Short Selling and Politically Motivated Negative Information Hoarding

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Abstract

Extant literature documents that managers have an incentive to hoard bad news due to political concerns. In this paper, we test the proposition that short selling has an attenuating effect on the politically motivated suppression of bad news. We examine the stock price behavior of Chinese public firms around two highly visible political events - meetings of the National Congress of the Chinese Communist Party and Two Sessions (The National People's Congress Conference and The Chinese People's Political Consultative Conference) from 2002-2014, and find that political bad news hoarding has been reduced after short selling becomes available. We establish causality by relying on a difference-in-differences approach based on a controlled experiment of short selling regulation changes in China. We also find this reduction in bad news hoarding to be more pronounced in firms with stronger political connection (higher state ownership and larger size) and higher accounting opacity, which further confirms our finding. This study sheds new light on the real effects of short sellers on political impact on capital market.

Key words: Short selling; Political force; Negative news hoarding; Information environment

1. Introduction

In this paper, we identify the real effects of short selling on the impact of political force on firms' bad news hoarding. Although short selling is controversial, and regulators in many countries impose short selling ban when financial market is highly volatile, a growing literature suggests that short sellers have a positive externality to real corporate activities such as firms' reporting practices (Massa, Zhang, and Zhang, 2015; Fang, Huang, and Karpoff, 2016), actual corporate investment (Grullon, Michenaud, and Weston, 2015), and innovation (He and Tian, 2016). However, this line of research has paid little attention to the real effects of short selling on politicians' or politically connected managers' behaviors such as their incentive to hoard negative news around significant political events. Politicians and governments have an incentive to avoid negative news about their activities (e.g., Peltzman, 1976; Watts and Zimmerman, 1986), and the impact of this behavior has become an important concern for financial market participants and investors. In this paper, we provide evidence that short sellers can mitigate the impact of political incentive on the underlying financial reporting and information environment of listed companies.

Identifying the real effects of short selling has been proved difficult. The main challenge is the endogeneity problem. In order to address this issue, we exploit multiple regulation shocks in short selling within China. Since 2010, the China Securities Regulatory Commission (henceforth, CSRC) has been gradually including stocks that meet certain requirements into a short selling designated list, and this list has been updated over time. Each update can serve as a quasi-exogenous shock to the short selling constraints faced by firms. The fact that stocks become eligible for short selling on different dates implies that the likelihood that comparisons are affected by contemporaneous changes in market-wide factors will be reduced (Bessembinder, 2000). These regulatory changes create both time-series (before and after the regulation change) and cross-

sectional (stocks eligible for short selling vs. stocks not allowed for short selling) variation in short selling constraints. This identification strategy lowers the possibility that other factors are responsible for lowering politically motivated negative news hoarding and thus is able to identify the causality between short selling and political incentive to hoard negative financial information. Under this identification, we match pilot stocks to other non-shortable peer firms in the same industry, and then employing a Difference-in-differences (hereafter, DiD) approach to investigate the changes in political negative news hoarding around short selling regulation changes.

In order to proxy the magnitude of political negative news hoarding, we follow ongoing literature (e.g., Jin and Myers, 2006; Hutton, Marcus and Tehranian, 2009; Kim, Li and Zhang, 2011a; Kim, Li and Zhang, 2011b; Piotroski, Wong, and Zhang, 2015; Kim and Zhang, 2016; Kim, Li, Lu and Yu, 2016) and calculate crash risk and stock price synchronicity measures for several windows around the political events in China. When politicians or politically connected managers have an incentive to hoard negative news, a higher post-event crash risk or a lower post-event synchronicity is expected. We examine two visible political events - meetings of the National Congress of the Chinese Communist Party and Two Sessions (The National People's Congress and The Chinese People's Political Consultative Conference) from 2002-2014, which is similar to Piotroski, Wong, and Zhang (2015). There are more than ten meetings in total during this time period. These meetings together with the changes in short selling list provide both time-series and cross-sectional variations in both short selling constraints and political negative news hoarding. This mostly mitigates the concern that any single structural break other than short selling regulation changes has a causal effect on the changes in political negative news hoarding.

Prior research documents that China's public firms are linked with a poor information environment (Piotroski and Wong, 2012), which can be characterized by highly synchronized

stock prices with general market movements (Morck, Yeung, and Yu, 2000) and by a lower level of disclosure and corporate transparency (Jin and Myers, 2006). China values social conformity and the maintenance of relationship. Releasing information that attracts unwanted attention from public and other related parties is costly. Thus, politicians and politically connected managers have a tendency to hide bad news, especially the news that could result in a "loss of face" for local politicians and even central government when the news countered the expectation of government or investors. Their tendency of hiding bad news is particularly strong around highly visible political events, such as Communist Party Meeting and "Two Sessions" we study in this paper. These unique features in China's financial market ensure that our empirical setting is ideal to capture the pure effects of political negative news hoarding and the real effects of short selling on attenuating these negative externalities induced by political news suppression.

Studies on short selling argue that it disciplines management's opportunistic behaviors by attacking firms that exhibit financial misconduct (e.g., Karpoff and Lou, 2010; Fang, Huang and Karpoff, 2016; and Massa, Zhang and Zhang, 2015). As short sellers convey negative information to the market through their research and trading in a timely fashion, their presence makes it difficult for management to hide unfavorable information. This helps to improve the information environment of those politically connected firms and we should expect that politicians or politically connected managers are less likely or able to hoard negative news. Our finding confirms this conjecture. Using several short selling list changes as a controlled experiment, we find that after short selling becomes available, the magnitude of negative news hoarding around those political meetings becomes smaller for treated stocks (short selling eligible firms) relative to controlled stocks (matched non-shortable stocks).

Thus far, our results show that short selling has an attenuating effect on political bad news hoarding. To confirm this finding and understand the underlying mechanisms, we perform several cross-sectional tests. First, we hypothesize that the attenuating effect will be stronger for meetings with the most significant influence. To this end, we partition our sample by the importance of political events, and we find that the documented effect is stronger for major party meetings, which is consistent with our prior. Compared to "Two Sessions", the major party meetings are the most influential national meetings which identify party leaders, highlight key developments and set major party/country objectives for the next five years. Therefore, this finding strengthens our argument of the role short sellers play in attenuating the politicians' incentive / ability to hoard bad news.

Then, we study the information environment of the firm on its ability/incentive to hoard bad news. We partition our sample by using proxies such as firm size and state ownership to gauge firms' information environment. In China, the largest firms are usually highly connected with central government, and some large companies (e.g. Sinopec, PetroChina, and CRRC Corporation) are even directly controlled by central government. Therefore, we expect that our results to be stronger for these key large firms. Our finding is consistent with this expectation. Similar to large firms, firms with high state ownership create a natural incentive for politicians and managers to release information that is consistent with central government's mission. Therefore, the probability of hoarding bad news is higher for these firms than firms with lower state ownership. Our empirical results do show that firms with higher state ownership have stronger attenuating effects, which is in line with our conjecture.

Lastly, we partition our sample by firms' reporting opacity. Political news hoarding is expected to positively correlate with reporting opacity. Local politicians, bureaucrats and

politically connected managers face unique tradeoffs with respect to corporate transparency. Ball, Kothari and Robin (2000) document that highly political economies have a preference for accounting systems that produce smooth, low volatility (i.e., less informative) earnings. Therefore, when releasing bad news is costly, politically connected managers have a preference to report their earnings in a non-transparent way. Given this discussion, we hypothesize that the mitigating effect of short selling on political bad news hoarding is more pronounced for firms with higher reporting opacity. To measure firms' reporting opacity, we follow Dechow, Sloan, and Sweeney's (1995) modification of Jones's (1991) residual accruals and compute the discretionary component of accruals. We find that the mitigating effect of short selling on political bad news hoarding is more pronounced for firms with higher discretionary accruals, which further confirms our main findings.

This study contributes to the literature from the following three aspects. First, our study provides the first analysis, to the best of our knowledge, of the real effects of short selling market on the impact of political force on financial market. While the standard short selling literature directly links short selling to stock prices (Senchack and Starks, 1993; Asquith and Meulbroek, 1995; Cohen, Diether, and Malloy, 2007; Boehmer, Jones, and Zhang, 2008; Boehmer and Wu, 2013; Diether, Lee, and Werner, 2009; Saffi and Sigurdsson, 2011), and a growing literature links short selling to real corporate activities (e.g. Fang, Huang, and Karpoff, 2016; Grullon, Michenaud, and Weston, 2015; He and Tian, 2016; Li and Zhang, 2015; Massa, Zhang, and Zhang, 2015), we contribute by directly highlighting the role that short sellers play in mitigating the impact of political force on listed entities' financial reporting, disclosure, and dissemination of information.

Second, instead of looking at the effects of a single event our study employ multiple political events and multiple regulation changes in financial market. Our findings provide novel

evidence to both finance and accounting literature and eliminate several alternative explanations that are likely the result of analyzing a single event.

Lastly, our study is a natural extension to the literature on the impact of political force on listed entities. Our findings suggest that the lifting of market frictions such as short selling constraints can mitigate the impact of political force, improving financial market quality and market efficiency.

The rest of this paper is organized as follows. Section 2 discuss the empirical methods. Section 3 describes data and sample. In Section 4, we present initial univariate results. Section 5 presents our identification to investigate the causality between short selling and politically motivated bad news hoarding. Section 6 shows the mechanisms through which shorting activities influence political bad news hoarding. Section 7 concludes the paper.

2. Empirical Methods

2.1. Political Events in China Creating an Incentive for Politicians to Hoard Negative News

Our empirical tests search for the aforementioned pattern in stock returns of Chinese listed firms in the periods immediately preceding and following two anticipated political events: National Congress of the Chinese Communist Party and Two Sessions (The National People's Congress and The Chinese People's Political Consultative Conference), for before and after short selling becomes allowed. Existing literature has suggested that these highly visible political events asymmetrically heighten the costs of releasing adverse news for the affiliated politicians and politically connected managers (Piotroski, Wong, and Zhang, 2015). If sufficiently large, these costs create an incentive to temporarily suppress the flow of negative information; the result would be an observed decrease in negative stock return distribution during the politically-sensitive event

window (i.e. before and during the meetings) relative to non-event periods (i.e. post meeting period), followed by an increase in negative return distribution as the incentive to suppress alleviates after the event.

The National Congress of the Chinese Communist Party is held once every five years, and represents the most significant central government meeting in China. Over our sample period, this National Congress was held in calendar years 2002, 2007, and 2012. These meetings outline central government policy, identify party leaders, highlight key developments and set major party/country objectives for the next five years. An article appeared in the official newspaper China Daily on November 14, 2012 at the conclusion of the 18th meeting is an example of the news coverage expected on these important meetings:

"The international community has attached great importance and spoken highly of the 18th National Congress of the Communist Party of China, which successfully concluded on Wednesday.

It is believed that the important guidelines formulated at the congress have directed China's future development and contributed to world peace and development."

Two Sessions refers to the annual plenary sessions of the national or local People's Congress and the national or local committee of the Chinese People's Political Consultative Conference. Two sessions, as they are colloquially known in China, are an important bellwether for assessing government policy in a one-party state where most decisions take place behind firmly closed doors. Around 3,000 provincial administrators, top businessmen and Chinese Communist Party bigwigs are expected to attend. Panel A in Table 1 provides a summary of the meetings we study in our analysis.

[Insert Table 1 about here]

These two types of meetings in China are quite important, and releasing negative information during congress window inherently contradicts the objective of these meetings and

would be expected to impose a high political cost on the local politicians and politically connected managers. Additionally, these meetings draw considerable domestic and international attention. To the extent that investor, public and political scrutiny are elevated around a National Congress, the politicians have an incentive to delay the releases bad news during this event window.

2.2. Measuring Stock Price Crash Frequency and Synchronicity

To proxy the magnitude of negative news hoarding, we compute several stock price crash risk measures and stock price synchronicity. We use stock price crash risk and stock price synchronicity following standard approach in the literature (e.g., Jin and Myers, 2006; Hutton, Marcus and Tehranian, 2009; Kim, Li and Zhang, 2011a; Kim, Li and Zhang, 2011b; Kim and Zhang, 2016; Kim, Li, Lu and Yu, 2016; Piotroski, Wong, and Zhang, 2015).

In order to measure firm-level stock price crash risk, we utilize two crash statistics that reflect the presence of large and negative stock price movements. These measures, *NCSKEW* and *DUVOL*, are taken from Chen, Hong, and Stein (2001) and Jin and Myers (2006), and is similar to the measure used in Hutton, Marcus, and Tehranian (2009) and Kim, Li, and Zhang (2011). Because we focus on the variation in the flow of negative information around the congress meetings, we use the firm-level daily residual return rather than weekly return to calculate the crash risk measures. To obtain firm-level residual return ε_{jt}, we estimate the following regression for each event period

$$r_{j,t} = \alpha_j + \beta_{1j}r_{m,t-2} + \beta_{2j}r_{m,t-1} + \beta_{3j}r_{m,t} + \beta_{4j}r_{m,t+1} + \beta_{5j}r_{m,t+2} + \varepsilon_{jt} \qquad (1)$$

where, $r_{j,t}$ is the return on stock j on day t and $r_{m,t}$ is the value weighted market return on day t. We also include lead and lag market returns to account for nonsynchronous trading.

Following Chen, Hong, and Stein (2001) and Kim, Li, and Zhang (2011), our first measure of crash risk is the down-to-up volatility (*DUVOL*) as defined below:

$$DUVOL_{j,t} = log[\frac{(n_u-1)\sum_{down}\varepsilon_{jt}^2}{(n_d-1)\sum_{up}\varepsilon_{jt}^2}] \qquad (2)$$

where n_u and n_d are the number of up and down days, respectively. Specifically, for firm *j* in each event period *t*, we first separate all the days with firm-level residual returns below the mean for each meeting (down days) from those with firm-level residual returns above the mean for each meeting (up days). We then calculate the standard deviation, separately, for each of these two subsamples. Then, *DUVOL* is the log of the ratio of the standard deviation of the down days to the standard deviation of the up days. A higher *DUVOL* suggests a higher crash risk.

Following Chen, Hong, and Stein (2001), Jin and Myers (2006), and Kim, Li, and Zhang (2011), the second measure of crash risk is *NCSKEW*, which is the negative skewness of firm-level residual returns over the given meeting period. We compute *NCSKEW* as in Eq. (3)

$$NCSKEW_{jt} = -\frac{[n(n-1)^{3/2}\sum\varepsilon_{jt}^3]}{[(n-1)(n-2)(\sum\varepsilon_{jt}^2)^{3/2}]} \qquad (3)$$

where *n* is the number of days. ε_{jt} is firm-level residual return for firm *j* and event period *t*. A higher *NCSKEW* suggests a higher crash risk.

To measure stock price synchronicity, we follow Morck, Yeung and Yu (2000). We firstly regress raw daily stock returns on contemporaneous and 4 days of lagged market returns over the given meeting period. Specifically, we estimate the following regression:

$$r_{i,t} = \alpha_i + \beta_{1i}r_{m,t-4} + \beta_{2i}r_{m,t-3} + \beta_{3i}r_{m,t-2} + \beta_{4i}r_{m,t-1} + \beta_{5i}r_{m,t} + \varepsilon_{i,t} \qquad (4)$$

where $r_{i,t}$ is the return on stock i and $r_{m,t}$ is the value-weighted market return on negative

return day t. Stock price synchronicity is calculated as natural log of the R-squared from estimating

equation (4) to 1-R-squared.

$$Synch_{i,t} = log\frac{R^2}{1-R^2} \tag{5}$$

The synchronicity measures the proportion of systematic volatility due to contemporaneous market

movement relative to total volatility. It reflects how fast stock prices incorporate current market-

wide information as supposed to lagging systematic and non-systematic information. A higher

synchronicity usually indicates lower price efficiency, and vice versa.

2.4. Measuring Politically Motivated Negative News Hoarding

We use differences in crash risk and synchronicity to capture the magnitude of the

incentive/level of political negative news hoarding. The way we are estimating Politically

Motivated negative news hoarding is consistent with Piotroski et al. (2015), who study listed firms

in China and find higher stock price crash risk and lower stock price synchronicity during the post

political event period than the pre-period, suggesting that politicians have an incentive to hoard

negative information.

As documented earlier, we calculate two crash risk measures and one synchronicity measure.

Therefore, we propose in total three measures to proxy the magnitude of politicians' negative news

hoarding accordingly. The first measure is the difference between *NCSKEW* for the post meeting

period and pre meeting period[1], which can be written as the following equation

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[1] We define pre and post meeting periods as the three months before and during the meeting, and the three months after the meetings. As a robustness check, we also define alternative event windows as three months before and after the meetings, but skipping the meeting days.

$$NCSKEW_{diff} = NCSKEW_{post} - NCSKEW_{pre} \qquad (6)$$

When politicians have more incentive/ability to hoard negative information, *NCSKEW* for the post political event period is expected to be higher than the pre event period. Thus, A higher $NCSKEW_{diff}$ indicates a higher level of politicians' negative news hoarding.

The second measure is the difference between *DUVOL* for the post meeting period and pre meeting period, which can be written as the following equation

$$DUVOL_{diff} = DUVOL_{post} - DUVOL_{pre} \qquad (7)$$

Similar to $NCSKEW_{diff}$, a higher $DUVOL_{diff}$ indicates a higher level of politicians' negative news hoarding.

The third measure is the difference between *Synch* for the post meeting period and pre meeting period, which can be written as the following equation

$$Synch_{diff} = Synch_{post} - Synch_{pre} \qquad (8)$$

Piotroski et al. (2015) articulate when politicians have an incentive to hoard negative news, stock price synchronicity is higher before and during the political events, compared to the period after the political events. Thus, a lower $Synch_{diff}$ indicates a higher level of politicians' negative news hoarding.

3. Data and Sample

We obtain data on accounting measures and stock market returns from Thomson Reuters Datastream for a period from 2002-2014. We collect data for all firms with data available on Datastream. We use Datastream's list of active and dead stocks to avoid survivorship bias. After excluding financial firms, our sample is composed of 1,966 firms with 685 short selling eligible firms. We define all variables in Appendix 1.

The crash risk measures are constructed by using firm level daily returns which are calculated by using the daily total return index from Datastream. Datastream retains the values of Total Return Index for a long time after the stock is delisted. To account for this we get each stock's last non-zero return day, and set to missing all the zero-return dates that follow. We then use the method proposed by Ince and Porter (2006) to filter outliers. We winsorize daily returns at 1st and 99th percentiles. We winsorize all accounting variables at the 5th and 95th percentiles.

The short selling data (daily short interests) is provided by CSMAR (Chinese Stock Market and Accounting Research Database). Short selling data is available from March 31, 2010, which is the date CSRC announced the removal of ban on short selling and margin trading. In our sample in total there are 685 stocks eligible for short selling. Table 2 reports the descriptive statistics of all main variables used in our empirical tests.

[Insert Table 2 about here]

4. Short Selling and Politicians' Ability to Hoard Negative Information: Initial Evidence

In this section, we investigate the relation between short selling and political bad news hoarding. Using changes in stock price risk around important political events in China, Piotroski, Wong, and Zhang (2015) find evidence that politicians have an incentive to hoard negative information. We rank all short selling eligible firms into high and low groups by average daily short interests since short selling becomes available in China.[2] We, then, report the average crash risk measures and synchronicity measure 3 months before and after the political events by all short selling groups. We report the results in Table 3. Before short selling becomes available, we find

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[2] We firstly calculate average daily short interest ratio by averaging daily short interests scaled by trading volume. We identify firms with short interest ratio lower than median ratio as low group otherwise high group.

post-event crash risk is consistently higher than pre-event crash risk for both high and low short selling group, and all short selling eligible stocks; stock price synchronicity is significantly lower for the post-event period for low group and all short selling eligible stocks. These initial results are mostly consistent with the finding in Piotroski, Wong, and Zhang (2015) that managers have an incentive to suppress bad news due to political concerns.

As we proxy negative news hoarding as the difference between pre-event and post-event crash risk and synchronicity measures, we expect this difference to be smaller for crash risk measures and bigger for synchronicity measure. Results in Table 3 show that in high short selling group, this difference is significantly smaller for both crash risk measures. The difference for synchronicity measure is negative as expected but not significant.

[Insert Table 3 about here]

The results from this section indicate a relationship between increased short selling and decreased political bad news hoarding. This finding is consistent with our conjecture, suggesting that more short selling is related to less political bad news suppression. However, we note that these results are just correlations and are subject to potential endogeneity concerns. Therefore, these economic magnitudes should be interpreted with caution.

5. Identification

As discussed earlier, an endogeneity concern is that omitted variables correlated with both a firm's short selling and its bad news hoarding could bias the results. In this section, we address potential endogeneity problems by using a relatively new identification strategy in the literature: a DiD approach based on the quasi-natural experiment of short selling regulation changes in China that generates plausibly exogenous variation in a firm's short selling constraints.

5.1. Identifying Treatment and Control Firms

The experiment relies on the introduction of short selling in China, which provides a unique opportunity for us to identify the causality between short selling and politically motivated negative news hoarding.[3] We proceed to identifying treatment and control groups. Using Datastream we identify treatment firms as those who are selected into short selling list by CSRC from 2010 to 2013[4], and we exclude all firms deleted from the short selling list by CSRC from being considered for both treatment and control firms.[5] Then, we delete treatment eligible firms with no available accounting data and finally there are 685 firms left in the treatment group.

Because there are in total six short selling list changes during 2010-2013, it suggests there are six exogenous shocks in short selling constraints. Therefore, in order to identify control firms, we need to form a separate control sample for each of the six treatment samples. To ensure that the controls are qualitatively comparable to the treatment firms, we require that control firms have the smallest difference in firm size (total assets) from each of their treatment peers and be from the same industry during the fiscal year immediately before the short selling regulation change. This procedure does not use any ex post information such as the firm characteristics and short selling data. An advantage of relying on only ex-ante information to identify treatment and control firms is that it mitigates the concern that the actual short position or short selling transactions are driven by political reasons.

Our final sample for our DiD analysis includes 1,370 firms between 2002 and 2013. Panel A in Table 4 reports the results of the above procedure. We compare treatment firms with control

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[3] To the best of our knowledge, there are only a few working papers adopted the same experiment, namely, Chen, Dong, Gu (2016) and Yin and Ni (2017).

[4] The most recent political meeting in our sample starts on March 5, 2014, and there is no short selling list change around the 3-month event window.

[5] There are in total 67 stocks deleted from the short selling list by CSRC during 2010-2013.

firms, and test for the null hypotheses that the means and medians are equal across the two groups before the introduction of short selling. We observe that most firm characteristics are identical across the two groups of firms, although some measures have different means or medians: Mean firm growth and median discretionary accruals are slightly higher for treatment firms.

We use an asymmetric time window including all observations from 2002 to 2014, which provides better time series variations in politically motivated bad news hoarding and mitigates the concerns that the effects are attributable to other structural shocks. Giving the concern that choosing a window that is too long may incorporate noise that is not relevant to the events, we also study a symmetric seven-year window around the experiment event year (i.e., three years before and after the introduction of short selling). Both results are broadly similar.

5.2. The DiD Estimation

We start with a univariate DiD approach to compare the change in political negative news hoarding for treatment firms with that for control firms. Panel B in Table 4 reports the univariate DiD results using all three bad news hoarding measures, $NCSKEW_{diff}$, $DUVOL_{diff}$, and $Sync_{diff}$. The mean of $NCSKEW_{diff}$ and $DUVOL_{diff}$ for the treatment group both drop significantly. However, the means for control group do not show any reduction compared to before period. The DiD estimators for both measures are -0.156 and -0.069, which are significant, both statistically and economically, suggesting that crash risk based bad news hoarding significantly decreases after short selling constraints are lifted. $Sync_{diff}$ shows a similar pattern, and DiD estimator is 0.097 and significant at 1% level.

[Insert Table 4 about here]

The success of the DiD approach hinges on a key identifying assumption, the parallel trends assumption, which states that in the absence of treatment the DiD estimate should be zero. We verify this assumption by plotting mean of crash risk based negative news hoarding measures for 7 years surrounding the introduction of short selling. In Figure 1, We observe that both treatment and control firms show near-parallel trends before the event, though control firms seem more volatile. Treatment and control firms both experience a growth during the post short selling period, but, as expected, treatment firms experience a much smaller increase in bad news hoarding. The parallel trend found in Figure 1 confirms the validity of our estimation.

[Insert Figure 1 about here]

Now, we employ a multivariate DiD approach to compare the change in bad news hoarding for treatment firms with that for control firms by estimating the following regression equation:

$$DUVOL_{diff,i,t} \text{ or } NCSKEW_{diff,i,t} \text{ or } Sync_{diff,i,t} = \alpha + \beta_1 Short + \beta_2 After +$$

$$\beta_4 Short * After + \gamma Controls_{i,t} + \delta Fixed_{i,t} + \varepsilon_t \quad\quad\quad (9)$$

where *i* indexes firm, and *t* indexes time (the event period either before or after the introduction of short selling). *Short* is a dummy that equals one for treatment firms and zero for control firms. *After* is a dummy that equals one for the period after the introduction of short selling and zero for the pre period. *Control* is a vector of the control variables used, which includes *Sigma* (the standard deviation of firm-specific daily returns), *Return*, and *Return (-1)*, which are taken from Chen, Hong, and Stein (2001). Chen, Hong, and Stein (2001) theorize that stocks with higher lagged stock returns and higher negative skewness are likely to have higher crash risk. Their model also shows that the lagged volatility can affect the skewness of the stock price. In addition, similar to Kim, Li, and Zhang (2011a) and Kim, Park, and Wier (2012), we include *MB* (market to book), *Leverage*

(long term leverage ratio), and *Size* (firm size which equals natural log of total assets) to control firm characteristics.[6] *Fixed* is political event and firm fixed effects.

Table 5 reports the results from the baseline DiD analysis as described in Equation (9). In all specifications, the coefficient estimate before *Short*After* is negative and significant (positive and significant for $Sync_{diff}$), suggesting that treatment firms, i.e., those whose stocks can be shorted, exhibit a greater reduction in politically motivated bad news hoarding. In terms of economic significance, the coefficient estimates of *Short*After* across all three columns indicate that treatment firms, relative to control firms, experience around more than 50% drop in political bad news hoarding after the introduction of short selling. This difference is economically significant, considering that crash risk and synchronicity measures in our sample have standard deviation around 0.5. The results of multivariate baseline DiD regressions suggest that increased short selling due to the removal of short-sale constraints triggers a decrease in political bad news hoarding.

[Insert Table 5 about here]

5.3. Placebo Tests

In this subsection we verify the success of our baseline DiD estimation with falsification tests. We counterfactually recode the dates of the short selling regulation change event to be 2004 and 2007. This test helps alleviate concerns that our results are not due to some structural break surrounding the rule change.

Specifically, we use the same set of treatment and control firms identified in Section 5.1, and analyze their average bad news hoarding changes around the hypothetical "event" year. Table

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[6] In the regression specification with dependent variable of $Sync_{diff,i,t}$, we follow the ongoing literature and do not include some control variables such as market to book ratio, return, and leverage to mitigate the estimation bias.

6 reports the results. In all three specifications similar to those reported in Table 5, the coefficient estimates before *Short*Short*After* are statistically insignificant. Our results mitigate concerns that decrease in bad news hoarding is caused by structural changes in the economy other than the introduction of short selling.

[Insert Table 6 about here]

6. Possible Sources of the Reduction in Bad News Hoarding

Our evidence, so far, is consistent with the hypothesis that short selling alleviates firms' bad news hoarding due to political concernWe now proceed to explore possible sources of bad news hoarding reduction induced by the increased potential for short selling. In the following sections, we provide analysis from the politicians' priority of hoarding bad news, firms' political connectivity, and firms' financial reporting opacity to identify the possible sources.

6.1. The Politicians' Priority of Hoarding Bad News

In our sample, there are two types of major political events: The National Congress of the Chinese Communist Party and Two sessions or Lianghui. Both types of events generate significant attention from domestic and overseas, but the National Congress of the Chinese Communist Party represents the most important party meeting in China. These meetings outline central government policy, identify party leaders, highlight key developments and set major party/country objectives for the next five years. Therefore, compared to Two Sessions or Lianghui, the costs of releasing bad news for the politicians are higher, and the politicians have the highest priority to avoid as much bad news to be released as possible while the National Congress of the Chinese Communist

Party is holding meetings. Thus, we expect our results to be more pronounced for this type of events.

In order to test this conjecture, we partition our full DiD sample into two subsamples-one subsample with all observations from the National Congress of the Chinese Communist Party event windows, and one subsample with all observations from Two Sessions event windows.

In Table 7, we regress our three political bad news hoarding measures on *Short*After*Party Meeting*, in which Party Meeting is an indicator variable equaling one for the National Congress of the Chinese Communist Party sample and zero otherwise, and all other control variables used in our main DiD regression. The coefficient of *Short*After*Party Meeting* captures the pure effects coming with the National Congress of the Chinese Communist Party events. As shown in columns 1 and 2, the coefficients of *Short*After*Party Meeting* are all negative and significant. Similarly, the coefficient in column 3 is positive and significant. The above results, combined together, are consistent with the view that the reduction in bad news hoarding is more pronounced for the National Congress of Communist Party events relative to Two sessions events. The results in this subsection suggest that the reduction in bad news hoarding is mainly coming from the significant drop in bad news, induced by increased potential in short selling, around these party meetings.

[Insert Table 7 about here]

6.2. Political Connectivity

In this subsection, we study the information environment of the firm on its ability/incentive to hoard bad news. We partition our sample by using proxies such as firm size and state ownership[7] to gauge firms' information environment firms. In China, the largest firms are usually highly connected with central government, and some large companies (e.g. Sinopec, PetroChina, and CRRC Corporation) are even directly controlled by central government. Therefore, we expect that our results to be stronger for these key large firms.

In Table 8, we present the results of our DiD regression in Eq. (9), separately, for large firms sample (columns 1 to 3) and the small firms sample (column 4 to 6). As shown in columns 1 to 3, for large firms, we find that the coefficient on the key variable of interest, *Short*After*, all have expected signs and are significant at 1% or 5% level. In sharp contrast, as shown in columns 4 to 6, the coefficients have either smaller magnitude or are insignificant. The above results are in line with the view that the attenuating impact of short selling on politicians' influence on firms to hoard bad news is more pronounced for large firms.

[Insert Table 8 about here]

Similar to large firms, firms with high state ownership create a natural incentive for politicians to affect firms releasing information that is consistent with central government's mission. Therefore, the probability of hoarding bad news is higher for these firms than firms with lower state ownership (see, e.g. Piotroski, Wong, and Zhang, 2015). We expect, through short selling in firms with higher probability of bad news suppression, the reduction in bad news hoarding due to political concern may be more pronounced for state owned firms.

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[7] We define large (small) firms as top (bottom) 25% largest (smallest) firms in terms of total assets, and define state-owned firms (non-state-owned firms) or high (low) state ownership firms as top (bottom) 25% largest (smallest) firms in terms of state ownership. We obtain state ownership data from CSMAR.

In Table 9, we test the above conjecture and report the results of our DiD regression in Eq. (9), separately, for firms with high state ownership (columns 1 to 3) and firms with low state ownership (column 4 to 6). As shown in columns 1 to 3, for high state ownerhsip firms, we find that the coefficient on the key variable of interest, *Short*After*, all have expected signs and are statistically significant. In sharp contrast, as shown in columns 4 to 6, the coefficients have either much smaller magnitude or are insignificant. The above results are in line with our prior that the effects are more pronounced for firms with high state ownership.

[Insert Table 9 about here]

All the results combined, in this subsection, corroborate the notion that firms' political environment or their political connectivity is an important source for short sellers to analyze firms. By attacking state owned firms or key large firms which have weak information environment, the actual bad news hoarded by firms due to political concern has been significantly reduced.

6.3. Financial Reporting Opacity

In this subsection, we test whether the documented attenuating effects are coming through firms with higher reporting opacity. Local politicians, bureaucrats and politically connected managers face unique tradeoffs with respect to corporate transparency. Ball, Kothari and Robin (2000) document that highly political economies have a preference for accounting systems that produce smooth, low volatility (i.e., less informative) earnings. Therefore, when releasing bad news is costly, politically connected managers have a preference to report their earnings in a non-transparent way. Short sellers, as an external threat, can reduce the probability for firms' financial misconduct by targeting firms with higher potential in misconduct (see, e.g. Fang, Huang, Karpoff, 2016; Massa, Zhang, and Zhang, 2015). Because of the presence of short sellers and their activities,

these firms are not able to hide unfavorable financial information as much as before short selling is available. Given this discussion, we hypothesize that the mitigating effect of short selling on political bad news hoarding is more pronounced for firms with higher reporting opacity.

In order to test the above conjecture, we partition our sample by firms' reporting opacity. To measure firms' reporting opacity, we follow Dechow, Sloan, and Sweeney's (1995) modification of Jones's (1991) residual accruals and compute the discretionary component of accruals. To obtain the discretionary component of accruals, we calculate total accruals first, which are calculated from balance sheet and income statement information. In particular, *Total Accruals=((ΔCA−ΔCash)−(ΔCL−ΔSD−ΔTP)−DP)*, where Δ*CA* is the change in current assets, Δ*Cash* is the change in cash and equivalents, Δ*CL* is the change in current liabilities, Δ*SD* is the change in short-term debt included in the current liabilities, Δ*TP* is the change in income tax payable, and *DP* denotes depreciation and amortization expenses. All of the numbers are scaled by lagged total assets. Total accruals include discretionary and nondiscretionary components, and the discretionary component measures managerial discretion in reported earnings more precisely. Therefore, to measure the discretionary component of accruals, we follow Dechow, Sloan, and Sweeney's (1995) modification of Jones's (1991) to obtain the residuals by regressing total accruals on fixed assets and revenue growth, excluding growth in credit sales, for each industry and year. The residuals are the discretionary component of accruals.

In Table 10, we report the results of our DiD regression in Eq. (9), separately, for firms with high discretionary accruals (columns 1 to 3) and firms with low discretionary accruals (column 4 to 6). Firms with discretionary accrual at the top (bottom) 25% are classifies into the high (low) discretionary group. As shown in columns 1 to 3, for firms with high reporting opacity, we find that the coefficient on the key variable of interest, *Short*After*, all have expected signs and are

statistically significant at 1% or 5% level. In contrast, as shown in columns 4 to 6, the coefficients have either much smaller magnitude or are insignificant. The above results are in line with our prior that the effects are more pronounced for firms with high reporting opacity.

[Insert Table 10 about here]

All the results combined, in this subsection, suggest that reporting opacity is a channel for the potential for short selling to be in effect in mitigating the impact of political force on firms' unfavorable financial information release.

7. Conclusion

In this paper, we investigate whether the potential for short selling has a disciplining effect on politicians' impact on firms' negative news hoarding. Because short selling can expedite the speed that negative information be impounded into stock prices, we argue that with the removal of short selling constraints the market can uncover bad news hoarded by politically connected managers. The difficulty to hoard bad news significantly increases and the impact of political force on financial information release has been reduced.

Using multiple exogenous changes in short selling constraints and a unique political environment design in China, we find our results are consistent with our conjecture. We find that the magnitude of political bad news hoarding is smaller after short selling becomes available, which suggests short sellers serve as a force to mitigate the effect of political force on firms' release of negative information. In addition, our cross-sectional analysis suggests this mitigating effect is more pronounced in firms with stronger political connection (higher state ownership and larger

size) and higher accounting opacity, which further confirms our finding and provide explanation to the underlying mechanisms of the documented effect.

These results confirm the disciplining effect of short selling and offer evidence on how short selling add benefits to financial market and firms' reporting quality. From this perspective, short selling contributes to the better information environment in stock market not only from disciplining corporate managers but also from influencing political environment.

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Appendix

Appendix 1: Variable Definitions

After	Dummy variable equal to 1 if the fiscal year is after the introduction of short selling and equal to 0 if the fiscal year is before the introduction of short selling
Short	A dummy variable that equals 1 if the stock is designated as pilot stock for short selling, 0 otherwise
Party Meeting	A dummy variable that equals 1 if a stock day falls in the period of 3 months before and after the major Communist Party Meetings, and 0 if a stock day falls in the period of 3 months before and after Two Sessions (The National People's Congress and The Chinese People's Political Consultative Conference)
NCSKEW	The negative of skewness of firm specific weekly returns within a fiscal year.
DUVOL	The ratio between standard deviation of firm specific weekly returns for all down-weeks and the standard deviation of weekly returns for all up-weeks within a fiscal year.
Sync	A measure of stock price synchronicity. Higher value indicates the stock price is more synchronized.
NCSKEW$_{diff}$	The difference in *NCSKEW* for 3 months after a political event and for 3 months before the same political event
DUVOL$_{diff}$	The difference in *DUVOL* for 3 months after a political event and for 3 months before the same political event
Sync$_{diff}$	The difference in *Sync* for 3 months after a political event and for 3 months before the same political event
DAC	Discretionary Accruals: it is calculated as discretionary accruals (Dechow et al. 1995)
Growth	Net sales or revenues (WC01001) divided by lagged year Net sales or revenues minus one x 100
Leverage	Long Term Debt (WC03251) plus Short Term Debt (WC03051) scaled by the sum of Long Term Debt, Short Term Debt, and Total Shareholders' Equity (the sum of preferred stock and common shareholders' equity (WC03501)) x 100
M/B	Market to book ratio
Return	Annual firm-specific residual daily return
ROA	Return on Assets
Sigma	The standard deviation of firm-specific weekly returns over the fiscal year period.
Short Int.	Average daily short interest scaled by daily stock trading volume during the 3-month period pre the political meetings
Size	Natural log of firm level total assets (Datastream code: WC02999, in Thousand USD)
State Ownership	The proportion of shares held by the central government

Tables

Table1: Political Conferences and Revisions of Short Selling List
This Table reports information on the political conferences and revisions of short selling list we study. Panel A reports information on all Communist Party meetings and Two Sessions during 2002-2014. Panel B reports all revisions in short selling list from March 2010 to September 2014.

Panel A: Political Meetings in China

Meeting Name	Meeting Start date	Meeting End date
16th Communist	11/8/2002	11/14/2002
17th Communist	10/15/2007	10/21/2007
18th Communist	11/8/2012	11/14/2012
9.5th Two Sessions	3/5/2002	3/15/2002
10.1st Two Sessions	3/5/2003	3/18/2003
10.2nd Two Sessions	3/3/2004	3/14/2004
10.3rd Two Sessions	3/5/2005	3/14/2005
10.4th Two Sessions	3/5/2006	3/14/2006
10.5th Two Sessions	3/5/2007	3/16/2007
11.1st Two Sessions	3/5/2008	3/18/2008
11.2nd Two Sessions	3/5/2009	3/13/2009
11.3rd Two Sessions	3/5/2010	3/14/2010
11.4th Two Sessions	3/4/2011	3/14/2011
11.5th Two Sessions	3/5/2012	3/14/2012
12.1st Two Sessions	3/5/2013	3/17/2013
12.2nd Two Sessions	3/5/2014	3/13/2014

Panel B: Revisions of the Designated Short Selling List

Effective day	Announcement day	No. added	No. deleted	No. on list
3/31/2010	2/12/2010	90	–	90
7/1/2010	6/21/2010	5	5	90
7/29/2010	7/16/2010	1	1	90
12/5/2011	11/25/2011	189	1	278
1/31/2013	1/25/2013	276	54	500
3/6/2013	3/5/2013		1	
3/7/2013	3/7/2013		1	
3/29/2013	3/28/2013		1	
3/29/2013	3/29/2013		1	
5/2/2013	4/26/2013		1	
5/3/2013	5/2/2013		1	
9/16/2013	9/6/2013	206	–	700
3/28/2014	3/26/2014		1	
4/1/2014	3/31/2014		1	
4/29/2014	4/29/2014		1	
5/5/2014	4/30/2014		2	
9/22/2014	9/12/2014	218	13	900
Total		**985**	**85**	**900**

Table 2: Descriptive Statistics
This table presents descriptive statistics on stock price crash risk, short selling activities, and other firm characteristics variables. The sample contains 1,366 firms listed on SHSE (Shanghai Stock Exchanges) and SZSE (Shenzhen Stock Exchanges) available on Datastream and CSMAR. All variables are defined in Appendix 1.

Variable	Mean	Median	SD	Min	Max
NCSKEW	-0.379	-0.374	0.686	-2.179	1.514
DUVOL	-0.229	-0.243	0.411	-1.367	1.050
Sync	-1.262	-1.156	0.405	-2.996	-0.781
Sigma	0.018	0.017	0.006	0.000	0.039
Return (-1)	0.048	0.001	0.472	-0.121	0.141
Size	15.28	15.17	1.362	10.90	20.86
Leverage	28.26	27.79	17.38	0.000	63.83
M/B	2.922	2.430	1.751	0.210	6.190
ROA	4.837	3.884	6.037	-14.23	20.15
Growth	20.38	16.43	29.62	-34.12	86.53
DAC	-0.004	-0.010	0.139	-0.584	0.800
Short Int.	0.017	0.004	0.026	0.000	0.145

Table 3: Short Interests and Changes in Political Negative News Hoarding

This table reports descriptive statistics of crash risk and stock price synchronicity measures for all short selling eligible firms, sorted by shorting activities level, with sample periods before and after short selling is allowed. Entire sample are firstly sorted into two groups from lowest to highest by short interest ratio, calculated by short interest scaled by trading volume. All measures are reported for each group. We report results in three panels. For the first two panels, averages for pre, post political meeting periods, and difference for both periods are reported. In the last panel, difference in mean negative news hoarding for each short selling group and corresponding t-statistics are reported. All measures are defined in Appendix A. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Rank=Short Interests	Variable	Before			After			Diff=	
		Pre Meeting	Post Meeting	Post-Pre	Pre Meeting	Post Meeting	Post-Pre	After-Before	T-stats
Low	NCSKEW	-0.435	-0.272	0.163*	-0.654	-0.498	0.155**	-0.007	(-0.22)
High	NCSKEW	-0.413	-0.316	0.097**	-0.438	-0.383	0.055*	-0.042**	(-2.18)
All	NCSKEW	-0.419	-0.284	0.135*	-0.546	-0.441	0.105*	-0.030	(-1.23)
Low	DUVOL	-0.264	-0.166	0.099*	-0.377	-0.297	0.080*	-0.019	(-0.56)
High	DUVOL	-0.255	-0.200	0.055*	-0.254	-0.238	0.016	-0.039**	(-2.12)
All	DUVOL	-0.260	-0.185	0.075*	-0.315	-0.267	0.048*	-0.027*	(-1.68)
Low	Sync	-1.271	-1.331	-0.060*	-1.251	-1.319	-0.068*	-0.008	(-0.66)
High	Sync	-1.292	-1.319	-0.027	-1.177	-1.264	-0.088	-0.061	(-0.73)
All	Sync	-1.281	-1.315	-0.033*	-1.234	-1.273	-0.039*	-0.005	(-0.78)

Table 4: Short Selling and Changes in Political Negative News Hoarding: Univariate DiD Results

This table presents results based on a unique regulatory setting in China where the regulator introduces short selling gradually to two stock exchanges since 2010. We match each stock added to the short selling list to a stock that is not allowed short selling within the same industry. Panel A reports the summary statistics and tests for differences for major firm characteristics. Panel B reports average negative news hoarding measures and difference-in-differences. We omit the event year. Column headings in Panel B indicate different sample periods and difference/DiD for the corresponding variables. Corresponding t-statistics are reported in parentheses. All variables are defined in Appendix A. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively.

Panel A: Key Firm Characteristics immediately before Introduction of Short Selling

| Variables | Treatment Group | | | Control Group | | | Test for Differences | |
	Mean	Median	SD	Mean	Median	SD	Mean (T-stats)	Median (Chi-sq)
Size	15.85	15.60	1.268	15.56	15.57	1.107	1.57	0.32
M/B	3.891	3.845	1.854	3.029	2.750	1.751	1.58	2.58
ROA	6.580	5.089	6.323	4.294	3.175	5.303	2.50	2.48
Growth	18.86	13.27	30.98	14.50	10.41	28.12	1.82*	2.51
DAC	-0.006	-0.006	0.132	-0.015	-0.016	0.133	1.22	3.69*

Panel B: Univariate Difference-in-Differences

| | Treatment Group | | | Control Group | | | Diff-in-Diffs | T-stats |
	Before	After	Diff	Before	After	Diff		
$NCSKEW_{diff}$	0.123	0.058	-0.065	0.148	0.239	0.091	-0.156***	(-3.31)
$DUVOL_{diff}$	0.073	0.029	-0.045	0.093	0.117	0.024	-0.069**	(-2.36)
$Sync_{diff}$	-0.068	-0.059	0.009	-0.039	-0.127	-0.088	0.097***	(4.53)

Table 5: Short Selling and Political Negative News Hoarding: Multivariate DiD Results

This table reports results of OLS panel regressions with firm and year fixed effects. The panel is composed of yearly observations for 2002-2014. We omit the event year. Column headings indicate different dependent variables. T-statistics are displayed in the parenthesis under each coefficient. Standard errors adjust for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively. All variables have been defined in Appendix 1.

	(1) $NCSKEW_{diff}$	(2) $DUVOL_{diff}$	(3) $Sync_{diff}$
After	0.096*	0.036	-0.021
	(1.75)	(1.03)	(-0.97)
Short × After	-0.200***	-0.099***	0.102***
	(-3.23)	(-2.66)	(4.03)
Sigma	4.886*	1.380	-7.464***
	(1.65)	(0.73)	(-4.49)
Size (-1)	0.040	0.006	0.006
	(1.39)	(0.32)	(0.42)
ROA	-0.006**	-0.004*	0.001
	(-2.15)	(-1.94)	(0.14)
Growth	-0.006	-0.002	0.005
	(-0.76)	(-0.46)	(0.27)
Leverage (-1)	-0.004	-0.001	
	(-0.13)	(-0.26)	
M/B (-1)	0.008	0.004	
	(0.75)	(0.64)	
Return	-0.100**	-0.009*	
	(-2.23)	(-1.69)	
Return (-1)	0.010**	0.020**	
	(2.01)	(2.21)	
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
N	10,399	10,177	9,742
adj. R-sq	0.030	0.032	0.136

Table 6: Placebo Tests

This table reports placebo test results, where we define the event year counterfactually to be 2004 and 2007. The first three columns report results for when we define the pseudo-event year as 2004, and the forth to sixth columns report results for when we define the event to happen in 2007. We run OLS panel regressions with firm and year fixed effects. We omit the event year. Column headings indicate different dependent variables. T-statistics are displayed in the parenthesis under each coefficient. Standard errors adjust for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively. All variables have been defined in Appendix 1.

	(1) NCSKEW$_{diff}$	(2) DUVOL$_{diff}$	(3) Sync$_{diff}$	(4) NCSKEW$_{diff}$	(5) DUVOL$_{diff}$	(6) Sync$_{diff}$
Short $\times$ After	-0.102	-0.009	-0.019	0.099	0.029	0.102
	(-1.23)	(-0.66)	(1.03)	(1.00)	(0.76)	(1.13)
Event Year	2004	2004	2004	2007	2007	2007
with Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 7: Short Selling and Political Negative News Hoarding: Partitioned by Political Incentive

This table reports results of OLS panel regressions with firm and year fixed effects, partitioned on political event type. We omit the event year. Column headings indicate different dependent variables. T-statistics are displayed in the parenthesis under each coefficient. Standard errors adjust for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively. All variables have been defined in Appendix 1.

	(1) $\text{NCSKEW}_{\text{diff}}$	(2) $\text{DUVOL}_{\text{diff}}$	(3) $\text{Sync}_{\text{diff}}$
Party Meeting × Short × After	-0.359**	-0.287*	0.123***
	(-2.09)	(-1.85)	(3.15)
Party Meeting × Short	0.273***	0.143***	0.235***
	(5.60)	(3.75)	(9.91)
Party Meeting × After	0.063	0.019	0.038
	(0.49)	(0.17)	(0.86)
After	0.097*	0.040	-0.029
	(1.75)	(1.31)	(-1.32)
Short x After	-0.136**	-0.052	0.118***
	(-2.04)	(-1.50)	(4.33)
With Controls	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
N	16,068	15,717	14,989
adj. R-sq	0.063	0.064	0.170

Table 8: Short Selling and Political Negative News Hoarding: Partitioned by Firm Size
This table reports results of OLS panel regressions with firm and year fixed effects, partitioned on firm size. We omit the event year. Column headings indicate different dependent variables. Columns (1) through (3) report results for firms with large size, and columns (4) through (6) report the results for firms with small size. T-statistics are displayed in the parenthesis under each coefficient. Standard errors adjust for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively. All variables have been defined in Appendix 1.

	Large Firms			Small Firms		
	(1)	(2)	(3)	(4)	(5)	(6)
	NCSKEW$_{diff}$	DUVOL$_{diff}$	Sync$_{diff}$	NCSKEW$_{diff}$	DUVOL$_{diff}$	Sync$_{diff}$
After	0.085	0.030	0.006	0.069	0.027	-0.087*
	(1.32)	(0.73)	(0.23)	(0.66)	(0.43)	(-1.95)
Short $\times$ After	-0.272***	-0.113**	0.110***	-0.168*	-0.080	0.093*
	(-2.64)	(-2.08)	(3.43)	(-1.77)	(-1.37)	(1.96)
With Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	8,596	8,427	8,019	7,456	7,274	6,941
adj. R-sq	0.053	0.057	0.171	0.068	0.068	0.166

Table 9: Short Selling and Political Negative News Hoarding: Partitioned by State Ownership

This table reports results of OLS panel regressions with firm and year fixed effects, partitioned on state ownership. We omit the event year. Column headings indicate different dependent variables. Columns (1) through (3) report results for firms with high state ownership, and columns (4) through (6) report the results for firms with low state ownership. T-statistics are displayed in the parenthesis under each coefficient. Standard errors adjust for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively. All variables have been defined in Appendix 1.
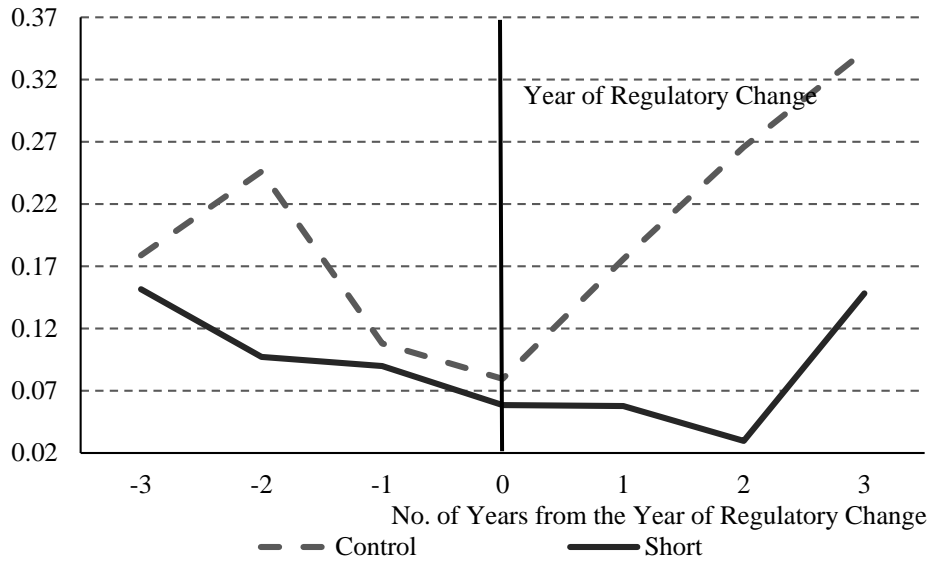
	High State Ownership			Low State Ownership		
	(1)	(2)	(3)	(4)	(5)	(6)
	$NCSKEW_{diff}$	$DUVOL_{diff}$	$Sync_{diff}$	$NCSKEW_{diff}$	$DUVOL_{diff}$	$Sync_{diff}$
After	0.056	0.012	-0.038	0.030	-0.020	-0.030
	(0.58)	(0.20)	(-0.91)	(0.42)	(-0.46)	(-0.97)
Short $\times$ After	-0.202^{**}	-0.101^{*}	0.135^{**}	-0.143^{*}	-0.055	0.122^{**}
	(-1.99)	(-1.68)	(2.44)	(-1.74)	(-1.21)	(2.46)
With Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	5,687	5,568	5,175	9,067	8,861	8,536
adj. R-sq	0.045	0.046	0.157	0.063	0.067	0.166

Table 10: Short Selling and Political Negative News Hoarding: Partitioned by Reporting Opacity
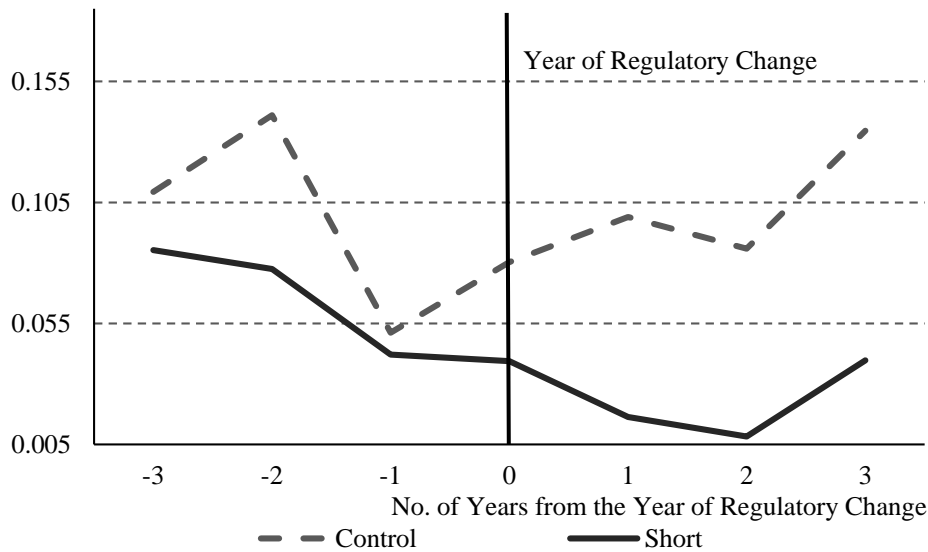
This table reports results of OLS panel regressions with firm and year fixed effects, partitioned on discretionary accruals. We omit the event year. Column headings indicate different dependent variables. Columns (1) through (3) report results for firms with high discretionary accruals, and columns (4) through (6) report the results for firms with low discretionary accruals. T-statistics are displayed in the parenthesis under each coefficient. Standard errors adjust for heteroskedasticity and clustered by firm. ***, **, and * indicate significance at the 1%, 5%, and 10% levels respectively. All variables have been defined in Appendix 1.

	High Discretionary Accruals			Low Discretionary Accruals		
	(1)	(2)	(3)	(1)	(2)	(3)
	$NCSKEW_{diff}$	$DUVOL_{diff}$	$Sync_{diff}$	$NCSKEW_{diff}$	$DUVOL_{diff}$	$Sync_{diff}$
After	0.043	-0.005	-0.001	0.145*	0.054	-0.030
	(0.55)	(-0.11)	(-0.04)	(1.87)	(1.08)	(-0.89)
Short $\times$ After	-0.299**	-0.148**	0.163***	-0.161*	-0.060	0.078**
	(-2.21)	(-2.02)	(2.99)	(-1.96)	(-1.31)	(2.10)
With Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
N	7,616	7,452	6,937	8,106	7,928	7,338
adj. R-sq	0.047	0.050	0.170	0.069	0.068	0.163

Figures

Panel A: The Change of the Difference in NCSKEW for Pilot and Control Group

Panel B: The Change of the Difference in DUVOL for Pilot and Control Group

Figure 1: The Changes in Bad News Hoarding around Short Selling Regulation Changes
This figure depicts the changes in NCSKEW$_{diff}$ (Panel A) and DUVOL$_{diff}$ (Panel B) for the periods of 3 years before and after the introduction of short selling in Chinese market.