this subsection, we investigate the market consequences of earnings management in UNST companies. To measure market consequences, we construct 12-, 24-, or 36-month lead BHAR (buy-and-hold abnormal returns), which is calculated as

$$BHAR_{t+12/24/36} = \prod_{i=1}^{12/24/36}(1 + R_{t+i}) - \prod_{i=1}^{12/24/36}(1 + Market_{t+i}) \tag{6}$$

where R_{t+i} and $Market_{t+i}$ are monthly stock return and monthly equal-weight market return respectively, both starting from May in year t+1.[25] We replace performance measures in equation (4) with $BHAR_{t+12/24/36}$, as shown in equation (7).

$$BHAR_{t+12/24/36} = \beta_0 + \beta_1 \times EM_t + \beta_2 \times UNST \times EM_t + \beta_3 \times UNFIRST \times EM_t + \beta_4 \times UNST + \beta_5 \times UNFIRST + \beta_6 \times Size_t$$
$$+ \beta_7 \times Lev_t + \beta_8 \times Age_t + \beta_9 \times MB_t + \beta_{10} \times ROE_t + \beta_{11} \times NOI_t + \beta_{12} \times Related_t + \beta_{13} \times Turnover_{t+12/24/36} + \varepsilon \tag{7}$$

Market performance may be affected by liquidity, so we add contemporaneous turnover in the equation (7).

Table 10 reports the regression results for market consequences. All the coefficients for the interaction terms between $UNST_t$ and DA_t in the 12-month, 24-month and 36-month regressions are positive and statistically significant, and the magnitude of the coefficients increases monotonically from 12 months to 36 months. For UNFIRST companies, the coefficients are only significantly positive within 12 month and partially significant within 36 months. Within 24-month, however, no significance is observed for UNFIRST companies. From the results of the market consequences, the implementation of earnings management induced by delisting regulations is in the best interest of shareholders.

6.4. Time series

All cross-sectional analyses indicate positive consequences of earnings management triggered by delisting regulations in UNST firms. As control samples, small profit companies and UNFIRST companies also face delisting pressure. In fact, UNFIRST companies are those who avoid ST, and small profit companies also face potential threat of delisting in the future. Thus, the difference between UNST companies and the control sample is not the presence of the delisting but the extent of delisting.

To address this concern, we examine the variations before and after the implementation of the delisting regulations. Since the earnings-based delisting regulations were implemented in 2002, we construct a dummy variable, After, which is 1 in year 2003 or later and 0 in year 2001 or before. In equations (8) and (9), we include the interaction term between the dummy variable, After, and DA_t for our analysis. Since investor protection is always important for regulations, the BHAR is also included. Because the "ST" rules started in 1998, the delisting regulation vs non-delisting regulation analysis uses data from 1998 to 2014, in which changes in the earnings-based delisting regulations are observed. To investigate the effects of the delisting regulations, the regression equations (8) and (9) are performed for UNST companies, UNFIRST companies and small profit companies, respectively.

$$Perform_{t+1} = \beta_0 + \beta_1 \times EM_t + \beta_2 \times After \times EM_t + \beta_3 \times After_t + \beta_4 \times Size_t$$
$$+ \beta_5 \times Lev_t + \beta_6 \times Age_t + \beta_7 \times MB_t + \beta_8 \times ROE_t + \beta_9 \times NOI_t + \beta_{10} \times Related_t + \varepsilon \tag{8}$$

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[25] April 30th is the deadline for the announcement of financial statements in China's market.

Table 11
Delist Regulation vs Non Delist Regulation.

This table presents analysis of earnings management and subsequent performance from non-delisting regulation period, for UNST companies, UNFIRST companies and small profit companies respectively. UNST companies are companies with 2 consecutive annual losses in year t-2 and t-1, but return to profits in year t. UNFIRST companies are companies with only one annual loss in year t-1 and return to profits in year t. Small profits companies are companies with no annual loss in previous 2 years and ROE is positive but less than 2% in year t. Panel A compares the relationship between earnings management and performance before and after delist regulation. AFTER is the dummy variable which equals 1 in year 2003 or later and 0 in year 2001 or before. Panel B presents the results of falsification test. Fals_AFTER is the dummy variable which equals 1 in year 2009 or later and 0 in year 2007 or before. Variables are defined in Appendix A. Industry and year fixed effects are included. Firm level clustered standard errors are in the parenthesis. *, **, *** denote significance at the10%, 5%, and 1% level.

Panel A Delist Regulation vs Non Delist Regulation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	UNST						UNFIRST						Small Profit					
VARIABLES	$EBIT_{t+1}$	$EBIT_{t+1}$	$Loss_{t+1}$	$Loss_{t+1}$	$BHAR_{t+12}$	$BHAR_{t+12}$	$EBIT_{t+1}$	$EBIT_{t+1}$	$Loss_{t+1}$	$Loss_{t+1}$	$BHAR_{t+12}$	$BHAR_{t+12}$	$EBIT_{t+1}$	$EBIT_{t+1}$	$Loss_{t+1}$	$Loss_{t+1}$	$BHAR_{t+12}$	$BHAR_{t+12}$
DA_t	−0.220	−0.375**	15.051*	19.757	−0.728*	−0.873*	−0.110	−0.260*	8.097*	28.716**	0.186	−0.557	−0.202***	−0.157	3.693*	0.987	−0.330	0.381
	(−1.581)	(−2.306)	(1.691)	(1.529)	(−1.671)	(−1.842)	(−1.082)	(−1.723)	(1.868)	(2.188)	(0.322)	(−1.419)	(−3.014)	(−1.504)	(1.712)	(0.330)	(−1.120)	(1.040)
After × DA_t	0.286*	0.441***	−16.447*	−21.189	0.865*	1.000**	0.072	0.227	−7.105	−27.615**	−0.040	0.665	0.160**	0.122	−2.243	0.240	−0.129	−0.804*
	(1.910)	(2.632)	(−1.808)	(−1.637)	(1.896)	(2.063)	(0.690)	(1.479)	(−1.632)	(−2.101)	(−0.068)	(1.597)	(2.334)	(1.143)	(−1.001)	(0.078)	(−0.368)	(−1.890)
After	−0.156***	−0.076	0.623	1.746	0.419*	−0.059	−0.061***	0.004	2.742**	0.246	−0.123	−0.212**	0.008	0.026**	0.111	0.543	0.009	−0.283***
	(−2.865)	(−1.285)	(0.470)	(1.314)	(1.900)	(−0.383)	(−3.909)	(0.118)	(2.054)	(0.295)	(−0.566)	(−2.109)	(0.627)	(2.223)	(0.272)	(1.316)	(0.089)	(−4.842)
DA_{t-2}		−0.520*		12.957		−0.511		−0.200		15.554**		0.384		0.024		2.445		−0.202
		(−1.814)		(0.877)		(−0.817)		(−0.757)		(2.178)		(0.628)		(0.225)		(1.005)		(−0.646)
DA_{t-1}		0.474***		−9.342*		0.200		−0.042		−1.323		0.497		−0.171		4.525		−0.571**
		(3.944)		(−1.647)		(0.805)		(−0.210)		(−0.156)		(0.909)		(−1.623)		(1.568)		(−2.231)
After × DA_{t-2}		0.498*		−11.013		0.777		0.226		−15.496**		−0.518		−0.023		−2.433		0.227
		(1.658)		(−0.743)		(1.192)		(0.834)		(−2.144)		(−0.822)		(−0.209)		(−0.967)		(0.645)
After × DA_{t-1}		−0.355**		8.841		−0.430		0.011		1.594		−0.525		0.149		−3.820		0.420
		(−2.563)		(1.524)		(−1.430)		(0.054)		(0.187)		(−0.930)		(1.404)		(−1.288)		(1.358)
$Size_t$	0.008	0.006	−0.157	−0.201	0.006	0.009	0.001	0.001	−0.030	−0.007	−0.002	0.007	0.002	0.001	−0.073	−0.045	−0.070***	−0.061***
	(0.997)	(0.692)	(−1.159)	(−1.428)	(0.257)	(0.385)	(0.442)	(0.313)	(−0.354)	(−0.081)	(−0.138)	(0.398)	(0.874)	(0.432)	(−0.866)	(−0.492)	(−4.237)	(−3.455)
Lev_t	0.103**	0.134***	0.104	−0.107	−0.127*	−0.190***	0.043*	0.056**	0.619	0.214	0.016	−0.018	0.039**	0.040**	0.722	0.743	−0.235*	−0.152
	(2.431)	(3.102)	(0.176)	(−0.164)	(−1.951)	(−2.704)	(1.665)	(1.993)	(0.664)	(0.212)	(0.096)	(−0.108)	(2.429)	(2.249)	(0.931)	(0.895)	(−1.771)	(−1.037)
Age_t	0.039*	0.037	−0.190	−0.179	0.002	0.033	−0.004	−0.004	0.365*	0.353	−0.002	0.010	−0.006**	−0.009***	0.158	0.158	0.011	0.029
	(1.750)	(1.622)	(−0.454)	(−0.416)	(0.034)	(0.513)	(−0.640)	(−0.655)	(1.923)	(1.590)	(−0.058)	(0.238)	(−2.454)	(−3.026)	(1.306)	(0.958)	(0.405)	(0.705)
MB_t	0.000	0.000	−0.005	−0.005	−0.001	−0.001	−0.000	−0.001	0.022	0.028	−0.003	−0.001	0.000	−0.000	0.022	0.042	−0.040***	−0.043***
	(1.058)	(0.525)	(−1.526)	(−1.372)	(−1.328)	(−1.093)	(−0.505)	(−0.741)	(1.321)	(1.611)	(−0.851)	(−0.271)	(0.179)	(−0.049)	(0.503)	(0.918)	(−6.051)	(−6.012)
ROE_t	0.004	0.002	−0.284	−0.287	−0.022	−0.020	0.025**	0.024**	−0.386	−0.381	−0.091*	−0.089*	1.295***	1.128***	−75.720***	−70.013***	6.301**	6.302**
	(0.428)	(0.261)	(−1.427)	(−1.355)	(−0.839)	(−0.747)	(2.146)	(2.013)	(−1.126)	(−1.088)	(−1.774)	(−1.648)	(4.777)	(3.874)	(−6.520)	(−5.542)	(2.544)	(2.304)
NOI_t	−0.098	−0.055	3.865**	3.988**	0.019	−0.010	0.055	0.019	−1.455	−1.421	−0.532***	−0.506**	−0.108	−0.253*	12.169**	17.683***	0.445	0.463
	(−1.599)	(−0.873)	(2.169)	(2.113)	(0.148)	(−0.069)	(1.103)	(0.348)	(−1.342)	(−1.137)	(−3.329)	(−2.810)	(−0.812)	(−1.869)	(2.284)	(3.181)	(0.368)	(0.357)
$Related_t$	0.005*	0.004	−0.314***	−0.301**	−0.002	−0.000	0.021***	0.022***	−0.547***	−0.618***	−0.006	−0.008	−0.004	−0.005	0.207	0.204	0.018	0.033
	(1.818)	(1.507)	(−2.589)	(−2.352)	(−0.627)	(−0.092)	(4.114)	(4.105)	(−2.884)	(−3.002)	(−0.206)	(−0.260)	(−0.808)	(−0.885)	(0.993)	(0.947)	(0.530)	(0.991)
$Turnover_{t+12}$					−0.002	−0.002					0.001	0.001					0.002	0.003
					(−1.255)	(−1.312)					(0.563)	(0.681)					(1.154)	(1.608)
Constant	−0.140	−0.175	1.639	1.590	−0.617	−0.281	−0.024	−0.070	−2.803	−1.107	−0.010	−0.119	−0.048	−0.037	1.585	0.435	1.277***	1.331***
	(−0.880)	(−0.929)	(0.523)	(0.468)	(−1.228)	(−0.548)	(−0.319)	(−0.781)	(−1.275)	(−0.519)	(−0.027)	(−0.305)	(−1.101)	(−0.862)	(0.832)	(0.207)	(3.524)	(3.434)
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	312	291	307	285	312	291	822	746	820	742	822	746	1,507	1,279	1,507	1,279	1,507	1,279
Adj R²/Pseduo R²	0.123	0.151	0.220	0.225	0.027	0.035	0.049	0.044	0.083	0.090	0.029	0.022	0.107	0.111	0.091	0.097	0.051	0.048

Panel B Falsification Test

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	UNST						UNFIRST						Small Profit					
VARIABLES	$EBIT_{t+1}$	$EBIT_{t+1}$	$Loss_{t+1}$	$Loss_{t+1}$	$BHAR_{t+12}$	$BHAR_{t+12}$	$EBIT_{t+1}$	$EBIT_{t+1}$	$Loss t+1$	$Loss t+1$	$BHAR_{t+12}$	$BHAR_{t+12}$	$EBIT_{t+1}$	$EBIT_{t+1}$	$Loss_{t+1}$	$Loss_{t+1}$	$BHAR_{t+12}$	$BHAR_{t+12}$
DA_t	0.011	0.066	0.473	−1.139	−0.173	−0.199	−0.065	−0.065	1.176	1.280	0.111	0.063	−0.125***	−0.115***	2.141*	1.567	−0.806***	−0.749**
	(0.133)	(0.743)	(0.287)	(−0.545)	(−0.801)	(−0.847)	(−1.398)	(−1.260)	(0.927)	(0.908)	(0.591)	(0.325)	(−4.023)	(−3.249)	(1.800)	(1.165)	(−3.089)	(−2.345)
Fals_After × DA_t	0.061	−0.013	−2.275	−0.326	0.329	0.335	0.041	0.042	−0.229	−0.070	0.059	0.054	0.115***	0.113***	−1.142	−0.803	0.741**	0.759**
	(0.610)	(−0.122)	(−1.070)	(−0.136)	(1.281)	(1.219)	(0.791)	(0.724)	(−0.163)	(−0.045)	(0.282)	(0.247)	(3.226)	(2.816)	(−0.733)	(−0.460)	(2.228)	(2.027)
Fals_After	−0.142***	−0.111**	0.635	2.283*	0.477**	−0.101	−0.057***	0.012	2.407**	−0.074	−0.131	−0.190**	0.006	0.026**	0.124	0.474	0.012	−0.278***
	(−2.907)	(−2.165)	(0.477)	(1.842)	(1.979)	(−0.619)	(−3.793)	(0.421)	(2.157)	(−0.112)	(−0.596)	(−2.083)	(0.487)	(2.276)	(0.305)	(1.215)	(0.115)	(−4.822)

Table 11 (continued)

Panel B Falsification Test

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	UNST						UNFIRST						Small Profit					
	$EBIT_{t+1}$	$EBIT_{t+1}$	$Loss_{t+1}$	$Loss_{t+1}$	$BHAR_{t+12}$	$BHAR_{t+12}$	$EBIT_{t+1}$	$EBIT_{t+1}$	$Loss_{t+1}$	$Loss_{t+1}$	$BHAR_{t+12}$	$BHAR_{t+12}$	$EBIT_{t+1}$	$EBIT_{t+1}$	$Loss_{t+1}$	$Loss_{t+1}$	$BHAR_{t+12}$	$BHAR_{t+12}$
DA_{t-2}		-0.171		5.176*		0.092		-0.048		1.903		-0.016		-0.018		2.048**		-0.198
		(-1.646)		(1.940)		(0.429)		(-0.940)		(1.278)		(-0.068)		(-0.612)		(2.045)		(-0.927)
DA_{t-1}		0.237**		-3.011**		-0.188		-0.110**		1.724		0.260		-0.074**		2.009*		-0.393*
		(2.441)		(-2.107)		(-1.233)		(-2.309)		(0.984)		(1.088)		(-2.422)		(1.747)		(-1.755)
Fals_After × DA_{t-2}		0.291**		-4.074		0.324		0.100		-2.549		-0.095		0.025		-2.296*		0.323
		(1.997)		(-1.282)		(0.720)		(1.625)		(-1.495)		(-0.325)		(0.741)		(-1.736)		(1.135)
Fals_After × DA_{t-1}		-0.228*		5.359***		-0.169		0.072		-1.087		-0.374		0.069**		-2.215		0.371
		(-1.670)		(2.583)		(-0.550)		(1.267)		(-0.543)		(-1.334)		(2.001)		(-1.489)		(1.112)
$Size_t$	0.004	0.003	-0.122	-0.201	0.005	0.002	0.000	-0.000	-0.023	0.011	0.009	0.020	0.002	-0.000	-0.087	-0.031	-0.059***	-0.054***
	(0.480)	(0.340)	(-0.893)	(-1.359)	(0.261)	(0.092)	(0.094)	(-0.097)	(-0.253)	(0.116)	(0.607)	(1.223)	(1.108)	(-0.040)	(-1.058)	(-0.347)	(-3.598)	(-3.111)
Lev_t	0.075**	0.119***	0.482	-0.019	-0.107*	-0.205***	0.043	0.058*	0.244	-0.334	0.035	0.013	0.038***	0.040**	0.705	0.780	-0.245*	-0.138
	(2.367)	(3.365)	(0.984)	(-0.035)	(-1.887)	(-3.140)	(1.614)	(1.962)	(0.241)	(-0.289)	(0.226)	(0.081)	(2.373)	(2.273)	(0.956)	(1.006)	(-1.904)	(-0.972)
Age_t	0.039*	0.034	-0.237	-0.109	0.004	0.053	-0.002	-0.002	0.277	0.237	0.001	0.015	-0.006***	-0.008***	0.189	0.134	0.007	0.045
	(1.854)	(1.530)	(-0.568)	(-0.254)	(0.059)	(0.897)	(-0.324)	(-0.340)	(1.466)	(1.065)	(0.025)	(0.353)	(-2.634)	(-2.621)	(1.519)	(0.810)	(0.242)	(1.131)
MB_t	0.000	0.000	-0.004	-0.005	-0.001	-0.001	-0.001	-0.001	0.022	0.028	-0.001	0.001	0.000	-0.000	0.018	0.036	-0.038***	-0.040***
	(0.723)	(0.371)	(-1.269)	(-1.346)	(-1.357)	(-1.204)	(-0.702)	(-0.798)	(1.285)	(1.467)	(-0.405)	(0.267)	(0.277)	(-0.208)	(0.435)	(0.865)	(-6.069)	(-6.153)
ROE_t	0.013*	0.010	-0.454***	-0.517***	-0.035	-0.033	0.027**	0.024*	-0.348	-0.323	-0.088**	-0.081*	1.203***	1.018***	-70.435***	-65.388***	5.620**	5.900**
	(1.830)	(1.563)	(-2.636)	(-2.777)	(-1.459)	(-1.349)	(2.131)	(1.817)	(-0.948)	(-0.835)	(-2.040)	(-1.843)	(4.368)	(3.465)	(-6.060)	(-5.183)	(2.286)	(2.195)
NOI_t	-0.091	-0.026	3.937**	4.154**	-0.008	-0.021	0.047	0.006	-1.393	-1.305	-0.490***	-0.497***	-0.058	-0.182	12.168**	17.288***	-0.627	-0.735
	(-1.543)	(-0.477)	(2.322)	(2.364)	(-0.061)	(-0.127)	(0.889)	(0.113)	(-1.229)	(-0.935)	(-2.964)	(-2.596)	(-0.423)	(-1.323)	(2.255)	(3.095)	(-0.646)	(-0.724)
$Related_t$	0.004	0.003	-0.334***	-0.297***	-0.003	-0.001	0.019***	0.020***	-0.385**	-0.402**	-0.009	-0.010	-0.003	-0.003	0.141	0.153	0.011	0.018
	(1.510)	(1.440)	(-2.957)	(-2.705)	(-1.015)	(-0.346)	(3.433)	(3.497)	(-2.036)	(-2.147)	(-0.321)	(-0.332)	(-0.552)	(-0.516)	(0.773)	(0.816)	(0.384)	(0.614)
$Turnover_{t+12}$					-0.003	-0.003					0.000	0.001					0.002	0.003*
					(-1.500)	(-1.418)					(0.256)	(0.463)					(1.196)	(1.690)
Constant	-0.052	-0.083	0.781	1.167	-0.529	0.039	-0.012	-0.062	-2.011	-0.137	-0.258	-0.455	-0.054	-0.020	1.718	0.078	1.078***	1.174***
	(-0.341)	(-0.505)	(0.247)	(0.317)	(-1.110)	(0.085)	(-0.160)	(-0.752)	(-0.939)	(-0.066)	(-0.689)	(-1.277)	(-1.271)	(-0.480)	(0.922)	(0.038)	(3.022)	(3.096)
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	318	297	310	290	318	297	831	754	829	750	831	754	1,476	1,251	1,476	1,251	1,476	1,251
Adj R^2/Pseduo R^2	0.107	0.149	0.226	0.253	0.037	0.089	0.050	0.055	0.075	0.079	0.032	0.027	0.107	0.112	0.085	0.094	0.053	0.053

$$BHAR_{t+12} = \beta_0 + \beta_1 \times EM_t + \beta_2 \times After \times EM_t + \beta_3 \times After + \beta_4 \times Size_t + \beta_5 \times Lev_t$$
$$+ \beta_6 \times Age_t + \beta_7 \times MB_t + \beta_8 \times ROE_t + \beta_9 \times NOI_t + \beta_{10} \times Related_t + \beta_{11} \times Turnover_{t+12} + \varepsilon \qquad (9)$$

Panel A in Table 11 shows the results of regression equations (8) and (9). Significant and favorable coefficients associated with After×DA$_t$ are observed for UNST companies except that the negative coefficient for Loss$_{t+1}$ slightly misses the significance (*t*-statistics = 1.637). However, without lagged DAs, the consequences of earnings management are still significantly negative on Loss$_{t+1}$. For control samples, only one significant favorable result presents for UNFIRST companies and small profit companies. Thus, the difference in time series across UNST companies and the control sample indicates that the presence of the delisting regulations is the driver of the positive effects of earnings management.

We also conduct a falsification test in the analysis by identifying the year 2008 as the time point. In 2008, the Chinese regulatory body introduced the internal control guideline, which may cause a tendency for improvement, so the year 2008 is likely to represent the time point. We construct a dummy variable, Fals_After, which is 1 in year 2009 or later and 0 in year 2007 or before. In equations (8) and (9), we replace the dummy variable After by Fals_After. Panel B in Table 11 reports the results of the falsification test. The results show that a similar trend is not observed between earnings management and performance for UNST companies and UNFIRST companies. When year 2008 is set to test the change, no significant difference is observed for UNST companies and UNFIRST companies. For small profit companies, except for Loss$_{t+1}$, significantly positive effects always present, which confirms that the favorable effects for EBIT are due to time trend. Across all three subsamples, we can conclude that the favorable effects of earnings management in UNST companies are not driven by the time trend.

7. Conclusion

In this paper, we study the consequences of earnings management triggered by earnings-based delisting regulations in China. We find that there is a positive relationship between earnings management to avoid delisting by firms subject to delisting regulations and the subsequent performance, measured by operating performance and recurrence of losses. We conduct several robustness tests by using various performance measures, including gross margin, assets turnover, and probability of bankruptcy, and our results are robust. Our results indicate that performance improvement is supported by fundamentals.

We try to identify a more direct link between the positive consequences and earnings management to avoid delisting. We find that the favorable consequences are mainly from the companies who would have been delisted without earnings management and companies with upwards earnings management. We also study the market consequences of earnings management triggered by delisting regulations to examine shareholders' wealth effects, the positive market consequences are found, indicating earnings management in fact increases shareholders' wealth. Finally, we compare the effects of earnings management across different regulation regimes. Positive effects on performance are observed only after the implementation of delisting regulations and only in companies subject to the regulations. Consequently, our results confirm that the implementation of earnings management induced by delisting regulations is in the best interest of shareholders.

Data availability

Data will be made available on request.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgement

Appendix. Tables and figures

(See Table A1).

Table A1
Variable description.

Variable	Variable Definition	Predict Sign	Reference
$DA_{t/t-1/t-2}$	Discretionary accruals based on the modified Jones (Dechow et al. 1995) model in year t/t-1/t-2.	opportunism: - non-opportunism: +	Leuz et al. (2003), Shivakumar (2000), Teoh et al. (1998) Aboody et al. (1999), Shivakumar (2000), Tucker and Zarowin (2006), Louis and White (2007), Bowen et al. (2008)
$Size_t$	The natural logarithm of total assets for company i in year t.	?	
Lev_t	Lev is the ratio of the book value of long-term debt to assets for company i in year t.	+	
Age_t	The natural logarithm of listed years company I in year t.	–	
MB_t	Ratio of the market value of equity to the book value of equity at the end of year t.	?	
ROE_t	Return on equity for company i in year t.	+	
NOI_t	Non-operating incomes deflated by total assets in year t.	–	Chen and Yuan (2004), Haw et al. (2005)
$Related_t$	Related transactions scaled by total sales in year t.	+	Peng et al. (2011)
$Turnover_{t+12/24/36}$	12/24/36-month average of turnover beginning from May in year t + 1. Turnover monthly traded shares divided by the total number of tradable shares.		
$UNST_t$	Equals one if a firm with 2 consecutive annual losses in year t-1 and year t-2 return to profit in year t, otherwise 0.		
$UNFIRST_t$	Equals one if a firm with one annual loss in year t-1 return to profit in year t, otherwise 0.		
$EBIT_{t+1}$	Earnings before Interest and tax deflated by total assets in year t + 1.		
$Loss_{t+1}$	Dummy variable that equals 1 if net income is negative in year t + 1, otherwise 0.		
Avg_EBIT_{t+3}	Average of $EBIT_{t+1}$, $EBIT_{t+2}$ and $EBIT_{t+3}$.		
Avg_Loss_{t+3}	Dummy variable that equals 1 if net income is negative in any year from year t + 1 to year t + 3, otherwise 0.		
$BHAR_{t+12/24/36}$	12/24/36-month buy-and-hold abnormal return beginning from May in year t + 1. $BHAR_{t+12/24/36} = \prod_{i=1}^{12/24/36}(1 + R_{t+i}) - \prod_{i=1}^{12/24/36}(1 + Market_{t+i})$ Where R_{t+i} and $Market_{t+i}$ are monthly stock return and monthly equal-weight market return respectively, both starting from May in year t + 1.		
MAR_{t+1}	Gross margin scaled by sales in year t + 1.		
Avg_MAR_{t+3}	Average of MAR_{t+1}, MAR_{t+2} and MAR_{t+3}.		
ATO_{t+1}	Assets turnover, measure by sales deflated by total assets in year t + 1.		
Avg_ATO_{t+3}	Average of ATO_{t+1}, ATO_{t+2} and ATO_{t+3}.		
$ZScore_{t+1}$	likelihood of bankruptcy in year t + 1, measured by Altman Z score calculated as Altman (1968)		
Avg_ZScore_{t+3}	Average of $Zscore_{t+1}$ $Zscore_{t+2}$ and $Zscore_{t+3}$.		
After	Equals one if year t is after 2002, zero if year t is before year 2002.		
Fals_After	Equals one if year t is after 2008, zero if year t is before year 2008.		

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