

Too Cynical: Why The Stock Market in China Dismissed Initial Anti-Corruption Signals

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Abstract

Political leaders in China regularly launch anti-corruption campaigns to win public support. But how are anti-corruption signals perceived? We use event study to examine the case of Xi Jinping's anti-corruption campaign – an unprecedented effort in China to fight corruption. Contrary to expectations, we find that for the firms with connected officials later investigated, the initial anti-corruption signals – speeches from the top leadership and earlier crackdowns on other senior officials – did not decrease their stock prices. We argue that the perceived high costs of following through and repeated campaigns in the past paradoxically nurtured cynicism. We exploit the case of Zhou Yongkang and Ling Jihua – the two officials who were alleged to be involved in the power struggle and whose downfall had circulated widely since 2012. We find that when the targets of earlier crackdowns were connected to Zhou or Ling, the stock prices of the firms went down only if their connected and later investigated officials were in the same faction; the stock prices of the other firms, however, went up. We interpret the results as investors' misperceptions of the campaign in the beginning. Our findings suggest that even real efforts in campaign-style enforcement can be dismissed.

Keywords Campaign-style enforcement; Anti-corruption campaign; Stock market; Event study

Introduction

Campaign-style enforcement has become a handy tool for the Chinese Communist Party (CCP) to win public support by solving, or at least signaling commitments and efforts in solving thorny policy problems. However, how campaign-style enforcement is *perceived* is not clear. Are signals from campaign-style enforcement perceived as credible policy efforts or a political show that will end soon? Perceptions on campaign-style enforcement – especially from those who pay attention to politics and care about policy outcomes – are important. If campaign-style enforcement is perceived as “changing the soup without changing the medicine”, even real policy achievements may be dismissed. In the long-term, this may undermine confidence towards the CCP’s future policy efforts, even when they are indeed sincere.

We study the case of Xi Jinping’s anti-corruption campaign – an unprecedented anti-corruption effort in China launched by Xi Jinping soon after he became the party’s top leader in late 2012. Xi Jinping’s anti-corruption campaign provides us with an interesting setting to study the anticipation effects. Many scholars have considered it as a largely genuine effort to fight corruption [5, 21, 27, 30, 33, 55]. Retrospectively, the duration and intensity have both suggested that the campaign was at least more than a pure power struggle.¹ In addition, although some media have doubted that the campaign was for Xi Jinping to consolidate power,² the signals from the early stage of the campaign were quite unusual. For example, the rhetoric of “cracking down on both tigers and flies” was never used by other Chinese leaders since the Mao era. Central inspections, designed in the 1990s, were never implemented in such a scale [59]. The intensity of approximately one senior official investigated per month was also unusual. While Xi Jinping’s anti-corruption campaign was later revealed to be a serious policy effort, the question of interest here is whether this was anticipated in the beginning.

We use a novel research design with data from China’s stock market.³ We identify 75 firms whose connected officials with sub-provincial (ministerial) ranks or above were later investigated during the campaign as the firms that were vulnerable to upcoming investigations. We use event study to estimate their abnormal stock returns around the days when the top leadership made three key anti-corruption speeches, and when earlier investigations on other officials with sub-provincial (ministerial) ranks or above were officially announced. We also match each of the 75 firms with firms from the same industry, with the same type of ownership, but not with connected officials investigated. We then compare the abnormal returns of these 75

¹ On 13 December 2018, for the first time, the party declared a sweeping victory over corruption, which has been six years since Xi launched the campaign. See “China’s Xi declares an ‘overwhelming victory’ over graft: state media”, *Reuters*, 15 December 2018. During 2013 to 2018, the number of investigations on both senior officials and the rank and file soared relative to the numbers in previous years.

² For example, see “Special report: The power struggle behind China’s corruption crackdown”, *Reuters*, 23 May 2014; “China’s Xi Jinping denies House of Cards power struggle but attacks ‘conspirators’”, *Guardian*, 4 May 2016; “Xi move on faction suggests China elite struggle: experts”, *Daily Mail*, 29 April 2016.

³ Stock market is a good fit to test the anticipation effects because how the campaign would evolve in the future is what matters most for investors.

firms with synthetic abnormal returns from their matched control firms.

The reaction from the stock market sheds light on how investors in China perceive early signals from campaign-style enforcement. Compared with the average public, investors are often well-informed and more likely to care about politics. Therefore, how they perceive the anti-corruption signals is an important question on its own. By exploiting the chronological order of anti-corruption events, this design allows us to estimate the spillover effects of anti-corruption signals instead of the direct effects of investigations themselves, which differs from an increasing number of research that uses stock market reactions to study anti-corruption campaigns [7, 28].

The design follows the logic of the most-likely cases. Compared with other politically connected firms that might also be vulnerable to anti-corruption investigations, the connected officials of the 75 firms turned out to be the real targets in the anti-corruption campaign.⁴ Therefore, if the early signals were perceived as serious threats, the 75 firms would have been the most likely cases to be negatively affected in the stock market. On the contrary, if the stock prices of these firms did not drop, the evidence would strongly indicate that the signals of Xi Jinping's anti-corruption campaign were not perceived to be serious in the beginning.

Contrary to expectations, we find that the initial anti-corruption speeches and announcements of earlier crackdowns on other senior officials did not decrease the stock prices of the 75 firms as a whole. Why was such an unprecedented anti-corruption effort not taken seriously in the beginning by the supposedly sensitive readers of politics? We argue that two features that are necessary for anti-corruption campaigns to work can also paradoxically nurture cynicism. First, anti-corruption campaigns have to be unusually costly to distinguish themselves from the routine enforcement, but the high costs of following through also make such signals less likely to be perceived as credible. Second, anti-corruption campaigns need to be periodically launched to maintain deterrent threats and enforcement credibility. However, when campaigns are repeatedly launched, society may become immune to subsequent waves of campaigns, especially if the previous ones have failed to establish a credible reputation.

By further exploiting the heterogeneous effects along connections to Zhou Yongkang and Ling Jihua – the two officials who were alleged to be involved in the power struggle and whose downfall had circulated widely since 2012, we find that only when the targets of earlier crackdowns were connected with Zhou or Ling and when the connected officials of the event firms were in the same faction, the stock prices went down. The result indicates that investors initially misperceived that Xi Jinping's anti-corruption campaign was merely a power struggle or only designed to remove the two big tigers. In addition, we find that the stock market misinterpreted the crackdowns on officials connected with Zhou Yongkang or Ling Jihua as “good news” that the campaign was about to slow down, or their invested firms' connections were safe – when the targets of earlier crackdowns were connected with Zhou or Ling, the stock prices of the firms whose connected and later investigated officials were not in the same faction went up.

⁴ Wang [51] has noted, almost 90 percent of listed firms are politically connected, leaving very few variations to compare listed firms with or without political connections.

This study contributes to recent literature on anti-corruption campaigns in China [20, 24, 45, 52, 65] and Asia [42]. Our findings reveal an inherent dilemma of anti-corruption campaigns. For countries with widespread corruption, periodically resorting to campaign-style enforcement is considered as a viable alternative to deter corruption and restore enforcement credibility [22, 31, 32, 54]. However, as our results indicate, with frequent campaigns in the past, even real anti-corruption efforts can be disregarded in these countries. In addition, although this study only focuses on the case of Xi Jinping’s anti-corruption campaign, our findings have important implications for campaign-style enforcement in general – both the high costs of following through and periodical uses are common features of campaign-style enforcement. The CCP has increasingly resorted to campaigns to solve thorny policy problems in recent years. For developing countries without sound formal institutions, campaign-style enforcement may be the only alternative to tackle immediate policy challenges [47]. While one of the purported advantages of campaign-style enforcement is its ability to break with the past and signal political determination that this time is different [29, 53, 60], it should not be taken for granted that these signals – no matter how dramatic they seem to be – will be taken seriously.

The remainder of the paper proceeds as follows. The next section briefly reviews the related literature on campaign style enforcement. Subsequently, we empirically test whether Xi Jinping’s anti-corruption campaign was taken seriously by the stock market in the beginning. We then elaborate on why anti-corruption campaigns can paradoxically nurture cynicism. Then, we test the observable implications of cynicism by exploiting variations on connections to Zhou Yongkang and Ling Jihua. We subject the results to three robustness checks: sign test, synthetic controls, and excluding connections formed through bribery, which are more likely to be unknown to investors. In the conclusion, we discuss the implications of our findings.

Related Literature

Campaign-style enforcement is a dramatic event “involving extraordinary mobilization of administrative resources under political sponsorship to achieve a specific policy target within a defined period of time” [29, p.85]. In the reform era, the CCP has adopted it as a pragmatic policy strategy in various policy areas, “when regular enforcement fails and urgent tasks require timely responses” [29, p.85]. Anti-corruption is one of the policy areas where the CCP has repeatedly resorted to campaign-style enforcement.⁵ In countries with widespread corruption, routine enforcement is unlikely to succeed. First, the number of cases can easily overwhelm regular enforcement resources [22, 31, 32, 54]. Second, the prevalence of corruption further results in a shared expectation that corruption is the norm and enforcement is unreliable [32, 37, 41]. Campaign-style enforcement is one of a few alternatives that may break the vicious circle of

⁵ The CCP has launched at least seven waves of anti-corruption campaigns in the reform era. Manion [32] has documented the anti-corruption campaigns in 1982, 1986, 1989, 1993, and 1995. In 2006, the CCP launched an anti-corruption investigation against the then Shanghai Party Secretary Chen Liangyu. In December 2012, Xi Jinping launched the most recent anti-corruption campaign.

corruption.

Different from routine enforcement, campaign-style enforcement uses unusual measures to signal the political significance of the targeted issues and the determination of extracting results in a short period of time [29, 53, 60]. First, extensive administrative, fiscal, and propaganda resources are mobilized for the targeted policy area in a short period of time, with other policy objectives set aside [29, 40, 44, 60]. Second, in contrast to the legal-rational approach, “blunt force” is often deployed [48]. Third, ad hoc agencies are often established on top of the existing institutions to lead the campaign [53, 60]. A typical anti-corruption campaign starts with unusually harsh rhetoric from the top leadership, followed by mobilization of resources in monitoring and enforcement, and then a surge of high-profile crackdowns.

The effectiveness of campaign-style enforcement is premised on the assumption that these dramatic measures will be taken as clear signals that distinguish with the unreliable enforcement in the past. However, how these signals are actually perceived has rarely been studied.⁶ On the one hand, the answer seems obvious – how can such loud and clear signals be missed? On the other hand, misperceptions are common in the process of signaling [18]. The literature on criminology has long recognized that perceptual properties of enforcement (the perceived probability of detection and severity of punishment) are not necessarily the same as its objective properties (the actual probability of detection and severity of punishment).⁷ Our study on Xi Jinping’s anti-corruption campaign contributes to the literature by using a novel research design that allows us to empirically estimate initial perceptions on anti-corruption signals.

Was Xi’s Campaign Taken Seriously?

Research Design

We use event study to estimate the impacts of anti-corruption signals on the stock prices of the firms that were vulnerable to upcoming investigations in the beginning of Xi Jinping’s anti-corruption campaign. Event study has been widely used in finance and political science to estimate the impacts of political events [2, 11, 17, 50]. We focus on three key anti-corruption speeches from the top leadership between December 2012 and May 2013: the announcement of the “Eight-point Regulation” on 4 December 2012; the speech by Xi Jinping about “cracking down on both tigers and flies” on 22 January 2013; and the speech on the central inspection mobilization and training meeting on 17 May 2013. Table A.1 in the Appendix lists the details of the three events. The campaign was followed by a surge of crackdowns on senior officials. From May 2013 to December 2013, 16 officials with sub-provincial (ministerial) ranks or above were

⁶ An exception is Mei and Pearson [35], they find that the deterrent threats from the hold-to-account campaign were dismissed by local officials.

⁷ See Paternoster [39] and Williams and Hawkins [56] for reviews.

announced to be under investigation.⁸ We define these 16 cases as the events of early crackdowns. Table A.2, in the Appendix, lists the details of these cases. We deliberately choose the events within the first year of Xi’s campaign to estimate the effects of early signals. We then identify a set of firms whose connected officials with sub-provincial (ministerial) ranks or above were actually investigated later. We estimate how the stock returns of these firms were affected by the early anti-corruption signals – three key anti-corruption speeches and 16 cases of crackdowns on other officials.

To illustrate our research design, we use “Shanxi Lanhua Sci-Tech Venture” as an example. The firm was closely connected with Jin Daoming, the then Deputy Director of the People’s Congress in Shanxi, who was announced to be under investigation on 27 February 2014. Our estimates of interests are whether the stock prices of this firm dropped (1) around 4 December 2012 (“Eight-point Regulation”), (2) 22 January 2013 (“cracking down on both tigers and flies”), (3) 17 May 2013 (central inspection mobilization and training meeting), and (4) when the 16 earlier investigations in 2013 on other officials of similar ranks were announced.

Our design applies the logic of the most-likely cases to event study. The validity of this design depends on the following assumptions. First, event study requires the events to provide unanticipated new information to the stock market [10]. Xi Jinping made the announcement of the “Eight-point Regulation” and the speech about “cracking down on both tigers and flies” within three months after he became the new party leader, at a time when his policy agenda had not been fully revealed. Both signals indicated a new direction of the anti-corruption policy. Although the dates of the speeches could be scheduled and anticipated, it was unlikely to anticipate the contents and tones beforehand. The central inspection mobilization and training meeting provided information about the policy resolve. The meeting signaled the official start of central inspections, which marked the beginning of systematic actions for the first time. Prior to the central inspections, Xi Jinping’s resolve in fighting corruption was unclear, as few serious actions were taken.⁹ The publicity of early crackdowns on senior officials updated information about the political leader’s motivation and resolve. The targets of investigations provided clues on why the campaign was launched in the first place, and how far the political leader was willing to go.

Second, as the logic of the most-likely cases requires, we assume that initial anti-corruption signals – if taken seriously – should most likely have negative effects on the stock prices of the firms whose connected officials were actually investigated later. Existing studies suggest that stock values of politically connected firms fluctuate with the rise and fall of their connected politicians’ prospects. For example, in a seminal study, Fisman [11] finds that rumors about Suharto’s deteriorating health condition significantly lowered the stock values of the Indonesian firms that were connected to him. In our study, the early anti-corruption signals – if taken seriously – were bad news for firms connected with corrupt officials. There are two mechanisms

⁸ The announcement of “under investigation” was the earliest date when these cases went public before formal trials.

⁹ For example, before 17 May 2013, only two senior officials with sub-provincial (ministerial) ranks or above were investigated.

why they should negatively affect the stock prices of these firms – initial anti-corruption signals increased both the political uncertainty and the probability of investigations on these firms’ connected officials. Stock values often fall when uncertainty increases [38]. Although how anti-corruption investigations affect the political uncertainty of the directly affected firms are debatable [8, 57], the timeframe in our study is before the firms’ connected firms were actually removed. During this period, the fate of these firms’ connected officials became particularly uncertain as how the campaign would develop following the initial signals was unclear. In addition, if investors expected that the connected officials of their invested firms were also going to be investigated, they should expect that the various benefits associated with political connections, including loans [15, 25], government contracts [13], and reputation boosts [46], would disappear as well. In the cases where the firms’ connected officials turned out to be the actual targets in the later investigations, the investors of these firms would have been the most likely ones to smell the dangers of upcoming investigations. Hence, if the early anti-corruption signals were taken seriously, the stock prices of these firms would have dropped following these signals. On the contrary, if their stock prices were not negatively affected, it would strongly suggest that Xi Jinping’s anti-corruption campaign was not taken seriously.

Finally, we assume that the political connections of these firms were known to investors prior to the time when the connections were made public by the investigations. We argue that the political connections were known prior to at least some of the large and sophisticated investors and corporate insiders. Institutional investors in China are estimated to hold 70 percent of the Shanghai and Shenzhen stock market shares.¹⁰ Theoretically, informed investors transmit information to the market through informed trading [14]. Empirical evidence also suggests that informed investors use their information advantages to trade actively [16], and their trading activities can predict a large proportion of stock returns [43, 61]. Anecdotal evidence also suggests that rumors about covert connections between politicians and firms often circulated long before they became public. Sometimes, soon after an official was announced to be under investigation, the media could publish detailed stories on the official’s corrupt activities with the connected firms, citing sources from insiders or informed parties. For example, according to a Caixin report, the connection between Liu Zhigeng, the then deputy governor of Guangdong province, and the entrepreneur Zhang Jun (one case in our data) was publicly known long before the investigation of Liu.¹¹ While it is possible that connections formed through bribery were more likely to be unknown to investors compared with other types of connections, bribery in China often occurs with existent connections [26, 49]. In the robustness checks, we also exclude 18 event firms with political connections formed through bribery.

To compile a set of firms whose connected officials were later investigated in the campaign, we first found the names of 179 officials with sub-provincial (ministerial) ranks or above who

¹⁰ See “Retail traders’ hold on China’s stock market slips as institutions rise”, *Financial Times*, 25 February 2021.

¹¹ See “Uncover the model of Sino Life”, *Caixin Weekly*, 29 April 2016, <https://weekly.caixin.com/2016-04-29/100938109.html> (in Chinese).

were investigated between December 2012 and December 2017.¹² We then searched the names of the investigated officials on the Internet to identify any listed firms that were reported to be connected with the official.¹³ We identified 75 firms listed on the Shanghai and Shenzhen A-shares market. We define them as the event firms. Table A.3 in the Appendix presents basic information on these 75 firms. We obtained the daily stock prices and other financial information from the China Stock Market and Accounting Research (CSMAR) database.¹⁴

Estimation Strategies

We estimate abnormal stock returns of the 75 firms around the dates of the anti-corruption events. Abnormal returns are the differences between actual returns and expected returns. In the commonly used market model, daily market returns are used to estimate expected returns. For the convenience of calculating abnormal returns and standard errors, we adopt the dummy variable approach [19]. If we regress the daily stock returns of each firm on the daily market returns, together with a set of dummy variables indicating the dates of the events, the coefficients of event dummies are abnormal returns relative to the expected returns. The model is as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \gamma_1 D_{speech1} + \gamma_2 D_{speech2} + \gamma_3 D_{speech3} + \gamma_4 D_{crackdowns} + \epsilon_{it}$$

R_{it} is the one-day stock return of firm i at date t relative to date $t - 1$.¹⁵ α_i represents firm-specific dummies. R_{mt} is the one-day market return between date t and $t - 1$.¹⁶ β_i estimates how the daily stock returns of firm i correlate with the daily market returns.¹⁷ $\hat{\alpha}_i + \hat{\beta}_i R_{mt}$ is the expected return for firm i at date t . $D_{speech1}$, $D_{speech2}$ and $D_{speech3}$ are three dummy variables that take the value of 1 if the trading days are within a defined k -day event window for the three speeches, and 0 otherwise. γ_1 , γ_2 , and γ_3 are the average cumulative abnormal stock returns of the k -day window for the corresponding events.¹⁸ $D_{crackdown}$ is a dummy variable that takes the value of 1 if the trading day is within a k -day event window around any of the 16 earlier crackdowns, and 0 otherwise. The coefficient γ_4 is the aggregated average cumulative abnormal returns of crackdowns aggregated across the 16 earlier investigations.

¹² The list of officials was obtained from the official website of the Central Commission for Discipline Inspection <http://www.ccdi.gov.cn/>. We also validated the list from Wikipedia and Baidu Baike.

¹³ The media often published in-depth reports following the investigations of senior officials. Most of these reports covered the officials' connections with firms. We also explicitly searched the names of the officials with the keywords such as "firm", "listed firm", "business", and "state-business relationship". The political connections included bribing, political-business allies, relatives, or managers of state-owned firms.

¹⁴ For more information on the CSMAR database, see <http://us.gtadata.com/>.

¹⁵ They are calculated as $\frac{P_t - P_{t-1}}{P_{t-1}} \times 100$, where P_t is the closing price at date t .

¹⁶ For the firms listed in the Shanghai and Shenzhen stock market, we used the Shanghai and Shenzhen A-shares index, respectively.

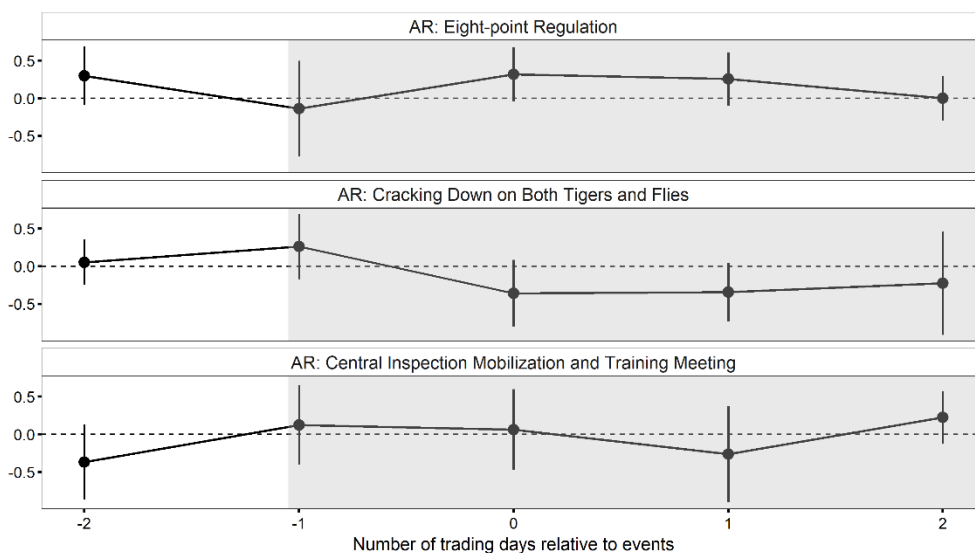
¹⁷ In the regression model, we interact the firm-specific dummies with beta to get the firm-specific β_i .

¹⁸ If k equals 1, the coefficients are daily abnormal returns.

The period covers the calendar dates from 1 November 2011 to 31 December 2013. If at a given time, the connected official of a firm was about to be investigated in the next 14 calendar dates, we drop the firm after that time. This assures that the estimated effects of anti-corruption speeches and earlier crackdowns are not contaminated by the investigations of the firms' own connected officials.¹⁹ To adjust correlations within the same firm, we cluster standard errors at the firm level. Table A.4 in the Appendix reports descriptive statistics.

Results: Was Xi's Campaign Taken Seriously?

Figure 1 plots the daily abnormal returns (AR) for the events of “Eight-point regulation”, “cracking down on both tigers and flies”, and central inspection mobilization and training meeting. We plot a five-day event window from two trading days before the events to two trading days after the events.²⁰ If these earlier events were taken as clear signals that Xi's campaign was serious, the abnormal returns would have been negative. However, the results show otherwise: except for the speech about “cracking down on both tigers and flies”, the other two events did not decrease the stock prices of the firms that were mostly vulnerable to upcoming investigations at all.



Note: Daily abnormal returns are plotted with the 95% confidence intervals around the point estimates. The shaded areas are four-day event windows starting from one day prior to the event. Standard errors are clustered at the firm-level.

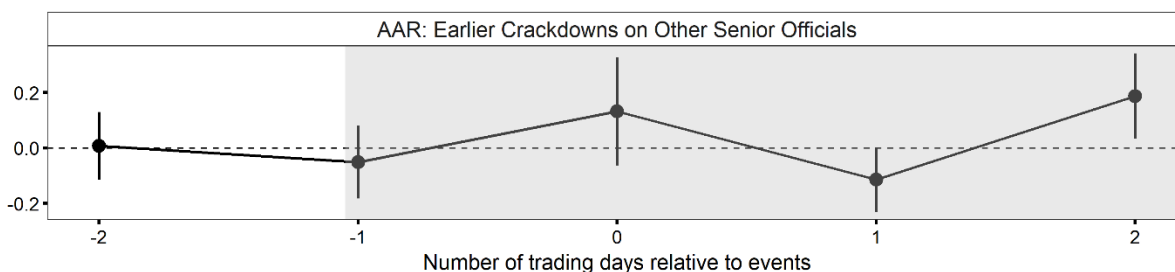
Fig. 1 Daily Abnormal Returns around Anti-Corruption Speeches

¹⁹ 12 firms whose connected officials were investigated in 2013 are dropped at some points.

²⁰ We use a relatively short event window because we expect the stock market to react to anti-corruption signals immediately.

Table A.5 in the Appendix reports the daily abnormal returns and standard errors clustered at the firm level. The abnormal stock returns of these firms after “Eight-point Regulation” are all positive – the daily abnormal returns starting from the same day of the event were 0.317 percent, 0.255 percent, and 0.002 percent. None of them are statistically significant. After the speech on “cracking down on both tigers and flies”, the abnormal stock returns of these firms dropped moderately for three consecutive trading days starting from the same day of the event – the daily abnormal returns are -0.359 percent, -0.344 percent, and -0.225 percent, respectively. But none of them are statistically significant at the 5 percent level. Starting from the same day of the event, the three-day cumulative abnormal return -0.928 percent is statistically significant at the 10 percent level (p value = 0.060).²¹ After the central inspection mobilization and training meeting, the daily abnormal returns are 0.063 percent, -0.264 percent, and 0.233 percent in three consecutive trading days. The three-day cumulative abnormal return is close to 0.

Figure 2 plots the daily average abnormal returns (AAR) averaged across 16 earlier crackdowns. If investors perceived the crackdowns on other senior officials as a signal of increasing risks of investigations on the connected officials of their invested firms, the stock prices of the 75 firms would have dropped around the official announcements of investigations. However, the evidence shows that on average, crackdowns on other officials did not decrease the stock prices of the 75 firms as a whole. Starting from one day prior to the official announcements to account for the possible leak of news, the daily abnormal returns are -0.051 percent, 0.132 percent, -0.114 percent, and 0.187 percent. None of them are both negative and close to statistical significance at any conventional level.



Note: Daily abnormal returns are plotted with the 95% confidence intervals around the point estimates. The shaded areas are four-day event windows starting from one day prior to the event. Standard errors are clustered at the firm-level.

Fig. 2 Daily Abnormal Returns around Earlier Crackdowns on Other Officials

Table A.6 reports average cumulative abnormal returns from one-day to four-day event windows starting from one trading day prior to the events. For both the events of anti-

²¹ The k -day cumulative abnormal returns are calculated by summing the k -day daily abnormal returns in Table A.5. We calculate the standard errors using the variance covariance matrix of the estimated daily abnormal returns.

corruption speeches and earlier crackdowns, none of the results in the above event windows are statistically significant. In sum, we find no clear evidence that initial anti-corruption signals hurt the stock values of the firms that were vulnerable to upcoming investigations. While the results suggest that investors in the stock market did react moderately to the unusually harsh speech about “cracking down on both tigers and flies”, it is striking that the follow-up events that were supposed to signal policy resolves – central inspections and high-profile crackdowns – did not sound alarms to investors at all. In addition, the stock prices of these firms slightly went up after the “Eight-point” regulation – the very first signal of Xi Jinping’s anti-corruption campaign.

Why Were the Anti-Corruption Signals Dismissed?

The Paradox of Anti-corruption Campaigns

Why was Xi Jinping’s anti-corruption campaign – a sensational and largely genuine effort in fighting corruption – not taken seriously in the beginning? Although it has long been noted that anti-corruption campaigns could be driven by ulterior political motivations [4, 12, 64, 66], the question we need to answer here is why a genuine campaign was initially dismissed. We develop an explanation that reveals an essential dilemma of anti-corruption campaigns: two crucial features that make anti-corruption campaigns work can paradoxically nurture cynicism, which leads to misinterpretations of the campaign.

First, anti-corruption campaigns have to be costly to be effective, but the high costs of following through also make the signals less likely to be perceived as credible [34]. On the one hand, to restore enforcement credibility, the regime has to mobilize extra resources in investigations and resort to more severe punishments to demonstrate to the public that this time is different. On the other hand, this is costly, as it conflicts with other important policy goals – such as maintaining stability, morale, and talents of the bureaucracy [3, 6, 36, 58] and attracting investments and businesses [9, 62]. However, as McManus [34] argues in the context of international relations, the credibility of a signal depends largely on the regime’s ability of following through – the lower the ability of following through, the less likely the signal will be perceived as credible. We argue that investors – especially the professional investors that dominantly affect the stock market in China – are similar to political leaders in the way that both of them are sophisticated and unlikely to take political signals at face value. If investors realized that the costs the regime had to take to follow through with the threats were extremely high, they would not perceive the anti-corruption signals as credible in the first place. Instead, they would be more likely to perceive the anti-corruption campaign as a blow of wind that would pass soon. Even when crackdowns on senior officials were intended to demonstrate the policy resolve, those who realized the high costs of following through would nonetheless perceive them as signals that the campaign had gone far enough and may end soon. For example, the crackdown on Zhou

Yongkang – the only member in the standing committee of the Politburo investigated since 1949 – was seen by some as a mark that Xi Jinping’s campaign would slow down since then [23].

Second, while anti-corruption campaigns have to be launched periodically to maintain deterrent threats and enforcement credibility, repeated campaigns can make the society inured to the signals. On the one hand, the positive effects of anti-corruption campaigns only last for some time [31], they thus need to be launched periodically. On the other hand, anti-corruption campaigns need to be uncommon to distinguish themselves from regular enforcement [63]. If they have been repeatedly launched, the subsequent campaigns are not striking to the public anymore. Therefore, when a new campaign is launched, the public may have become immune to it. Furthermore, cynicism could derive from the legacy of previous campaigns. China’s anti-corruption campaigns in the past have failed to establish a credible reputation. Wedeman [54] vividly describes how rising corruption scandals right after the anti-corruption campaigns have damaged the reputation of the campaigns. Based on internal reports, Manion [32] finds that even though the authority tried to convince the public that its anti-corruption efforts were sincere, “ordinary Chinese have not reacted as though they believe the regime is a reliable ally in anti-corruption enforcement” (p. 166). Anecdotal evidence suggests that anti-corruption campaigns in the party’s history were often covers for political purges. Recent examples of suspected politicized investigations include the cases of Bo Xilai, Chen Liangyu, and Chen Xitong.²² With such a reputation, the public may perceive a new anti-corruption campaign, even a sincere one, as not different from the previous ones.

Testing Cynicism: Research Design

To empirically test cynicism, we exploit the special case of Zhou Yongkang and Ling Jihua. The claim that Xi Jinping’s anti-corruption campaign was a power struggle mainly referred to the investigations related to Zhou and Ling. They were suspected to be the core members who pulled the trigger in challenging Xi Jinping.²³ In addition, their downfall had circulated as rumors since 2012, therefore cynic investors could easily perceive Xi Jinping’s anti-corruption campaign as designed only to crackdown on these two big tigers. If cynicism is the reason why Xi Jinping’s anti-corruption campaign was not taken seriously in the beginning, we should observe the following two empirical implications. First, only firms whose connected and later investigated officials were in the same faction of Zhou or Ling should be negatively affected by the anti-corruption signals, especially the signals related with cracking down on Zhou or Ling. Second, when cynic investors read the news about investigations on officials connected with Zhou or

²² For the case of Bo Xilai, see an article by Yuhua Wang, “Bo Xilai and the dilemma of China’s anti-corruption campaign”, CNN, 25 September 2013. For the case of Chen Liangyu, see Joseph Kahn, “Shanghai’s Party Leader, Mistrusted by Hu, Is Purged”, The New York Times, 26 September 2006. For the case of Chen Xitong, see Patrick E. Tyler, “Beijing Party ‘Decapitated’ By President”, The New York Times, 8 May 1995.

²³ Zhou Yongkang operated a “petroleum” faction, Ling Jihua formed a secret faction called “Xishan Society”, which consists of prominent politicians and businessmen from Shanxi Province. Zhou Yongkang and Ling Jihua were announced to be under investigation on 29 July 2014 and 22 December 2014, respectively.

Ling, it would confirm their perceptions that the campaign was a power struggle or only designed to crack down on Zhou and Ling. Considering the high costs of investigating senior officials, cynic investors should read the signals as “good news” that the campaign had achieved its goal and was about to slow down soon. For example, after the investigation on Li Dongsheng was publicized, it was widely believed that Zhou Yongkang would be investigated soon.²⁴ In addition, for cynic investors whose invested firms were not connected to the Zhou and Ling faction, investigations on Zhou and Ling cliques suggested that their invested firms’ political connections were safe

To test the two empirical implications, we explore the heterogeneous effects of the firms whose connected and later investigated officials were (or were not) connected with Zhou or Ling. More directly, we leverage the variations on connections with Zhou and Ling between the connected officials of the firms and the targeted officials in the earlier crackdowns. We coded whether the firms’ connected officials that were investigated later and the officials being targeted in the early crackdowns were in the same faction with Zhou or Ling. We follow Lu and Lorentzen [30] that uses media sources to identify connections with Zhou and Ling. We identified an official connected with Zhou or Ling if their connections were reported by authoritative media outlets. Lu and Lorentzen [30] argue that using media source is an improvement to the approach of using the same birth places, school, and overlapping work experience as indicators of connections – “journalists also base their reports on the same three indicators but with less noise” (pp. 5-6). For example, in our data, the media source identified that Guo Yongxiang was connected with Zhou Yongkang based on overlapping work relationships.²⁵ The media source identified Liu Tienan as connected with Ling Jihua based on the birthplace. We also cross validated our coding of connections to Zhou and Ling with Wedeman [55]. Among the 75 event firms, 31 were connected with officials in the same faction of Zhou/Ling. Among the 16 cases of early crackdowns, 6 were related to Zhou/Ling.²⁶

Table 1 Research Design Using Factional Links

	Connected and later investigated officials of event firms	Crackdowns on earlier investigated officials
Scenario 1	Zhou/Ling faction	Zhou/Ling faction
Scenario 2	Zhou/Ling faction	not Zhou/Ling faction
Scenario 3	not Zhou/Ling faction	Zhou/Ling faction
Scenario 4	not Zhou/Ling faction	not Zhou/Ling faction

²⁴ “Chinese Security Official is Focus of Corruption Inquiry”, *New York Times*, 21 December 2013.

²⁵ “Senior Chinese Official Falls Under Scrutiny as Some Point to Larger Inquiry”, *New York Times*, 1 September 2013.

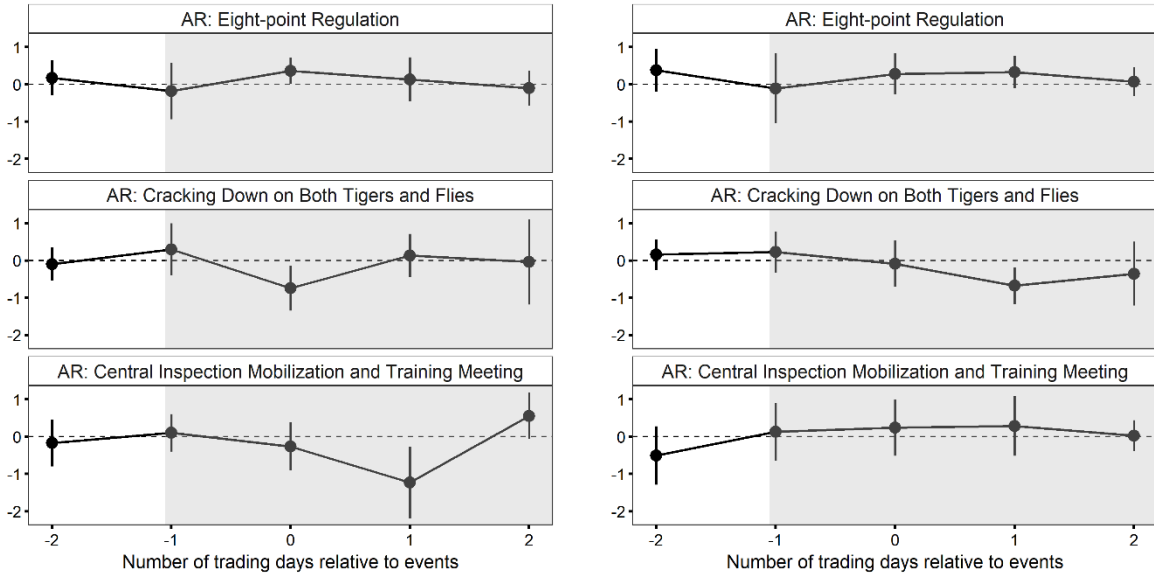
²⁶ See Tables A.2 and A.3 in the Appendix for details.

If Xi Jinping’s anti-corruption campaign was perceived as merely a power struggle or only designed to crack down on the two big tigers, the initial anti-corruption speeches would be more likely to negatively affect the stock prices of the firms whose connected officials were in the same faction with Zhou/Ling, but not the other event firms. More directly, the chronological order of anti-corruption investigations provides us with a unique opportunity to test cynicism. Table 1 lists four scenarios based on whether the connected and later investigated officials of the 75 firms and earlier investigated officials were connected with Zhou/Ling. If investors were cynic about Xi’s anti-corruption campaign, the stock prices of the event firms would only have dropped in scenario (1) – as both the firms’ connected and later investigated officials and early investigated officials were in the Zhou/Ling faction. If earlier crackdowns on officials connected with Zhou/Ling were perceived as signs that the campaign was about to slow down or the political connections of their invested firms were safe, the stock prices of the event firms would have increased in scenario (3). In scenarios (2) and (4), we do not expect the stock prices to change if investors were cynic.

Results: Evidence of Cynicism

Figure 3 plots the daily abnormal returns for the three anti-corruption speeches by faction. We split the 75 event firms into two subgroups based on whether their connected officials were related to Zhou/Ling or not. We plot the same five-day window, starting from two trading days before the events. Panel (a) shows the results of firms whose connected and later investigated officials were in the same faction of Zhou/Ling. Panel (b) shows the results of firms whose connected and later investigated officials were not in the same faction of Zhou/Ling.

Similar to the baseline results, for the event firms in both groups, the “Eight-point Regulation” did not decrease their stock prices; the speech about “cracking down on both tigers and flies” hurt their stock prices to some degree. Table A.7 reports the daily abnormal returns. The three-day cumulative abnormal returns starting from the same day of the speech on cracking down both tigers and flies are -0.642 percent and -1.116 percent for firms whose connected and later investigated officials were and were not in the Zhou/Ling faction, respectively. The heterogeneity occurs in their stock reactions to the start of central inspections. Following the central inspection mobilization and training meeting, only the stock prices of the event firms, whose connected and later investigated officials were in the Zhou/Ling faction went down – the three-day cumulative abnormal returns starting from the same day of the event are -0.935 percent and 0.554 percent, for firms whose connected and later investigated officials were and were not in the Zhou/Ling faction, respectively. For firms whose connected and later investigated officials were in the Zhou/Ling faction, the single-day drop on the next trading day after the meeting was particularly large (-1.231 percent) and statistically significant. The stock market reactions following the start of central inspections provide some suggestive evidence of cynicism. The increased risks of investigations did not prevent investors to bet on firms with political connections, as long as the connections were assumed to be “safe”.



(a) Firms whose connected and later investigated officials were in the Zhou/Ling faction

(b) Firms whose connected and later investigated officials were not in the Zhou/Ling faction

Fig. 3 Daily Abnormal Returns around Anti-Corruption Speeches by Connections to Zhou Yongkang and Ling Jihua

Figure 4 provides stronger evidence of cynicism. We report the daily average abnormal returns for each of the four scenarios in Table 1. Specifically, we split both the event firms and the earlier crackdowns to two subgroups based on whether the officials were related to Zhou/Ling. Panel (a) shows the two scenarios for firms whose connected and later investigated officials were in the same faction of Zhou/Ling. Panel (b) shows the two scenarios for firms whose connected and later investigated officials were not in the same faction of Zhou/Ling.

When the earlier investigated officials were in the Zhou/Ling faction, the stock prices went down if the firms whose connected and later investigated officials were also in the Zhou/Ling faction (Scenario 1). The drop is especially salient at one day prior to the official announcements – the daily average abnormal return is -0.420 percent. Although the substantial size is not particularly large, it is statistically significant at the 1 percent level with p value at 0.002. The stock prices continued to drop in the following two trading days. The three-day cumulative abnormal return starting from one day prior to the official announcements is -0.542 percent, which is statistically significant at the 5 percent level. On the contrary, when the earlier investigated officials were in the Zhou/Ling faction, the stock prices went up if the firms whose connected and later investigated officials were not in the Zhou/Ling faction (Scenario 3). Their stock prices experienced an obvious jump on the same day of the official announcements – the daily average abnormal return is 0.634 percent with p value smaller than 0.001. The three-day cumulative abnormal return starting from the same day of the official announcements is 0.775

percent with p value at 0.002.²⁷ When the earlier investigated officials were not in the Zhou/Ling faction, we find that the stock prices were not significantly affected by the announcements of investigations, no matter whether the connected and later investigated officials of the firms were in the Zhou/Ling faction.

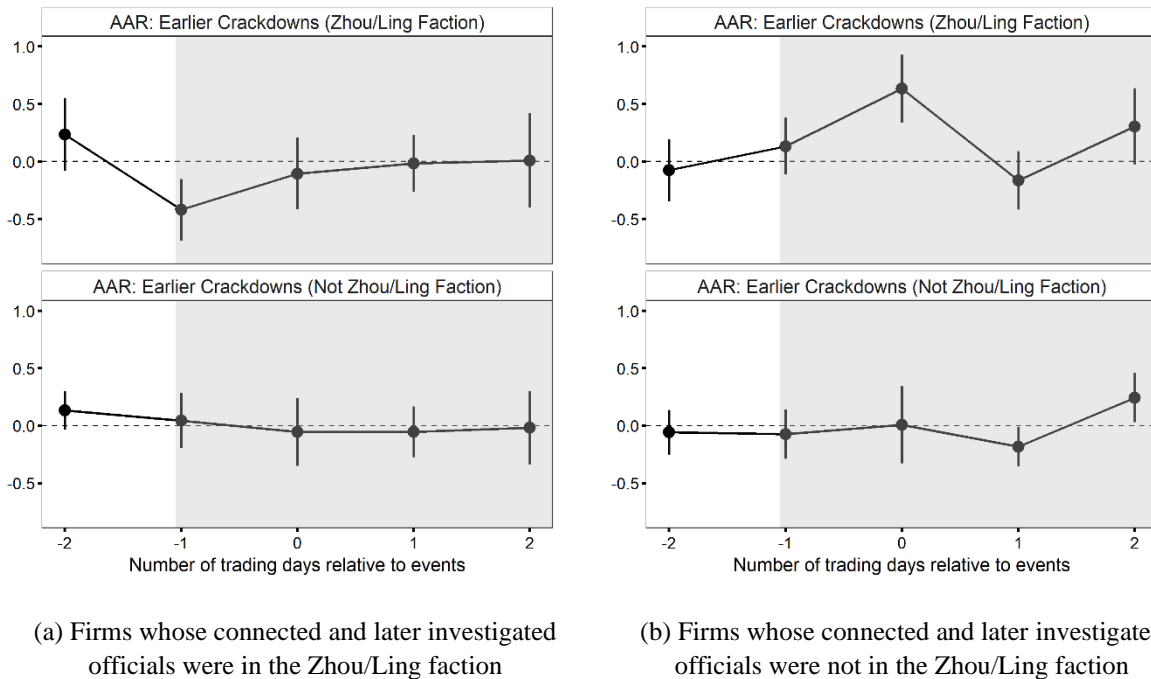


Fig. 4 Daily Abnormal Returns around Earlier Crackdowns on Other Officials by Connections to Zhou Yongkang and Ling Jihua

Table A.8 reports the average cumulative abnormal returns starting from one day prior to the event in one-day to four-day event windows. Across all the event windows of Zhou/Ling connected investigations, the average cumulative abnormal stock returns for firms whose connected and later investigated officials were in the same faction of Zhou/Ling were all negative and statistically significant. The opposite is true for firms whose connected and later investigated officials were not in the same faction of Zhou/Ling. In sum, the heterogeneous results for the four scenarios in Table 1 suggest that investors in the stock market initially perceived the anti-corruption campaign as merely a power struggle or only a crackdown on Zhou Yongkang and Ling Jihua. They also misinterpreted the crackdowns on officials connected with Zhou/Ling as signs that the campaign was about to slow down, or the political connections of their invested firms were safe. However, the follow-up development of the campaign and the fact

²⁷ Figures A.1 and A.2 in the Appendix report the results for each individual announcement of the earlier investigations.

that the connected officials of these firms were later investigated suggest that the investors got the signals wrong.

Robustness Checks

We subject our main findings to three robustness checks. First, conventional t-test faces some problems in event study. Abnormal returns are often not normally distributed, and the number of events is often small. Therefore, we use sign test as an alternative inference strategy. Specifically, we compare the abnormal returns of each firm with zero, and we count the number of event firms with abnormal returns below zero.²⁸ We can then compute p values based on the binomial distribution. Table A.9 in the Appendix reports the sign test results. The main findings are robust with this alternative type of inference. For firms whose connected and later investigated officials were in the Zhou/Ling faction, when the earlier investigated officials were also in the Zhou/Ling faction, the abnormal returns of 19 out of 24 of them were below zero one day prior to the official announcements (with one-sided p value at 0.003), and more than half of them were below 0 in the following trading days. For firms whose connected and later investigated officials were not in the Zhou/Ling faction, however, only 18 out of 44 of them were below zero at one day prior to the announcements, and only 9 out of 44 of them were below zero on the same day of the announcements.

Second, the results may be confounded by other concurrent shocks around the same time as the anti-corruption events. The patterns may reflect reactions from certain industries or firms with certain ownership types. To deal with these problems, for each event firm, we estimate a synthetic series of abnormal returns from a set of control firms that are in the same industry with the same type of ownership. The synthetic series is estimated as a weighted average of control firms that can best approximate the abnormal returns before the campaign.²⁹ If the synthetic series shows the same pattern around the time of anti-corruption events as in Figure 1 to Figure 4, then our findings may be spurious due to other concurrent shocks. If not, it gives us more confidence that the changes can be attributed to anti-corruption signals.

Table A.10 in the Appendix shows the number of estimation periods and matched control firms for each of the event firms. We drop three event firms for which we cannot find any eligible control firms that were also listed in the same period. Figure A.3 in the Appendix demonstrates that the synthetic abnormal returns can match the real abnormal returns quite well before Xi's anti-corruption campaign. We note that control firms were also potentially affected

²⁸ Relationships with market returns are estimated using an estimation window from 1 November 2011 to 1 November 2012. We did the same for the synthetic control analysis.

²⁹ We use 1 November 2011 to 1 November 2012 as the estimation window. We follow the original synthetic control method [1] to estimate the weights.

by anti-corruption signals,³⁰ therefore the differences between the observed abnormal returns and the synthetic abnormal returns cannot be interpreted as causal effects as in other applications. But by comparing with the synthetic series, it can provide some evidence on whether the main findings are unique to firms whose connected officials were later investigated.

Figure A.4 in the Appendix plots the observed and synthetic abnormal returns around the events of three anti-corruption speeches. The results that caution on our interpretation is that for firms whose connected and later investigated officials were in the Zhou/Ling faction, the stock prices of their synthetic control firms also experienced negative abnormal returns following the speech about “cracking down on both tigers and flies” and the start of central inspections, although the size is much smaller. The comparison suggests that the negative effects from these two anti-corruption speeches may be overstated for firms whose connected and later investigated officials were in the Zhou/Ling faction.

However, Figure A.5 in the Appendix shows that the evidence of cynicism is robust. When the earlier investigated officials were in the Zhou/Ling faction, the synthetic series of abnormal returns for firms with connected officials in the Zhou/Ling faction is largely unaffected by the announcements. Although the synthetic series of abnormal returns for firm with connected officials not in the Zhou/Ling faction also increases on the same day of the announcements, the magnitude of 0.372 percent is less than half of the observed abnormal returns of 0.759 percent.

Third, to rule out the concern that the null results are due to investors’ ignorance on their invested firms’ political connections, we estimate abnormal returns after excluding 18 firms whose political connections were formed through bribery. Table A.11 reports daily abnormal returns. Table A.12 reports average cumulative abnormal returns starting from one trading day before the events. The results are similar to Table A.5 and Table A.6.

Conclusion

We use a novel research design to study how anti-corruption signals are perceived. We find a puzzling result – Xi Jinping’s anti-corruption campaign – a sensational and largely genuine anti-corruption effort – was not initially taken seriously by investors in China’s stock market. We argue that the perceived high costs of following through and repeated campaigns in the past paradoxically nurtured cynicism. Further analyses show that Xi Jinping’s anti-corruption campaign was initially perceived as merely a power struggle or a crackdown on Zhou Yongkang and Ling Jihua. Early signals – three anti-corruption speeches and crackdowns on other officials – only negatively affected the stock prices of the firms whose connected and later investigated officials were in the same faction of Zhou Yongkang and Ling Jihua. For firms whose connected and later investigated officials were not in the same faction of Zhou and Ling, their stock prices

³⁰ The direction of the effects is unclear. If the uncertainty diffuses within the industry, the stock prices of the control firms in the same industry will drop. If investors perceive that the firms that are likely to survive in the anti-corruption campaign can benefit from the hit on their competitors, the stock prices of the control firms will increase.

did not experience significant negative returns. Instead, the crackdowns on senior officials connected with Zhou or Ling were misinterpreted as signs that the campaign had gone far enough and was about to slow down, or the political connections of their invested firms were safe.

Our findings reveal an inherent dilemma of anti-corruption campaigns. The dramatic nature of campaign-style enforcement, while necessary to signal its difference from the routine enforcement, also makes it less likely to be perceived as credible. In addition, like “the boy who cried wolf”, with repeated campaigns in the past, investors may dismiss even true threats as false alarms. For countries with few alternatives but periodical campaigns to fight corruption, this is not good news.

Although our findings are based on the case of Xi Jinping’s anti-corruption campaign, they have broader implications on campaign-style enforcement in general. Theoretically, the costs of following through and frequency of uses could be important factors affecting whether the campaign is likely to be perceived as a credible policy effort by the public. First, when the targeted policy areas have intense conflicts with other policy areas (e.g., anti-corruption vs. stability of bureaucracy, environment protection vs. economic growth), the public are more likely to realize the high costs of following through, and thus the efforts are less likely to be perceived as credible. Unfortunately, these are also the policy areas where routine enforcement is most likely to fail, and campaign-style enforcement is mostly needed. Second, the more frequent campaign-style enforcement is used, the less likely it will be perceived as credible. However, while campaign-style enforcement often delivers quick solutions, the effects may not last long, and new rounds of campaigns are often needed.

Our study also has important practical implications for all developing countries. Campaign-style enforcement is the “poor man’s alternative to effective policing” [54, p.96]. Not all countries have the capacity to invest in formal institutions in the short term, but some policy problems require immediate responses. In such delicate situations, campaign-style enforcement – as problematic as it is – may be the only solution. Nevertheless, as our study implies, political leaders may want to be careful on how they deliver the signals. The signals need to be costly enough to demonstrate the determination in achieving success. However, if the signals are too strong, they may end up not being perceived as credible. In addition, while political leaders in these countries can often wield their power to launch campaigns whenever they want, they have to take the risk that misperceptions from the public can backfire on what they intend to achieve.

Declarations

Conflict of Interest No conflict of interest was declared by the authors.

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Appendix

Anti-Corruption Events

Table A.1 Anti-corruption Speeches from the Top Leadership

Date	Event	Content
December 4, 2012	Xi Jinping announced the “Eight-point Regulation” in the Politburo meeting	The members of the Politburo should maintain close contact with the mass; reduce meetings, documents, visits, media reports and personal publications; reform the security system and reduce traffic control; practice thrift.
January 22, 2013	Plenary session of the central commission for discipline inspection	Xi Jinping made a speech about anti-corruption and in the speech, he mentioned to “crack down on both tigers and flies” for the first time.
May 17, 2013	Wang Qishan, the party secretary of the central commission for discipline inspection, made a speech at the mobilization and training meeting to start the central inspections	10 sites of the first round of central inspection were announced.

Table A.2 Crackdowns on Senior Officials Between May 2013 and December 2013

Date	Case	Position	Factional link
May 12, 2013	Liu Tienan	Director National Energy Administration, former Deputy Director National Development and Reform Commission	Ling Jihua
June 4, 2013	Ni Fake	Vice Governor of Anhui	
June 22, 2013	Guo Yongxiang	President of Sichuan Federation of Literary and Arts, former Vice Governor of Sichuan	Zhou Yongkang
June 30, 2013	Wang Suyi	Director of Inner Mongolia United Works Department, member of the Standing Committee of the Inner Mongolia Regional Party Committee	
July 6, 2013	Li Daqiu	Vice Chairman of the Guangxi CPPCC, Chair of Guangxi Federation of Trade Unions	
August 26, 2013	Wang Yongchun	Deputy General Manager of Chinese National Petroleum Corp.	Zhou Yongkang
September 1, 2013	Jiang Jiemin	Chairman of State-owned Assets Supervision and Administration Committee, former Chairman of China National Petroleum Corp.	Zhou Yongkang
October 17, 2013	Ji Jianye	Mayor of Nanjing City, Jiangsu	
October 28, 2013	Liao Shaohua	Party Secretary of Zunyi City, Guizhou	
November 19, 2013	Chen Baikui	Vice Chairman of Hubei CPPCC	
November 27, 2013	Guo Youming	Vice Governor of Hubei Province	
December 8, 2013	Chen Anzhong	Vice Chairman of Jiangxi Provincial People's Congress, Deputy Director of the Jiangxi Provincial People's Congress	
December 18, 2013	Tong Mingqian	Vice Chairman of Hunan CPPCC	
December 20, 2013	Li Dongsheng	Vice Minister for Public Security	Zhou Yongkang
December 27, 2013	Yang Gang	Deputy Director of CPPCC Committee for Economic Affairs, former Vice Chairman of Xinjiang Regional Government	
December 29, 2013	Li Chongxi	Chairman of Sichuan CPPCC	Zhou Yongkang

Event Firms and Their Connected Officials

Table A.3 Information of Event Firms

Name of the firm	Connected official	Date of investigation	Faction
China Vanke Co., Ltd.	Li Chuncheng	2012-12-05	Zhou Yongkang
Hengyi Petrochemical Co., Ltd.	Liu Tienan	2013-05-12	Ling Jihua
Suning Universal Co., Ltd.	Liu Tienan	2013-05-12	Ling Jihua
Heilongjiang Interchina Watertreatment Co., Ltd.	Liu Tienan	2013-05-12	Ling Jihua
Shandong Nanshan Aluminium Co., Ltd.	Liu Tienan	2013-05-12	Ling Jihua
Yanbian Shixian Bailu Papermaking Co., Ltd.	Liu Tienan	2013-05-12	Ling Jihua
Aluminum Corporation of China Limited	Liu Tienan	2013-05-12	Ling Jihua
Changjiang Jinggong Steel Building (Group) Co., Ltd.	Ni Fake	2013-06-04	
Sichuan Jinlu Group Co., Ltd.	Guo Yongxiang	2013-06-22	Zhou Yongkang
Nuode Investment Co., Ltd.	Wang Yongchun	2013-08-26	Zhou Yongkang
Suzhou Gold Mantis Construction and Decoration Co., Ltd.	Ji Jianye	2013-10-17	
Sichuan Hongda Co., Ltd.	Li Chongxi	2013-12-29	Zhou Yongkang
Fangda Jinhua Chemical Technology Co., Ltd.	Ji Wenlin	2014-02-18	Zhou Yongkang
Fangda Special Steel Technology Co., Ltd.	Ji Wenlin	2014-02-18	Zhou Yongkang
Fangda Carbon New Material Co., Ltd	Ji Wenlin	2014-02-18	Zhou Yongkang
Shanxi Lanhua Sci-Tech Venture Co., Ltd.	Jin Daoming	2014-02-27	Ling Jihua
Yunnan Copper Co., Ltd.	Shen Peiping	2014-03-09	Zhou Yongkang
Yunnan Luoping Zinc and Electricity Co., Ltd.	Yao Mugen	2014-03-22	
Jiangxi Lianchuang Optoelectronic Science and Technology Co., Ltd.	Yao Mugen	2014-03-22	
Jiangxi Hongcheng Waterworks Co., Ltd.	Yao Mugen	2014-03-22	
Dong-E-E-Jiao Co., Ltd.	Song Lin	2014-04-17	Ling Jihua
China Resources Sanjiu Medical and Pharmaceutical Co., Ltd.	Song Lin	2014-04-17	Ling Jihua
Beijing Wandong Medical Technology Co., Ltd.	Song Lin	2014-04-17	Ling Jihua
China Resources Double-Crane Pharmaceutical Co., Ltd.	Song Lin	2014-04-17	Ling Jihua
Xiandai Investment Co., Ltd.	Yang Baohua	2014-05-26	
Shen Zhen Globe Union Industrial Corp.	Wan Qingliang	2014-06-27	

Kangmei Pharmaceutical Co., Ltd.	Wan Qingliang	2014-06-27	
Yihua Lifestyle Technology Co., Ltd.	Wan Qingliang	2014-06-27	
Heilongjiang Agriculture Co., Ltd.	Sui Fengfu	2014-11-27	
China Minsheng Banking Corp., Ltd.	Ling Jihua	2014-12-22	Ling Jihua
Zhejiang Guangsha Co., Ltd.	Ling Jihua	2014-12-22	Ling Jihua
Pku Healthcare Corp., Ltd.	Ma Jian	2015-01-16	Zhou Yongkang
Founder Technology Group Corp.	Ma Jian	2015-01-16	Zhou Yongkang
Faw Car Co., Ltd.	Xu Jianyi	2015-03-15	
Tianjin Faw Xiali Automobile Co., Ltd.	Xu Jianyi	2015-03-15	
Qiming Information Technology Co., Ltd.	Xu Jianyi	2015-03-15	
Changchun Faway Automobile Components Co., Ltd.	Xu Jianyi	2015-03-15	
China Petroleum and Chemical Corporation	Wang Tianpu	2015-04-27	Zhou Yongkang
Guangxi Wuzhou Zhongheng Group Co., Ltd.	Yu Yuanhui	2015-05-22	Ling Jihua
Zoomlion Heavy Industry Science and Technology Co., Ltd.	Zhou Benshun	2015-07-24	Zhou Yongkang
China Calxon Group Co., Ltd.	Zhou Benshun	2015-07-24	Zhou Yongkang
Wuhan Iron and Steel Co., Ltd.	Deng Qilin	2015-08-29	
Dongfeng Automobile Co., Ltd.	Zhu Fushou	2015-11-02	
China Southern Airlines Co., Ltd.	Si Xianmin	2015-11-04	
Financial Street Holding Co., Ltd.	Lv Xiwen	2015-11-11	
China United Network Communications Limited	Chang Xiaobing	2015-12-27	
Shenzhen Agricultural Products Co., Ltd.	Liu Zhigeng	2016-02-04	
Guangdong Golden Dragon Development Inc.	Liu Zhigeng	2016-02-04	
Shanghai Pudong Development Bank Co., Ltd.	Liu Zhigeng	2016-02-04	
Gemdale Corporation.	Liu Zhigeng	2016-02-04	
China Coal Energy Company Limited.	Liu Zhigeng	2016-02-04	
Sinochem International Corporation.	Cai Xiyou	2016-02-06	
Hengli Petrochemical Co., Ltd.	Wang Min	2016-03-04	
Baida Group Co., Ltd.	Lu Ziyue	2016-03-16	Ling Jihua
Nanjing Central Emporium (Group) Stocks Co., Ltd.	Li Yunfeng	2016-05-30	
Wuhu Conch Profiles and Science Company Limited.	Chen Shulong	2016-11-08	
Elec-Tech International Co., Ltd.	Chen Shulong	2016-11-08	
Anhui Conch Cement Company Limited.	Chen Shulong	2016-11-08	
Sanan Optoelectronics Co., Ltd.	Chen Shulong	2016-11-08	
Hunan Haili Chemical Industry Co., Ltd.	Zhang Wenxiong	2016-11-08	
Xi'an Tourism Co., Ltd.	Wei Minzhou	2017-05-22	Ling Jihua
Xi'an Catering Co., Ltd.	Wei Minzhou	2017-05-22	Ling Jihua
Ginwa Enterprise (Group) Inc.	Wei Minzhou	2017-05-22	Ling Jihua

Chalkis Health Industry Co., Ltd.	Liu Xinqi	2017-05-24
Tecon Biology Co., Ltd.	Liu Xinqi	2017-05-24
Xinjiang Tianye Co., Ltd.	Liu Xinqi	2017-05-24
Xinjiang Yilite Industry Co., Ltd.	Liu Xinqi	2017-05-24
Xinjiang Guannong Fruit and Antler Group Co., Ltd.	Liu Xinqi	2017-05-24
Xinjiang Talimu Agriculture Development Co., Ltd.	Liu Xinqi	2017-05-24
Xinjiang Tianrun Dairy Co., Ltd.	Liu Xinqi	2017-05-24
Xinjiang Qingsong Building Materials and Chemicals (Group) Co., Ltd.	Liu Xinqi	2017-05-24
Xinjiang Tianfu Energy Co., Ltd.	Liu Xinqi	2017-05-24
Xinjiang Sailimu Modern Agriculture Co., Ltd.	Liu Xinqi	2017-05-24
Xinjiang Bai Hua Cun Co., Ltd.	Liu Xinqi	2017-05-24
Greatown Holdings Ltd.	Wang Sanyun	2017-07-11

Descriptive Statistics

Table A.4 Descriptive Statistics of Daily Stock Returns

Variables	N	Mean	St. Dev.	Min	Pctl (25)	Pctl (75)	Max
Daily stock returns: event firms	36,401	-0.020	2.576	-54.094	-1.365	1.271	10.182
Daily abnormal returns: event firms	36,401	0.000	2.164	-53.534	-1.033	0.881	14.027
Shanghai A-share index	525	-0.023	1.132	-5.303	-0.667	0.587	4.334
Shenzhen A-share index	525	0.013	1.474	-6.114	-0.847	0.927	5.168

Results of Event Study

Table A.5 Daily Abnormal Returns around Anti-Corruption Signals

Trading days	-2 days	-1 day	0 day	1 day	2 days
	(1)	(2)	(3)	(4)	(5)
Eight-point regulation	0.297 (0.199)	-0.139 (0.324)	0.317 (0.182)	0.255 (0.180)	0.002 (0.152)
Cracking down on both tigers and flies	0.053 (0.154)	0.261 (0.220)	-0.359 (0.225)	-0.344 (0.197)	-0.225 (0.351)
Central inspection mobilization and training meeting	-0.370 (0.254)	0.125 (0.268)	0.063 (0.273)	-0.264 (0.326)	0.223 (0.180)
Earlier crackdowns on other senior officials	0.008 (0.062)	-0.051 (0.067)	0.132 (0.100)	-0.114 (0.059)	0.187* (0.078)

Note: Standard errors clustered at the firm level are reported in parentheses.

* $p < .05$; ** $p < .01$

Table A.6 Average Cumulative Abnormal Returns around Anti-Corruption Signals

Event windows	[-1, -1]	[-1, 0]	[-1, 1]	[-1, 2]
	(1)	(2)	(3)	(4)
Eight-point regulation	-0.141 (0.325)	0.090 (0.197)	0.138 (0.153)	0.106 (0.113)
Cracking down on both tigers and flies	0.255 (0.220)	-0.051 (0.171)	-0.154 (0.134)	-0.170 (0.150)
Central inspection mobilization and training meeting	0.118 (0.268)	0.090 (0.189)	-0.032 (0.169)	0.033 (0.133)
Earlier crackdowns on other senior officials	-0.054 (0.067)	0.053 (0.061)	-0.002 (0.049)	0.027 (0.042)

Note: Standard errors clustered at the firm level are reported in parentheses.

* $p < .05$; ** $p < .01$

Table A.7 Daily Abnormal Returns around Anti-Corruption Signals by Connection to Zhou Yongkang and Ling Jihua

Trading days	Firms: connected and later investigated officials in the Zhou/Ling faction					Firms: connected and later investigated officials not in the Zhou/Ling faction				
	-2 days	-1 day	0 day	1 day	2 days	-2 days	-1 day	0 day	1 day	2 days
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Eight-point regulation	0.174 (0.241)	-0.177 (0.387)	0.367* (0.177)	0.132 (0.301)	-0.098 (0.241)	0.378 (0.294)	-0.109 (0.482)	0.280 (0.285)	0.328 (0.226)	0.070 (0.197)
Cracking down on both tigers and flies	-0.098 (0.229)	0.301 (0.356)	-0.743* (0.306)	0.138 (0.294)	-0.037 (0.586)	0.157 (0.209)	0.229 (0.282)	-0.085 (0.314)	-0.678** (0.254)	-0.353 (0.438)
Central inspection mobilization and training meeting	-0.170 (0.319)	0.103 (0.258)	-0.261 (0.333)	-1.231* (0.491)	0.557 (0.317)	-0.505 (0.401)	0.133 (0.396)	0.243 (0.385)	0.286 (0.408)	0.025 (0.213)
Earlier crackdowns: Zhou/Ling faction	0.236 (0.161)	-0.420** (0.136)	-0.105 (0.159)	-0.017 (0.125)	0.008 (0.209)	-0.076 (0.138)	0.133 (0.126)	0.634** (0.151)	-0.164 (0.130)	0.306 (0.168)
Earlier crackdowns: not Zhou/Ling faction	0.133 (0.084)	0.045 (0.122)	-0.054 (0.150)	-0.052 (0.113)	-0.018 (0.161)	-0.057 (0.100)	-0.073 (0.109)	0.009 (0.171)	-0.182* (0.088)	0.243* (0.109)

Note: Standard errors clustered at the firm level are reported in parentheses.

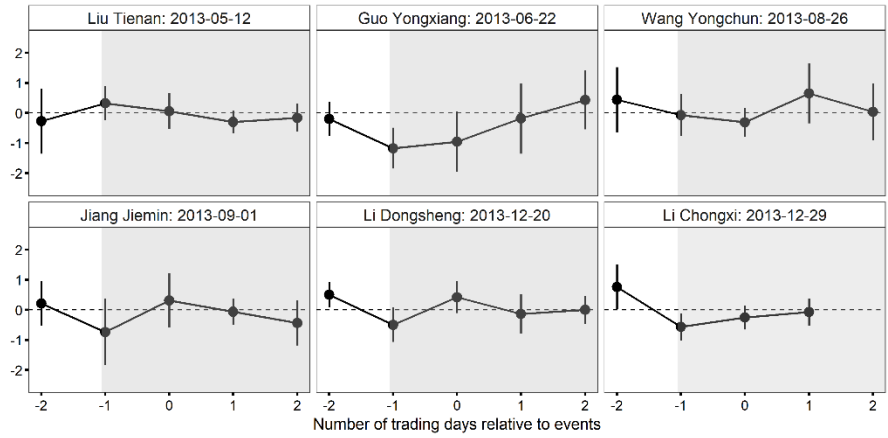
* $p < .05$; ** $p < .01$

Table A.8 Average Cumulative Abnormal Returns around Anti-Corruption Signals by Connection to Zhou Yongkang and Ling Jihua

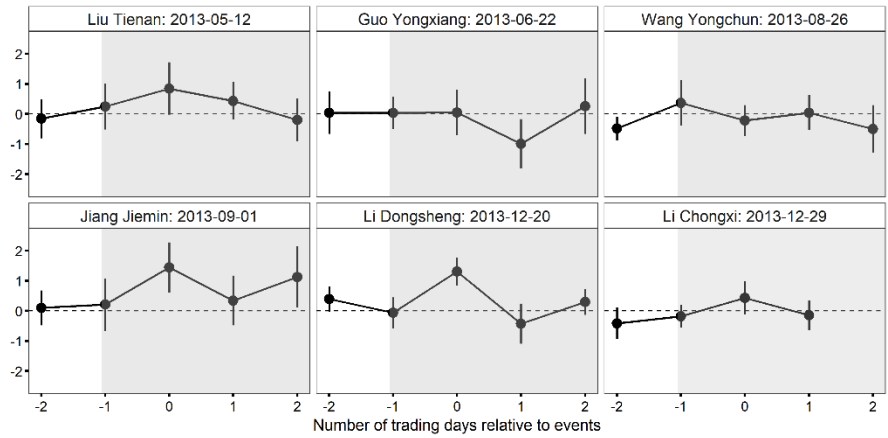
Event windows	Firms: connected and later investigated officials in the Zhou/Ling faction				Firms: connected and later investigated officials not in the Zhou/Ling faction			
	[-1, -1]	[-1, 0]	[-1, 1]	[-1, 2]	[-1, -1]	[-1, 0]	[-1, 1]	[-1, 2]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Eight-point regulation	-0.176 (0.388)	0.093 (0.236)	0.102 (0.209)	0.051 (0.160)	-0.117 (0.483)	0.086 (0.293)	0.162 (0.217)	0.145 (0.159)
Cracking down on both tigers and flies	0.302 (0.354)	-0.223 (0.237)	-0.106 (0.178)	-0.089 (0.217)	0.221 (0.282)	0.070 (0.240)	-0.190 (0.192)	-0.226 (0.208)
Central inspection mobilization and training meeting	0.105 (0.259)	-0.079 (0.219)	-0.470* (0.233)	-0.214 (0.197)	0.125 (0.397)	0.184 (0.271)	0.216 (0.222)	0.175 (0.173)
Earlier crackdowns: Zhou/Ling faction	-0.436** (0.136)	-0.279** (0.104)	-0.192* (0.078)	-0.156* (0.070)	0.095 (0.121)	0.379** (0.110)	0.217** (0.084)	0.208** (0.067)
Earlier crackdowns: not Zhou/Ling faction	0.069 (0.119)	0.009 (0.107)	-0.023 (0.074)	-0.021 (0.047)	-0.090 (0.108)	-0.053 (0.091)	-0.084 (0.069)	0.005 (0.068)

Note: Standard errors clustered at the firm level are reported in parentheses.

* $p < .05$; ** $p < .01$



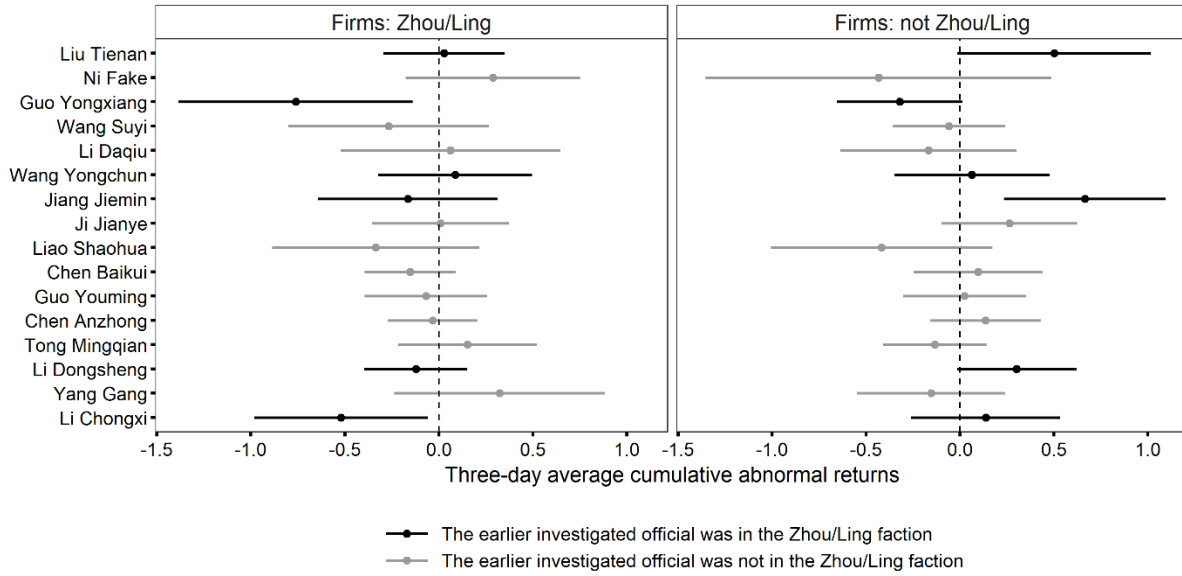
(a) Firms whose connected and later investigated officials were in the Zhou/Ling faction



(b) Firms whose connected and later investigated officials were not in the Zhou/Ling

Note: Daily abnormal returns for each of the six earlier investigations on officials in the Zhou/Ling faction are plotted with the 95% confidence intervals around the point estimates. The shaded areas are four-day event windows starting from one day prior to the event. Standard errors are clustered at the firm-level.

Fig A.1 Daily Abnormal Returns around Each Earlier Crackdown Related with Zhou/Ling



Note: Three-day average cumulative abnormal returns are plotted with the 95% confidence intervals around the point estimates. The event window starts from one-day prior to the official announcements. Standard errors are clustered at the firm-level.

Fig A.2 Three-day Average Cumulative Abnormal Returns for Each Earlier Crackdown

Robustness Check: Sign Test

Table A.9 Sign Test Results for Daily Abnormal Returns around Anti-Corruption Signals

Trading days	Firms: connected and later investigated officials in the Zhou/Ling faction					Firms: connected and later investigated officials not in the Zhou/Ling faction				
	-2 days	-1 day	0 day	1 day	2 days	-2 days	-1 day	0 day	1 day	2 days
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(a) Eight-point regulation										
N of event firms	29	29	29	29	29	42	42	42	42	42
N of event firms below 0	16	16	12	19	18	21	21	20	24	21
	(0.356)	(0.356)	(0.868)	(0.068)	(0.132)	(0.561)	(0.561)	(0.678)	(0.220)	(0.561)
(b) Cracking down on both tigers and flies										
N of event firms	29	29	29	29	29	40	40	41	42	42
N of event firms below 0	20	14	23	18	19	21	20	24	30	26
	(0.031)	(0.644)	(0.001)	(0.132)	(0.068)	(0.437)	(0.563)	(0.174)	(0.004)	(0.082)
(c) Central inspection mobilization and training meeting										
N of event firms	24	24	24	24	24	42	42	42	42	41
N of event firms below 0	16	14	18	19	11	29	24	29	24	24
	(0.076)	(0.271)	(0.011)	(0.003)	(0.729)	(0.010)	(0.220)	(0.010)	(0.220)	(0.174)
(d) Earlier crackdowns: Zhou/Ling faction										
N of event firms	24	24	24	24	24	44	44	44	44	44
N of event firms below 0	9	19	13	14	15	22	18	9	25	19
	(0.924)	(0.003)	(0.419)	(0.271)	(0.154)	(0.560)	(0.913)	(1.000)	(0.226)	(0.854)
(e) Earlier crackdowns: not Zhou/Ling faction										
N of event firms	24	24	24	24	24	43	43	43	43	43
N of event firms below 0	11	13	16	15	14	22	25	22	25	13
	(0.729)	(0.419)	(0.076)	(0.154)	(0.271)	(0.500)	(0.180)	(0.500)	(0.180)	(0.997)

Note: One-tailed sign test p values are reported in parentheses. Number of event firms is calculated after dropping firms whose connected officials were investigated within 14 days relative to the events.

Robustness Check: Synthetic Control

Table A.10 Number of Estimation Period and Control Firms for Each Event Firm

Name of the firm	Estimation period	N of control firms
China Vanke Co., Ltd.	244	9
Shenzhen Agricultural Products Co., Ltd.	222	7
Zoomlion Heavy Industry Science and Technology Co., Ltd.	244	19
Financial Street Holding Co., Ltd.	244	45
Dong-E-E-Jiao Co., Ltd.	244	6
Sichuan Jinlu Group Co., Ltd.	238	37
Xi'an Tourism Co., Ltd.	243	10
Wuhu Conch Profiles and Science Company Limited.	243	6
Hengyi Petrochemical Co., Ltd.	238	10
Guangdong Golden Dragon Development Inc.	215	4
Suning Universal Co., Ltd.	242	45
Xi'an Catering Co., Ltd.	238	1
Pku Healthcare Corp., Ltd.	242	6
Faw Car Co., Ltd.	238	8
Fangda Jinhua Chemical Technology Co., Ltd.	240	51
Yunnan Copper Co., Ltd.	244	2
Xiandai Investment Co., Ltd.	201	23
China Calxon Group Co., Ltd.	243	45
Tianjin Faw Xiali Automobile Co., Ltd.	243	8
Chalkis Health Industry Co., Ltd.	240	4
China Resources Sanjiu Medical and Pharmaceutical Co., Ltd.	241	6
Elec-Tech International Co., Ltd.	242	76
Shen Zhen Globe Union Industrial Corp.	244	10
Suzhou Gold Mantis Construction and Decoration Co., Ltd.	243	10
Tecon Biology Co., Ltd.	242	3
Yunnan Luoping Zinc and Electricity Co., Ltd.	242	13
Qiming Information Technology Co., Ltd.	241	8
Shanghai Pudong Development Bank Co., Ltd.	244	3
Wuhan Iron and Steel Co., Ltd.	240	4
Dongfeng Automobile Co., Ltd.	243	8
China Minsheng Banking Corp., Ltd.	241	3
China Petroleum and Chemical Corporation	243	0
China Southern Airlines Co., Ltd.	238	3
China United Network Communications Limited	244	1
Zhejiang Guangsha Co., Ltd.	241	45
Beijing Wandong Medical Technology Co., Ltd.	242	15
China Resources Double-Crane Pharmaceutical Co., Ltd.	242	6

Xinjiang Tianye Co., Ltd.	243	37
Ginwa Enterprise (Group) Inc.	240	56
Greatown Holdings Ltd.	240	45
Nuode Investment Co., Ltd.	238	22
Shanxi Lanhua Sci-Tech Venture Co., Ltd.	241	13
Heilongjiang Interchina Watertreatment Co., Ltd.	238	0
Xinjiang Yilite Industry Co., Ltd.	244	19
Shandong Nanshan Aluminium Co., Ltd.	242	22
Xinjiang Guannong Fruit and Antler Group Co., Ltd.	242	3
Guangxi Wuzhou Zhongheng Group Co., Ltd.	239	56
Nanjing Central Emporium (Group) Stocks Co., Ltd.	237	26
Sichuan Hongda Co., Ltd.	234	22
Hengli Petrochemical Co., Ltd.	242	6
Xinjiang Talimu Agriculture Development Co., Ltd.	219	3
Jiangxi Lianchuang Optoelectronic Science and Technology Co., Ltd.	239	73
Gemdale Corporation.	244	45
Xinjiang Tianrun Dairy Co., Ltd.	155	11
Xinjiang Qingsong Building Materials and Chemicals (Group) Co., Ltd.	242	11
Jiangxi Hongcheng Waterworks Co., Ltd.	239	7
Yanbian Shixian Bailu Papermaking Co., Ltd.	63	6
Changjiang Jinggong Steel Building (Group) Co., Ltd.	243	10
Sinochem International Corporation	241	15
Fangda Special Steel Technology Co., Ltd.	237	3
Xinjiang Tianfu Energy Co., Ltd.	236	25
Fangda Carbon New Material Co., Ltd.	240	19
Kangmei Pharmaceutical Co., Ltd.	244	56
Xinjiang Sailimu Modern Agriculture Co., Ltd.	239	3
Anhui Conch Cement Company Limited	244	11
Heilongjiang Agriculture Co., Ltd.	241	1
Founder Technology Group Corp.	244	30
Sanan Optoelectronics Co., Ltd.	240	73
Xinjiang Bai Hua Cun Co., Ltd.	243	0
Hunan Haili Chemical Industry Co., Ltd.	242	37
Changchun Faway Automobile Components Co., Ltd.	244	8
Baida Group Co., Ltd.	243	26
Yihua Lifestyle Technology Co., Ltd.	239	2
Aluminum Corporation of China Limited	243	2
China Coal Energy Company Limited	242	3

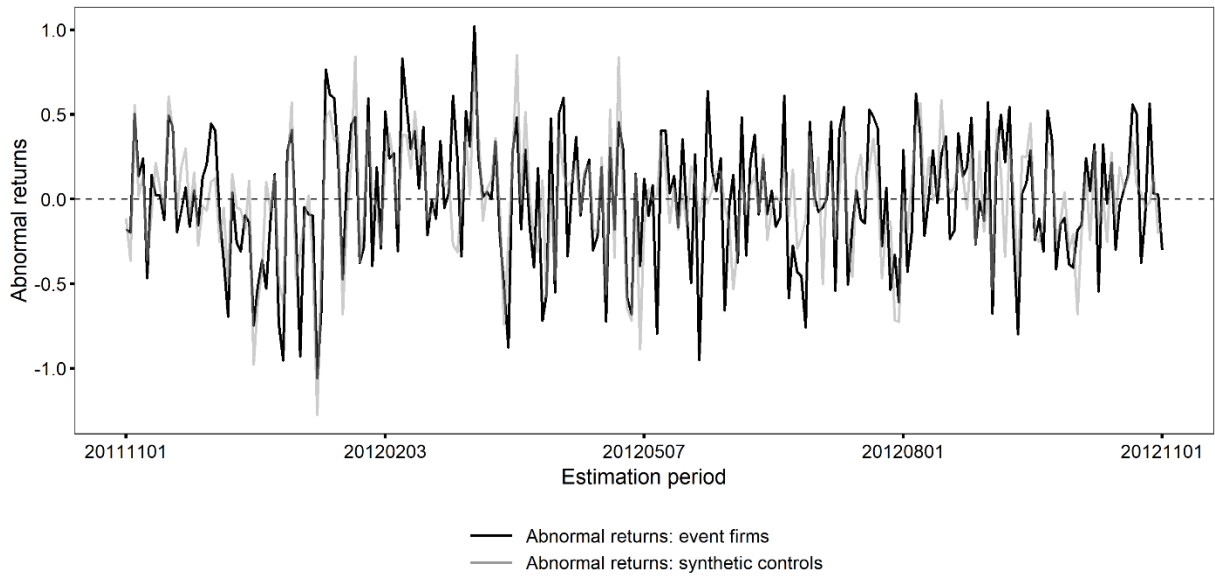
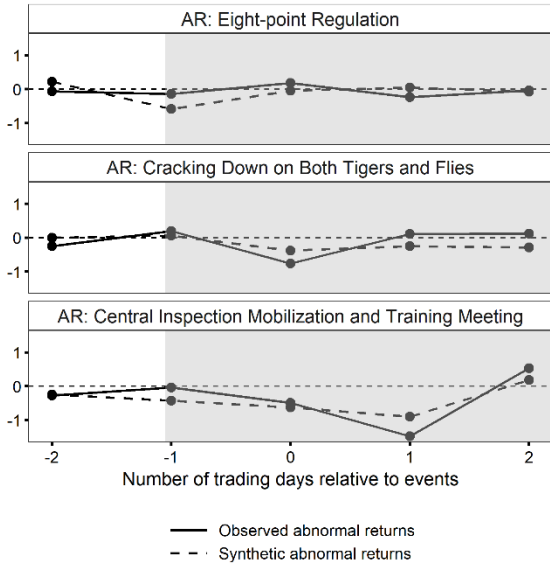
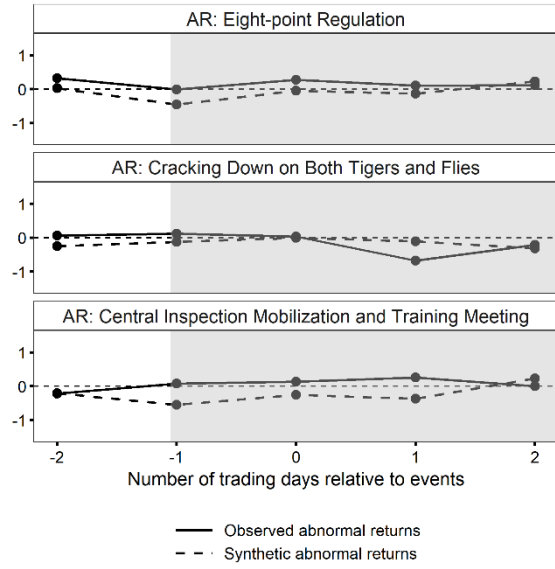


Fig A.3 Abnormal Returns and Synthetic Abnormal Returns in the Estimation Period

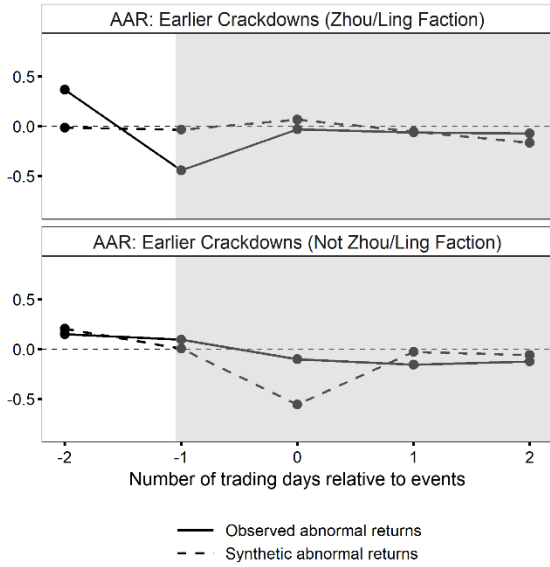


(a) Firms whose connected and later investigated officials were in the Zhou/Ling faction

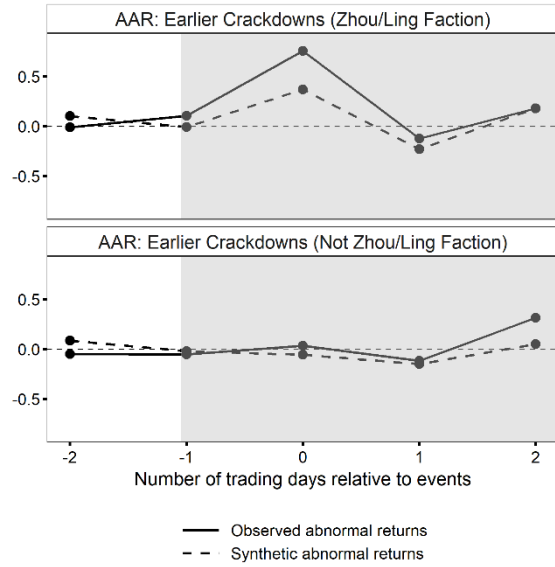


(b) Firms whose connected and later investigated officials were not in the Zhou/Ling faction

Fig A.4 Actual and Synthetic Daily Abnormal Returns around Anti-Corruption Speeches



(a) Firms whose connected and later investigated officials were in the Zhou/Ling faction



(b) Firms whose connected and later investigated officials were not in the Zhou/Ling faction

Fig A.5 Actual and Synthetic Daily Abnormal Returns around Earlier Crackdowns on Other Officials

Robustness Check: Excluding Connections Formed Through Bribery

Table A.11 Daily Abnormal Returns around Anti-Corruption Signals Excluding Bribing Connections

Trading days	-2 days	-1 day	0 day	1 day	2 days
	(1)	(2)	(3)	(4)	(5)
Eight-point regulation	0.387 (0.232)	-0.415 (0.332)	0.402 (0.226)	0.241 (0.219)	-0.019 (0.190)
Cracking down on both tigers and flies	0.052 (0.177)	0.359 (0.255)	-0.266 (0.270)	-0.326 (0.241)	-0.108 (0.436)
Central inspection mobilization and training meeting	-0.536 (0.260)	0.129 (0.275)	-0.297 (0.245)	-0.472 (0.367)	0.181 (0.203)
Earlier crackdowns on other senior officials	0.051 (0.069)	-0.080 (0.075)	0.116 (0.116)	-0.116 (0.071)	0.143 (0.089)

Note: Standard errors clustered at the firm level are reported in parentheses.

* $p < .05$; ** $p < .01$

Table A.12 Average Cumulative Abnormal Returns around Anti-Corruption Signals Excluding Bribing Connections

Event windows	[-1, -1]	[-1, 0]	[-1, 1]	[-1, 2]
	(1)	(2)	(3)	(4)
Eight-point regulation	-0.419 (0.333)	-0.006 (0.213)	0.069 (0.180)	0.048 (0.130)
Cracking down on both tigers and flies	0.355 (0.255)	0.047 (0.204)	-0.083 (0.163)	-0.089 (0.183)
Central inspection mobilization and training meeting	0.125 (0.277)	-0.087 (0.184)	-0.221 (0.164)	-0.122 (0.136)
Earlier crackdowns on other senior officials	-0.081 (0.075)	0.030 (0.069)	-0.020 (0.056)	-0.002 (0.044)

Note: Standard errors clustered at the firm level are reported in parentheses.

* $p < .05$; ** $p < .01$