The effect of anti-corruption campaign on shareholder value in a weak institutional environment: Evidence from China

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January 28, 2016

We wish to thank Zengquan Li, Hui Dong, Sumit Agarwal, Weihua Zhang, and workshop participants at Beijing Technology and Business University, Florida International University, National University of Singapore, Shanghai University of Finance and Economics for helpful comments and Qiujun Wu and Junjie Wang for able research assistance. Song Tang acknowledges the financial support from the National Natural Science Foundation of China (No. 71372042) and the MOE Project for Key Research Institutes of Humanities and Social Science in Universities (No. 13JJD790019).

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The effect of anti-corruption campaign on shareholder value in a weak institutional environment: Evidence from China

Abstract

ABSTRACT: We examine the impact of Chinese President Xi Jinping's anti-corruption campaign on shareholder value of publicly listed Chinese firms. We find that the anti-corruption campaign reduces the profitability of the firms that *sell* luxury goods and services. The anti-corruption campaign helps reduce excessive perk consumption by luxury goods and services *consuming* SOEs but, as predicted, we find no evidence that the campaign affects excessive perk consumption by luxury goods and services consuming non-SOEs. However, we find no evidence that the campaign had a positive or negative impact on net shareholder value for luxury goods and services consuming SOEs and non-SOEs.

Key words: China; anti-corruption regulation; SOE; firm performance; event study

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1. Introduction

According to Transparency International, corruption is believed to be rampant in many emerging market economies. While there is an interesting theoretical debate on the effect of corruption on economic efficiency and growth (e.g., Fisman and Svensson 2007; Lui 1985),[1] Mauro (1995) shows empirically that corruption is associated with slower economic growth. Many emerging market countries have launched periodic anti-corruption campaigns, but surprisingly there has been little systematic research on the efficacy of such anti-corruption campaigns. Taking advantage of a vigorous and large scale anti-corruption campaign in China launched in December 2012, the objective of this study is to better understand the consequences of government-led anti-corruption campaigns to publicly listed companies in emerging market economies.

We adopt two complementary approaches to assess the impact of China's anti-corruption campaign. The first approach is an event study that examines the stock market reactions to the announcements of the eight major events associated with the launch and implementation of the anti-corruption campaign. The second approach compares the accounting performance of the test firms versus control firms (defined below) for the two years before (2011-2012) versus two years after (2013-2014) the launch of the anti-corruption campaign. The advantage of the first approach is that it allows us to capture the full (short term and long term and direct and indirect) impact of the anti-corruption campaign but the disadvantage is that it merely reflects the stock market's ex ante expectation of the impact of the anti-corruption campaign. On the other hand, the advantage of the second approach is that it directly measures the ex post realized impact of the anti-corruption campaign but the disadvantage of the second approach is that it only captures the impact as reflected in reported accounting performance in the first two years of the campaign. To the extent that we find

[1] See Bardhan (1997) for a review on the relationship between corruption and development.

similar inferences from the two different approaches, the likelihood that our results are due to alternative explanations should be significantly reduced.

The primary target of the anti-corruption campaign is government officials. The aim of the anti-corruption campaign is to regulate the excesses of government officials, reduce official formalism, and require government officials to keep closer contacts with the grassroots. Consistent with the anecdotal evidence reported in the media (e.g., 3158 Ming Jiu Net 2013; Sina Finance 2013; People's Daily Overseas Edition 2014), we find that the anti-corruption campaign had a profound negative impact on the performance of the publicly listed firms that *sell* luxury goods and services in the alcohol, catering and hotel industries relative to the publicly listed firms that sell non-luxury goods and services in the same industries. Specifically, the difference in the abnormal stock market reactions to all the events associated with the launch and implementation of the anti-corruption campaign for the luxury goods and services selling firms versus the non-luxury goods and services selling firms is an economically significant -11.90%. We also observe a 7.327 percentage point decrease in operating return on assets from the pre-anti-corruption (2011-2012) period to the post-anti-corruption (2013-2014) period for the luxury goods and services selling firms relative to the non-luxury goods and services selling firms in the same industries.

We next examine how the anti-corruption campaign affects the performance of publicly listed firms that *consume* luxury goods and services. We analyze state-controlled firms (referred to as SOEs) and non-state-controlled firms (referred to as non-SOEs) separately because, as detailed in Section 3, we expect the impact of the anti-corruption campaign to differ for SOEs and non-SOEs.

We start with the analysis of luxury goods and services consuming SOEs. To identify the effect of the anti-corruption campaign, we distinguish the SOEs in the regulated industries from the SOEs in the competitive industries because SOEs operating in the regulated industries

can enjoy monopoly rents and therefore these firms should be in a better position to consume luxury goods and services as perks. As a result, these firms should be more significantly affected by the anti-corruption campaign. Consistent with this conjecture, we find that the SOEs operating in the regulated industries experienced a larger decrease in excessive perk consumption in the post period than the SOEs operating in the competitive industries.

We also examine the impact of the anti-corruption campaign on net shareholder value for the luxury goods and services consuming SOEs operating in the regulated industries versus the luxury goods and services consuming SOEs operating in the competitive industries. While a reduction in perk consumption would mechanically increase a firm's operating return on assets, the overall impact of the anti-corruption campaign on net shareholder value for the SOEs operating in the regulated industries versus the SOEs operating in the competitive industries is unclear due to potential unintended negative consequences. For example, there could be a reduction of employee morale due to lost perk consumption. Some employees could also resort to alternative more costly expropriation behaviors. In addition, due to the scarcity of the resources controlled by the SOEs in the regulated industries, the executives of the SOEs operating in the regulated industries should be in a better position than the executives of the SOEs operating in the competitive industries to undertake value reducing corporate transactions in exchange for personal gain (i.e., bribe taking). Because of the opaqueness of many such transactions, it is unclear whether the anti-corruption campaign can help reduce such value decreasing managerial behavior. We find no evidence of a significant difference in the change of operating return on assets before versus after the anti-corruption campaign for the SOEs operating in the regulated industries versus the SOEs operating in the competitive industries. We also find little evidence of a significant difference in abnormal stock market reactions to the events associated with the launch and implementation of the anti-corruption campaign for the SOEs operating in the regulated industries versus the SOEs operating in the

competitive industries. Overall, we conclude from these results that while the anti-corruption campaign generated some positive consequences (e.g., perk consumption reduction), the overall impact of the anti-corruption campaign on shareholder value appears to be insignificant for the luxury goods and services consuming SOEs operating in the regulated industries.

We also perform the same set of analyses for the luxury goods and services consuming non-SOEs in the regulated industries versus the luxury goods and services consuming non-SOEs in the competitive industries. Compared with the SOEs in the regulated industries, the nature of the agency problem for the non-SOEs in the regulated industries is different. Specifically, while excessive perk consumption is common for SOEs operating in the regulated industries, we don't expect non-SOEs operating in the regulated industries to suffer from the same problem due to highly concentrated share ownership in the hands of private investors. Consistent with this conjecture, we find no evidence that the anti-corruption campaign had a significant impact on excessive perk consumption for the non-SOEs operating in the regulated industries versus non-SOEs operating in the competitive industries.

On the other hand, the non-SOEs operating in the regulated industries may find it necessary to bribe government officials and executives of SOEs in the same regulated industries in order to gain the privilege of operating in these regulated industries. Because most of these bribe giving activities are conducted in very opaque ways, it is an open question whether the anti-corruption campaign can help reduce such behavior and whether curbing such behavior hurts shareholder value of the non-SOEs operating in these regulated industries (see Section 3 for a more detailed discussion). Empirically, we find little evidence from both the event study and the ex post operating return on assets that the anti-corruption campaign affected the performance of the non-SOEs operating in the regulated industries differently from the performance of the non-SOEs operating in the competitive industries. These results suggest

that the anti-corruption campaign has had little impact on the performance of luxury goods and services consuming non-SOEs.

We make two contributions to the growing corruption literature. First, we are one of the first studies that assess the effect of anti-corruption regulation on shareholder value in a representative weak institutional environment. Due to lack of data, many studies examine perceived corruption from survey data (e.g., Serafeim 2014; Svensson 2003; Clarke and Xu 2004). Several studies have examined the relation between corruption and shareholder value using small samples of known corruption cases (e.g., Smith, Stettler and Beedles 1984; Cheung et al. 2012; Karpoff, Lee and Martin 2015). With the exception of Zeume (2015) and Lin et al. (2015), we are not aware of any study that examines the consequences of *regulating* corruption. Zeume (2015) finds that the 2010 UK Bribery Act reduces shareholder value of UK firms operating in high corruption regions. In contrast, we study the consequences of anti-corruption regulation for firms domiciled in a country with a weak institutional environment. More importantly, despite the negative impact of China's anti-corruption campaign on luxury goods and services selling firms, we find no evidence that the anti-corruption campaign significantly affected net shareholder value of luxury goods and services consuming firms.

Closely related to our study, Lin et al. (2015) examine the stock market reaction to the announcement of Xi's Eight-Point Regulation (i.e., the first of the eight events included in our event study). They find that the stock market reaction is significantly positive for SOEs but insignificant for non-SOEs. The difference in conclusions between Lin et al. and our study is likely due to two key research design differences. The first key difference is that we consider not only the announcement of Xi's Eight-Point Regulation but also the subsequent seven announcements that detailed the implementation of Xi's Eight-Point Regulation. We show in Table 2 below that the announcement of Xi's Eight-Point Regulation was met with stock market skepticism and therefore it is not appropriate to use only the announcement of Xi's

Eight-Point Regulation to assess the effect of Xi's anti-corruption campaign. The second key difference is that we distinguish luxury goods and services selling firms from luxury goods and services consuming firms. This distinction is important because, as we show in this paper, the impact of Xi's anti-corruption campaign is fundamentally different for these two types of firms.

Second, we contribute to the corruption literature by being one of the first studies to separately analyze the impact of anti-corruption regulation on shareholder value of SOEs versus non-SOEs. SOEs are a common phenomenon in many countries (OECD 2006; Bortolotti and Faccio 2009). Even though the nature of the agency problems is significantly different for SOEs versus non-SOEs, corruption within SOEs has been ignored by the existing corruption literature. We contribute to this literature by documenting the effect of China's anti-corruption campaign on SOE behavior. Our results suggest that it takes more than a top-down anti-corruption campaign to root out corruption and improve firm performance among SOEs.

The rest of the paper is organized as follows. Section 2 provides a brief description of China's anti-corruption campaign. Section 3 develops the hypotheses on the impact of China's anti-corruption campaign. Section 4 discusses the sample selection procedures and research designs. Section 5 reports the results on the impact of the anti-corruption campaign on luxury goods and services selling firms. Section 6 shows the results on the impact of the anti-corruption campaign on luxury goods and services consuming firms. Section 7 discusses a variety of robustness checks. Section 8 concludes.

2. Institutional background

Corruption is perceived to be widespread in China. Transparency International's 2014 Corruption Perceptions Index ranked China at the 100th out of 174 countries and territories. In contrast, Singapore was ranked at the 7th and Hong Kong and the United States were tied at the 17th. Despite the public's perception of widespread and persistent corruption over the years,

the Chinese Government had not made any serious efforts to tackle corruption until President Xi Jinping came to power in 2012.

On December 4, 2012, less than three weeks after President Xi Jinping assumed power, the Politburo of the CPC Central Committee issued the now famous Eight-Point Regulation, representing the official launch of President Xi's anti-corruption campaign. Appendix A provides an English translation of the Regulation. The aim of the Eight-Point Regulation was to curb corruption by changing government officials' work methods and relations with the public. Following the announcement of the Eight-Point Regulation, various government agencies made detailed announcements to implement the regulation (see Appendix B for the list of these announcement dates). A highly visible sign of the impact of the Eight-Point Regulation was the ban of consuming luxury goods and services by government officials and SOE executives who are also quasi-government officials (Chen, Guan and Ke 2013). While the initial announcement of the Eight-Point Regulation could be viewed with suspicion due to similar anti-corruption campaigns launched by past Chinese leaders with little significant consequences, by the time of the last event date listed in Appendix B, it was clear to the general public that President Xi's anti-corruption was serious and would stay for the long run.

3. Hypothesis development

We analyze the consequences of the anti-corruption campaign for luxury goods and services selling firms and luxury goods and services consuming firms separately because, as we argue below, President Xi's anti-corruption campaign could affect these two types of firms very differently. In addition, we split the luxury goods and services consuming firms into SOEs and non-SOEs because, as we argue below, the nature of the agency conflicts is different for the two firm types and therefore the impact of Xi's anti-corruption campaign could differ.

3.1. Luxury goods and services selling firms

One direct target of Xi's anti-corruption campaign is the luxury goods and services. Anecdotal media reports subsequent to the implementation of the Eight-Point Regulation suggest a significant decline of sales in luxury goods and services (e.g., high-end restaurants, five-star hotels, and high-end alcohols and brand name luxury consumer goods from overseas manufacturers). Hence, we predict the effect of the anti-corruption campaign on the shareholder value of luxury goods and services selling firms to be negative. However, the precise magnitude of the negative impact of Xi's anti-corruption campaign on the shareholder value of luxury goods and services selling firms remains unknown. This is because many luxury goods and services selling firms could adjust their business strategies to mitigate the direct impact of the anti-corruption campaign. We state our first hypothesis in the alternative form as follows:

H1: Xi's anti-corruption campaign reduces shareholder value of luxury goods and services selling firms.

3.2. Luxury goods and services consuming SOEs

We next analyze the impact of Xi's anti-corruption campaign on the Chinese SOEs that consume luxury goods and services. Chinese SOEs suffer from two common types of agency problems. First, top executives of Chinese SOEs are known to enjoy excessive perk consumption (e.g., Chen et al. 2005; Chen et al. 2010; Gul et al. 2011; Xu et al. 2014). Second, due to weak monitoring resulting from the nature of government ownership, top executives of Chinese SOEs have both the ability and opportunity to undertake value destroying corporate transactions in exchange for personal gain (i.e., bribe taking). Because Xi's anti-corruption campaign directly targets luxury goods and services consumption, we expect the anti-

corruption campaign to help reduce the extent of excessive perk consumption by Chinese SOE executives. Hence, we state our 2nd hypothesis in the alternative form as follows:

H2: Xi's anti-corruption campaign helps reduce the extent of excessive perk consumption by Chinese SOE executives.

However, the impact of Xi's anti-corruption campaign on Chinese SOEs' net shareholder value is more difficult to determine ex ante. The reduction of perk consumption would directly translate into an increase in shareholder value. In addition, prior research (e.g., Chen et al. 2011; Yu et al. 2010; Bai and Lian 2014) finds that Chinese SOEs tend to overinvest. To the extent that Xi's anti-corruption campaign helps discipline previously wayward SOE executives, the extent of the SOEs' value decreasing overinvestment could be reduced. However, Xi's anti-corruption campaign may also produce many other unintended consequences. First, due to the loss of the excessive perk consumption, many Chinese SOE executives could become unhappy and thus may lose the motivation to work hard as noted in anecdotal media reports (Sohu Finance 2015). Second, it is far from clear whether Xi's anti-corruption campaign can help reduce SOE executives' bribe taking because of the opacity and varieties of bribery activities. For example, instead of providing SOE executives with luxury goods and services directly, bribers could offer something else (including cash) post Xi's anti-corruption campaign. Furthermore, a significant loss of the SOE executives' visible perk consumption could increase these executives' incentives to pursue less visible perk consumption and tunneling activities that could be more costly to shareholders. Third, because it is unclear what constitutes normal business expenses, risk averse SOE executives could also cut many normal employee fringe benefits and necessary business entertainment expenditures as noted in anecdotal media reports (*People's Daily Online* 2015b). Such cuts could further reduce employee morale and work efforts. A more extreme case could be the increased churning of productive SOE employees. For these reasons, the impact of Xi's anti-corruption

campaign on net shareholder value of luxury goods and services consuming SOEs becomes an empirical question as stated in the following null hypothesis:

H3: The effect of Xi's anti-corruption campaign on shareholder value of luxury goods and services consuming SOEs could be negative, zero, or positive.

3.3. Luxury goods and services consuming non-SOEs

We next analyze the impact of Xi's anti-corruption campaign on the Chinese non-SOEs that consume luxury goods and services. We expect the nature of the agency problems to be different for luxury goods and services consuming non-SOEs than for luxury goods and services consuming SOEs. While excessive perk consumption by SOE executives is often a problem due to lack of monitoring, we don't expect non-SOEs to suffer from the same problem because of the high stock ownership concentration in the hands of a large individual shareholder. On the other hand, Chinese non-SOEs often suffer from discrimination by government regulators in access to finance and entry barriers to many input and output factor markets. Hence, the insiders of non-SOEs should have a strong incentive to bribe government officials and SOE executives in regulated industries in exchange for cheaper finance and access to various other regulated input and output factor markets. Prior research based on a few limited known cases of corruption scandals find that bribery paying firms reap significant payoffs net of the bribery costs (e.g., Cheung et al. 2012; Karpoff et al. 2015). One form of bribery is the supply of luxury goods and services to government officials and SOE executives in regulated industries. But there are other more opague and costly forms of bribery such as direct cash payment and hidden share ownership registered under other people's names. While Xi's anti-corruption campaign may help reduce non-SOEs' tendency to supply the more visible luxury goods and services to government officials and SOE executives in regulated industries, it is unclear whether Xi's anti-corruption can limit the other more hidden forms of bribery. Hence,

it is an open question whether Xi's anti-corruption campaign can have any significant impact on the net shareholder value of luxury goods and services consuming non-SOEs. We state the above discussions in the following two null hypotheses:

H4: Xi's anti-corruption campaign is not expected to reduce the extent of excessive perk consumption by Chinese non-SOE executives.

H5: The effect of Xi's anti-corruption campaign on shareholder value of luxury goods and services consuming non-SOEs could be negative, zero, or positive.

4. Research design

We use two distinctive research approaches to assess the impact of Xi's anti-corruption campaign. Our first approach uses a standard event study by examining the stock market reactions to the announcements of the events associated with the launch of Xi's anti-corruption campaign. Our second approach examines excessive perk consumption and accounting performance before versus after the launch of Xi's anti-corruption campaign. To identify the effect of Xi's anti-corruption campaign, we control for potential confounding events around the launch of Xi's anti-corruption campaign using a control firm sample (see below) for each of our five hypotheses.

4.1. Sample selection procedures

We start with all publicly traded Chinese firms on the two domestic stock exchanges, including the Shanghai and Shenzhen mainboards and the Small and Medium Enterprise (SME) board over the period 2011-2014. We exclude the firms listed on the ChiNext board because this board started in 2009 only and differs significantly from the mainboards and SME board in the listing and information disclosure requirements. Because Xi's anti-corruption campaign started on December 4, 2012 and all Chinese firms share the same fiscal year end December

31, we use 2013-2014 as the post period and 2011-2012 as the pre period in the subsequent relevant hypothesis tests. We require each firm to have data for at least one year in both the pre-period and post-period in order to avoid the possibility that our inferences are due to changing mix of sample firms over time.

To test H1, we identify all the publicly listed Chinese firms whose primary business is in the following three industries significantly affected by Xi's anti-corruption campaign: alcohol, catering, and hotel.[2] Although some publicly listed Chinese firms in the tourism and retail industries also sell luxury goods and services (e.g., luxury resort operators and department stores selling brand name goods), we exclude the firms in these two industries from the sample of H1 because these firms typically sell a mix of luxury and non-luxury goods and services simultaneously and therefore it is difficult to classify them into one type or the other.

We divide the firms in these three industries into two groups: luxury goods and services selling firms and non-luxury goods and services selling firms. Appendix C shows the criteria we used to determine the list of luxury goods and services selling firms for each of the three industries. Consistent with the validity of our luxury goods and services firm classification, we find in appendix C that the average gross profit margins are much higher for the luxury goods and services selling firms than for the non-luxury goods and services selling firms. Table 1 shows the detailed sample selection procedures for the sample of H1. We identify a total of 36 unique firms in the alcohol, catering, and hotel industries, among which 15 are designated as luxury goods and services selling firms and the remaining 21 as non-luxury goods and services selling firms.[3]

We use the 21 non-luxury goods and services selling firms as the control firm sample for the tests of H1. Xi's anti-corruption campaign doesn't target the consumption of non-luxury

[2] Xi's anti-corruption campaign also significantly reduced the fortunes of foreign luxury goods and services selling firms. We exclude these firms from this paper because the majority of foreign luxury brands are not publicly traded.

[3] 13 of the 15 luxury goods and services selling firms are SOEs.

goods and services. Hence, the non-luxury goods and services selling firms in the same industries can serve as a control for the general shift of consumers' consumption patterns around Xi's anti-corruption campaign.

To select the samples for the tests of H2-H5, we start with all the publicly listed Chinese firms on the two mainboards and SME board that were listed before January 1, 2010. Then, we impose the following additional sample selection restrictions. First, we exclude the firms in the financial industry because they are subject to special banking regulations. Second, we exclude the firms in the alcohol, catering, and hotel industries (i.e., the firms used in the test of H1). Third, we exclude the firms in the tourism and retail industries noted above. Finally, we exclude the firms that are the direct upstream suppliers (e.g., raw materials suppliers) or direct downstream customers (e.g., retail stores) of the 15 luxury goods and services selling firms. Because any significant changes in the stock prices of the luxury goods and services selling firms would likely cause a direct ripple effect on the stock prices of the upstream and downstream firms, we simply use the non-luxury goods and service selling firms that have the top 10 highest daily stock price synchronicity with a luxury goods and services selling firm as a proxy for the upstream and downstream firms. This sample restriction results in the deletion of 35 unique firms. Our final sample contains 1356 unique firms, among which 796 are SOEs and 560 are non-SOEs.

For both SOEs and non-SOEs, we further divide them into two groups: firms in regulated industries and firms in competitive industries (see appendix D). The definition of regulated industries follows Fan et al. (2007), Wei et al. (2005), Tian and Estrin (2008), Luo and Liu (2009), and Yu et al. (2010).

For the tests of H2 and H3 (luxury goods and services consuming SOEs), we cannot identify a clean control firm sample not affected by Xi's anti-corruption campaign. However, we expect the effect of Xi's anti-corruption campaign to differ for the luxury goods and services

consuming SOEs in regulated industries and the luxury goods and services consuming SOEs in competitive industries. The reason is that the SOEs in regulated industries enjoy monopoly powers and therefore can earn monopoly rents that can be used to fund the SOE executives' excessive perk consumption. On the other hand, the executives of the SOEs in competitive industries would find it more difficult to charge consumers monopoly rents to pay for their excessive perk consumption due to competitive product markets. In addition, because the executives of the SOEs in regulated industries control more scarce resources, they should be in a better position than SOE executives in competitive industries to undertake value reducing corporate transactions in exchange for personal gain, commonly referred to as the cheap selling of SOE assets. Therefore, we expect the impact of Xi's anti-corruption campaign, if effective, to be greater for the SOEs in regulated industries than for the SOEs in competitive industries.

For the tests of H4 and H5, we follow the same approach as in the tests of H2 and H3 by comparing the results for the luxury goods and services consuming non-SOEs in regulated industries and those in competitive industries. As argued in Section 3, we expect luxury goods and services consuming non-SOEs operating in regulated industries to be more likely to bribe government officials and therefore they could be more negatively affected by Xi's anti-corruption campaign to the extent that the anti-corruption campaign is effective.

4.2. Event study

To assess the stock market's reactions to the events associated with the launch and implementation of Xi's anti-corruption campaign as a function of firm characteristics, one could perform the following three-step regression procedures:

Step 1: estimate α_j and β_j in an *estimation period* using the following regression

$$\tilde{R}_{jt} = \alpha_j + \beta_j \tilde{R}_{mt} + \tilde{\epsilon}_{jt} \quad \text{(a)}$$

Where $\tilde{R}_{jt}$ and $\tilde{R}_{mt}$ are the dividend inclusive raw return for firm j on day t and equally weighted dividend inclusive market return on day t, respectively.

Step 2: use the estimated coefficients from (1) to calculate the prediction error from the following equation in the *event period*

$$\widehat{\tilde{\epsilon}_{jt}} = R_{jt} - (\hat{\alpha}_j + \hat{\beta}_j R_{mt}) \quad \text{(b)}$$

Step 3: Average $\widehat{\tilde{\epsilon}_{jt}}$ over the event period (denote the average as $\hat{\gamma}_j$) and regress $\hat{\gamma}_j$ on a vector of firm characteristics using the following equation

$$\hat{\gamma} = \mu F + \epsilon \quad \text{(c)}$$

where F is a (K+1)×J matrix consisting of the constant vector and K vectors of firm characteristics X_1, X_2,…, X_K.

From the last step, we can get $\mu = [\mu_0, \mu_1, \mu_2, \ldots, \mu_K]'$, where μ_k is the cross sectional difference in stock market reactions to the events between the firms with firm characteristic f_k = 1 and the firms with f_k = 0.

Sefcik and Thompson (1986) indicate that the three-step regression procedures would lead to valid inferences only if the disturbances are *IID* in cross-section. Unfortunately, this assumption is unlikely to hold in our setting because of perfect event clustering and therefore there would be both cross-correlation and cross-sectional heteroscedasticity in the firm return processes from which the prediction errors are estimated. To address this limitation of the three-step regression procedures, Sefcik and Thompson (1986) propose the following alternative regression approach:

Step 1: create K+1 sets of portfolio weights $(F'F)^{-1}F'$, where k is the number of firm characteristics and F is the (K+1)×J matrix of individual firm characteristics.

Step 2: calculate K+1 portfolio returns using weight $(F'F)^{-1}F'$

Step 3: for each portfolio, run the following time series regression

$$\tilde{R}_{pt} = \alpha_p + \beta_p \tilde{R}_{mt} + \gamma_p EVENT + \tilde{u}_{pt} \quad \text{(d)}$$

Where EVENT = 1 if day t falls in the event period, 0 otherwise.

The estimated coefficients γ_p from the K+1 regressions of (4) are identical to μ_k in (3), but the Sefcik and Thompson methodology relaxes the IID assumption and therefore leads to correct inferences. Hence, we conduct our event study using the Sefcik and Thompson's (1986) regression methodology. The sample period for our event study starts from 180 trading days prior to the first event date to March 27, 2013 (i.e., right after the end of the last event window). Unless noted otherwise, we measure the event announcement return using a window of three trading days [-1, +1] centered on the event date.

Appendix B shows the list of the eight events associated with the launch of Xi's anti-corruption campaign. While Xi's Eight-Point Regulation (i.e., event 1) was announced on December 4, 2012, it was difficult to tell at the announcement how serious the government would be in enforcing the regulation because similar regulations were issued before by Xi's predecessors with little follow-up enforcement. It was not until the announcements of the subsequent implementation rules and the strict enforcement of the rules during the Chinese New Year in February 2015 that the general public started to realize the seriousness of Xi's anti-corruption campaign. Hence, we use the combined stock market reactions to all eight events to measure stock market's anticipated impact of Xi's anti-corruption campaign on shareholder value.

4.3. Excessive perk consumption

We use the following firm fixed effects regression model estimated over the period 2011-2014 for the tests of H2 and H4:

$$EXCESSIVE\_PERKS_{i,t} = a_0 + a_1 REGULATED_i \times POST + a_2 CONTROLS_{i,t-1} + \mu_t + \nu_i + \varepsilon_{i,t} \quad (1)$$

See Appendix E for all variable definitions. μ_t and ν_i are time and firm fixed effects, respectively. The selection of *CONTROLS* follows prior research (Fan et al. 2007; Core et al. 1999; Ke and

Zhang 2015). Because *EXCESSIVE_PERKS* is unobservable, it is computed based on the following model per Roychowdhury (2006):

$$SG\&A_{i,t}/ASSETS_{i,t-1} = a_0 + a_1 1/ASSETS_{i,t-1} + a_2 SALES_{i,t-1}/ASSETS_{i,t-1} + \varepsilon_{i,t} \quad (2)$$

See Appendix E for all variable definitions. We estimate the parameters of model (2) over 2007-2010 by industry for the luxury goods and services consuming SOEs and non-SOEs separately. *EXCESSIVE_PERKS* is the predicted residual of model (2) for the years 2011-2014.

4.4. Accounting performance

We use the following firm fixed effects regression model for the tests of H1, H3 and H5:

$$ROA_{i,t} = a_0 + a_1 TREAT_i \times POST + a_2 CONTROLS_{i,t-1} + \mu_t + \nu_i + \varepsilon_{i,t} \quad (2)$$

See Appendix E for all variable definitions. *TREAT* is *LUXURY* for H1 and *REGULATED* for H3 and H5. μ_t and ν_i are time and firm fixed effects, respectively. The selection of *CONTROLS* follows prior research (Fan et al. 2007; Core et al. 1999; Ke and Zhang 2015).

5. Impact of Xi's anti-corruption campaign on luxury goods and services selling firms

We first report the results on the impact of Xi's anti-corruption campaign on the performance of luxury goods and services selling firms.

5.1. Event study results

Table 2 reports the Sefcik and Thompson's (1986) event study regression results on the stock market reactions to the announcements of events associated with Xi's anti-corruption campaign for the luxury goods and services selling firms. Panel A shows the announcement effects of the eight individual events. It is interesting to note that the coefficient on *LUXURY*

for event 1 (the initial announcement of Xi's Eight-Point Regulation) is negative (-0.0328) but insignificant at the 10% two-tailed significance level. This result may not be surprising because similar anti-corruption campaigns were launched in China in the past with big fanfares but resulted in little long lasting consequences. The regression coefficients on the subsequent seven events indicate that it took the Chinese government multiple concrete actions before stock market investors started to realize the seriousness of Xi's anti-corruption campaign.

To assess the overall expected market impact of Xi's anti-corruption campaign on luxury goods and services selling firms, Panel B of Table 2 shows the combined announcement effects of the eight individual events. Consistent with H1, we find that the combined stock market reactions are significantly more negative for the luxury goods and services selling firms in the alcohol, catering and hotel industries than for the non-luxury goods and services selling firms in the same industries. The magnitude of the stock market reactions (-11.90%) also appear economically significant.

5.2. Accounting performance

Table 3 reports the regression results on the impact of Xi's anti-corruption campaign on accounting returns over the period 2011-2014 for the luxury goods and services selling firms in the alcohol, catering and hotel industries versus the non-luxury goods and services selling firms in the same industries. Consistent with H1, we find that the coefficient on *LUXURY×POST* is -7.327 and significantly negative, suggesting that luxury goods and services selling firms experienced a significant decline in accounting returns after the launch of Xi's anti-corruption campaign than non-luxury goods and services selling firms. The coefficient on *LUXURY×POST* is also economically significant, implying that Xi's anti-corruption campaign resulted in a decline in the ROA of the luxury goods and services selling

firms by 7.327 percentage points. As a benchmark, the average ROA for the luxury goods and services selling firms in our sample period is 14.302% as shown in Panel A of Table 3.

Overall, despite the small sample size of luxury goods and services selling firms, the results in both Tables 2 and 3 portray a clear picture: Xi's anti-corruption campaign had a significant negative impact on the luxury goods and services selling firms in the alcohol, catering and hotel industries, consistent with the anecdotal media reports.

One may view the significant results for H1 to be obvious in light of the significant media coverage on the impact of Xi's anti-corruption campaign on luxury goods and services selling firms. However, these results are still important because they stand in sharp contrast with the surprising finding shown in Section 6 below that Xi's anti-corruption campaign had little impact on net shareholder value of luxury goods and services consuming firms.

6. Impact of the anti-corruption campaign on luxury goods and services consuming firms

We now examine whether Xi's anti-corruption campaign had a visible impact on the behavior of luxury goods and services consuming SOEs and non-SOEs as hypothesized by H2-H5. To identify the effect of Xi's anti-corruption campaign, we compare the behavior of firms in the regulated industries versus firms in the competitive industries.

6.1. Excessive perk consumption

Table 4 shows the regression results of the *EXCESSIVE_PERKS* regression results for luxury goods and services consuming SOEs and non-SOEs separately. Panel A shows the descriptive statistics. It is important to note that the values of *EXCESSIVE_PERKS* are not directly comparable for SOEs versus non-SOEs because *EXCESSIVE_PERKS* is estimated for SOEs and non-SOEs separately using equation (2). Consistent with H2, the coefficient on *REGULATED×POST* in Panel B is significantly negative, suggesting that the SOEs in the

regulated industries suffered a significant decline in excessive perk consumption in the post period 2013-2014 relative to the SOEs in the competitive industries. The magnitude of the coefficient on *REGULATED×POST* (-0.541) implies that Xi's anti-corruption campaign resulted in a reduction of approximately 28.6 million Yuan in excessive perk consumption by SOEs in regulated industries.

On the other hand, consistent with H4, the coefficient on *REGULATED×POST* is not significant for luxury goods and services consuming non-SOEs in Table 4. This result is consistent with the common intuition that non-SOEs are less likely to suffer from the problem of excessive perk consumption due to these firms' high ownership concentration in the hands of private investors and therefore Xi's anti-corruption campaign had little impact on non-SOEs' excessive perk consumption.

6.2. Net shareholder value

We next examine the impact of Xi's anti-corruption campaign on net shareholder value of luxury goods and services consuming firms in regulated industries versus luxury goods and services consuming firms in competitive industries. Table 5 shows the event study regression results. For the sake of completeness, we report the coefficients on the individual events in Panel A of Table 5. However, since the results in Table 2 indicate that the expected impact of Xi's anti-corruption campaign was gradually reflected in stock prices over the course of the eight individual events, we focus on the combined announcement effects of all the eight events in Panel B for the following discussion. The coefficient on *REGULATED* is insignificant for both the SOEs and non-SOEs. Hence, we find no evidence that the stock market expected Xi's anti-corruption campaign to have a material positive or negative effect on the net shareholder value of luxury goods and services consuming firms (both SOEs and non-SOEs) in regulated industries versus luxury goods and services consuming firms in competitive industries.

Table 6 shows the regression results on the impact of Xi's anti-corruption campaign on the ex post accounting returns for luxury goods and services consuming firms in regulated industries versus luxury goods and services consuming firms in competitive industries. The coefficient on *REGULATED*×*POST* is never significantly different from zero for both SOEs and non-SOEs.

Overall, the regression results in Tables 5 and 6 portray a consistent picture: despite the fact that Xi's anti-corruption campaign has had a visible negative impact on the profitability of luxury goods and services selling firms (Table 3) and the consumption of excessive perks by luxury goods and services consuming SOEs (Table 4), the campaign has not had much of an impact on net shareholder value of luxury goods and services consuming SOEs and non-SOEs (Tables 5 and 6).[4] It seems unlikely that the insignificant results in Tables 5 and 6 are due to low test power because the sample size for the luxury goods and services selling firms is much smaller but we found significant and predicted results in Tables 2 and 3. In addition, we find significant and predicted results in Table 4 using the same sample firms as in Tables 5 and 6.

7. Robustness checks

We conduct a variety of robustness checks for the regression results reported in the previous tables. First, we reclassify the following *LUXURY*=1 firms (stock codes) as *LUXURY*=0 firms because the classification of these firms could be open to debate as noted in appendix C: 000799, 000869, 600543, 000721, and 002186. We exclude 000799 because Jiu Gui Jiu was not included in the list of "Famous Chinese alcohol brands". We exclude 000869 and 600543 because these two firms sell high end but domestic wine labels and therefore these

[4] Our analyses implicitly assume that all the costs and benefits of bribery are reflected in the listed firms' books. However, it is possible that the costs of bribery by Chinese non-SOEs may not be reported in the listed firm's books in order to avoid public scrutiny but the benefits resulting from bribery could be reflected in the listed firm's books. If this were the case, Xi's anti-corruption campaign would still negatively impact the non-SOEs' performance, which is not supported by our regression results.

brands may not be viewed as luxurious as foreign luxury brands. We exclude 000721 and 002186 because some workshop participants disagreed with our luxury classification for these two firms. We obtain similar inferences in Tables 2 and 3 using this revised definition of *LUXURY* (untabulated).

Second, to control for the potential impact of provincial GDP growth in the province of a listed firm's headquarters, we include the contemporaneous provincial GDP growth rate in the ROA regression models of H2-H5 and find similar inferences (untabulated).

Third, we check the validity of the parallel trends assumption required for the difference-in-differences research design. The parallel trends assumption requires that, absent the treatment (i.e., the anti-corruption campaign), both treatment firms and control firms would have continued to exhibit similar trends. To test the validity of this assumption, we allow the coefficient on *LUXURY* or *REGULATED* to vary with each fiscal year in the pre-period. As shown in Table 7, we find no evidence of a significant coefficient on *LUXURY×YR2012* or *REGULATED×YR2012*. The only exception is the significantly positive coefficient on *REGULATED×YR2012* for the luxury goods and services consuming non-SOEs (i.e., H5). Overall, we find little evidence of violation of the parallel trends assumption for our difference-in-differences specification.

Fourth, we use an alternative approach to assess the impact of Xi's anti-corruption campaign. Specifically, following the launch of Xi's anti-corruption campaign, the Chinese central government sent out on-site inspection teams to all Chinese provinces in 2013 and 2014 to review and correct corruptive behaviors by local government officials. Such inspections have resulted in the arrest and prosecution of a large number of local government officials (People's Daily Online 2014a, 2014b, 2015a). We examine how such on-site inspections affect the ROA of luxury goods and services consuming firms. Table 8 shows the firm fixed effects regression results. For each firm, *INSPECT* is a dummy variable that equals one for all the years following

(including) the year of the central government's inspection of the province in which the listed firm's headquarters is located. The regression models in column (1) and (2) don't distinguish regulated industries from competitive industries while the regression models in column (3) and (4) interact *INSPECT* with *REGULATED*. We find no evidence that the coefficients on *INSPECT* in column (1) and (2) or the coefficients on *REGULATED*×*INSPECT* in column (3) and (4) are significantly different from zero for both SOEs and non-SOEs. The insignificant results for the non-SOEs are particularly surprising given the high profile publicity of the inspection activities by the on-site inspection teams in official media outlets.

Finally, we perform a pseudo-event study to rule out the possibility that the documented significant event study results for the luxury goods and services selling firms are due to the volatility of Chinese stock markets. Specifically, for each of the eight event dates in appendix B, we select a pseudo-event date to be one calendar month earlier than the actual event date. If a particular pseudo-event [-1, +1] 3-day window overlaps with any of the [-1, +1] 3-day window of the actual event, we move the pseudo-event date backwards in time until there is no event window overlap. As shown in Panel A of Table 9, we find no evidence of a significant difference in stock market reactions to the eight pseudo-events for the *LUXURY*=1 firms versus the *LUXURY*=0 firms. For the sake of completeness, we also tabulate the pseudo-event study results for the luxury goods and services consuming SOEs and non-SOEs in Panels B and C respectively. Again, we find insignificant results.

8. Conclusion

The objective of this study is to assess the impact of China's anti-corruption campaign on corporate behavior of publicly listed Chinese firms. We adopt two complementary approaches to assess the impact of the anti-corruption campaign. The first approach is an event study that examines the stock market reactions to the announcements of the major events

associated with the launch of the anti-corruption campaign. The second approach compares the accounting performance of the test firms versus control firms for the two years before (2011-2012) versus two years after (2013-2014) the launch of the anti-corruption campaign.

The stated aim of the anti-corruption campaign was to regulate the excesses of government officials, reduce official formalism, and require government officials to keep closer contacts with the grassroots. Both the event study and the ex post accounting return analyses indicate that the anti-corruption campaign significantly reduced the profitability of the publicly listed firms that sell luxury goods and services in the alcohol, catering and hotel industries relative to the publicly listed firms that sell non-luxury goods and services in the same industries.

We next examine how the anti-corruption campaign affects the performance of publicly listed firms that consume luxury goods and services. We analyze SOEs and non-SOEs separately because we expect the impact of the anti-corruption campaign to differ for SOEs and non-SOEs. To identify the effect of the anti-corruption campaign, we distinguish the firms in the regulated industries from the firms in the competitive industries because the firms operating in the regulated industries are expected to be more significantly affected by the anti-corruption campaign and therefore, if it is effective, the anti-corruption campaign is expected to affect (positively or negatively) the firms operating in the regulated industries to a greater extent. Our results suggest that the SOEs operating in the regulated industries experienced a larger decrease in perk consumption in the post period than the SOEs operating in the competitive industries. We find no evidence that the overall impact of the anti-corruption campaign on shareholder value appears to be significantly different from zero for the SOEs operating in the regulated industries relative to the SOEs operating in the competitive industries. Furthermore, we find little evidence from either the excessive perk consumption analysis or the net shareholder value analysis that the anti-corruption campaign significantly affected the

behavior of the non-SOEs operating in the regulated industries relative to the non-SOEs operating in the competitive industries.

Overall, our results suggest that despite the visible negative impact of China's anti-corruption campaign on luxury goods and services selling firms, there is still a long way to go before China can claim victory for the anti-corruption campaign. Our results imply that further structural reforms are necessary to change managerial incentives, root out corruption and improve firm performance of publicly listed Chinese firms.

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Appendix A. The Eight-Point Regulation

1. Leaders must keep in close contact with the grassroots. They must understand the real situation facing society through in-depth inspections at grassroots. Greater attention should be focused on places where social problems are more acute, and inspection tours must be carried out more thoroughly. Inspection tours merely as formality should be strictly prohibited. Leaders should work with and listen to the public and officials at the grassroots, and people's practical problems must be tackled. There should be no welcome banner, no red carpet, no floral arrangement or grand receptions for officials' visits.
2. Meetings and major events should be strictly regulated, and efficiency improved. Political Bureau members are not allowed to attend ribbon-cutting or cornerstone-laying ceremonies, or celebrations and seminars, unless they get approval from the CPC Central Committee. Official meetings should get shortened and be specific and to the point, with no empty and rigmarole talks.
3. The issuing of official documents should be reduced.
4. Officials' visits abroad should only be arranged when needed with fewer accompanying members, and on most occasions, there is no need for a reception by overseas Chinese people, institutions and students at the airport.
5. There should be fewer traffic controls when leaders travel by cars to avoid unnecessary inconvenience to the public. There should be fewer traffic controls arranged for the leaders' security of their trips to avoid unnecessary inconvenience to the public.
6. The media must not report on stories about official events unless there is true news value. The regulations also ban worthless news reports on senior officials' work and activities and such reports should depend on work needs, news value and social effects.
7. Leaders should not publish any works by themselves or issue any congratulatory letters unless an arrangement with the central leadership has been made. Official documents without substantial contents and realistic importance should be withheld. Publications regarding senior officials' work and activities are also restricted.
8. Leaders must practise thrift and strictly follow relevant regulations on accommodation and use of cars.

Appendix B. The events associated with the launch and implementation of Xi's anti-corruption campaign

No.	Event Date	Event Description	Comment
1	Dec 4, 2012	Xi put forward the "Eight-point" Anti-bureaucracy and Formalism Regulation in a Politburo meeting.	The starting point of Xi's anti-corruption campaign. All the following events are detailed implementation rules of the Eight-Point Regulation.
2	Dec 21, 2012	The Central Military Commission issued a ban on alcohol at lavish banquets in the military	The first alcohol ban.
3	Dec 31, 2012	Xi presided at the Politburo meeting. He listened to the report from Central Commission for Discipline Inspection and discussed the anti-corruption plan in 2013.	The conference focused on the deployment of anti-corruption campaign. In addition, since the Central Commission for Discipline Inspection is the main anti-corruption agency, this news indicates that Xi's anti-corruption campaign will take real and detailed actions soon.
4	Jan 9, 2013	The first local version of alcohol ban was passed during Hainan Provincial People's Standing Committee Meeting	The first local version of alcohol ban, indicating that the alcohol ban is put into practice in local areas.
5	Jan 20, 2013	General Office of the CPC Central Committee issued Xi's Notice on Combating Extravagance and Waste	Detail instructions on how to combat extravagance and waste, e.g., ban on officials spending public money on expensive dinners, gifts, tours and so on.
6	Jan 22, 2013	Xi delivered an important speech in the Second Plenary Session of the Eighteenth Central Commission for Discipline Inspection.	The Central Commission for Discipline Inspection is the main anti-corruption agency. The focus of the conference is anti-corruption. During this meeting, for the first time Xi mentioned that the Party must crack down on both the "flies" at the bottom and the "tigers" higher up in order to tackle corruption. This meeting shows the determination and harshness on anti-corruption.
7	Mar 17, 2013	Li Keqiang made his media debut as premier and after the closing ceremony of the First Session of the Twelfth National People's Congress. During the press conference, Li responded to questions from both Chinese and foreign media.	Li emphasized anti-corruption (including reduction of government power) during the press conference and showed the world the determination of China's anti-corruption campaign.
8	Mar 26, 2013	Li presided at the first conference on combating corruption and building a clean government held by the State Council.	The conference theme is anti-corruption. In the conference, several important and detailed measures on how to combat corruption were put forward. One example of these important measures is the disclosure of the "three public consumption

			types", including spending on overseas travel, receptions and official cars. The three public consumption types have long been criticized as a source of corruption and waste.

Appendix C. Luxury goods and services selling firms in the alcohol, catering, and hotel industries

Panel A. Firms in the alcohol industry

LUXURY equals one if a listed firm satisfies the following conditions:

(1) Liquor firms: the firm sells at least one "Famous Chinese alcohol brand" (i.e., expensive) and the firm's brand name liquor's sales representing more than 50% of the firm's total sales in 2011. A liquor brand is classified as a "Famous Chinese alcohol brand" if it was rated as a brand name by at least one Chinese national liquor rating conference. Even though 000799 is not rated as a brand name, its liquor sold for more than RMB1,000 per bottle and the firm's high end liquor sales exceeded more than 75% of the firm's total sales in 2011. Hence, we also treat 000799 as a *LUXURY*=1 firm.

(2) Wine firms: the firm sells at least one brand name wine label. We don't have data on brand name wine labels' sales figures and hence we don't consider high end wines' sales percentage as a criterion.

(3) All the other alcohol firms are rated as *LUXURY*=0 because of cheap prices.

Index	Stock code	Stock name	*LUXURY*	Judging Criteria		Validation Criteria
				(1) "Famous Chinese alcohol brands"	(2) The ratio of high-end liquor sales to total sales in 2011(%)[a]	The three-year average of gross profit margin from 2009 to 2011(%)[c]
liquor						
1	600809	Shanxi Fen Jiu	1	yes	96.40	75.82
2	600519	Guizhou Mao Tai	1	yes	92.12	90.90
3	000858	Wu Liang Ye	1	yes	76.31	66.71
4	000568	Luzhou Lao Jiao	1	yes	68.53	67.43
5	000596	Gu Jing Gong Jiu	1	yes	66.16	68.64
6	600702	Tuo Pai She De	1	yes	54.52	47.92
7	600779	Shui Jing Fang	1	yes	91.34 [b]	64.31
8	000799	Jiu Gui Jiu	1	no	76.51	75.55
9	600197	Yi Li Te	0	no	NA	50.66
10	600199	Jin Zhong Zi Jiu	0	no	NA	46.83
11	600559	Lao Bai Gan Jiu	0	no	NA	41.00

12	000995	Huang Tai Jiu Ye	0	no	NA	40.02
wine						
Index	Stock code	Stock name	*LUXURY*	(1) "Famous Chinese alcohol brands"	(2) Top 100 valuable Chinese alcohol brands in 2012[d]	The three-year average of gross profit margin from 2009 to 2011(%)[c]
13	000869	Zhang Yu A	1	yes	yes	74.17
14	600543	Mo Gao Gu Fen	1	no	yes	48.84
15	600365	Tong Pu Gu Fen	0	no	no	45.44
16	600084	Zhong Pu Gu Fen	0	no	no	37.97
yellow wine						
17	600616	Jin Feng Jiu Ye	0			55.09
18	600059	Gu Yue Long Shan	0			37.41
beer						
19	600132	Chong Qing Pi Jiu	0			44.69
20	000729	Yan Jing Pi Jiu	0			40.67
21	600090	Pi Jiu Hua	0			38.75
22	600600	Qing Dao Pi Jiu	0			36.43
23	000929	Lan Zhou Huang He	0			36.30
24	600573	Hui Quan Pi Jiu	0			33.51
25	000752	Xi Zang Fa Zhan	0			32.12

Panel B. Firms in the catering industry

LUXURY equals one if a listed firm satisfies the following two conditions:

(1) The firm caters to high end customers; and
(2) The firm has a rich and long history.

Index	Stock code	Stock name	Company Profile	*LUXURY*	Judging Criteria		Validation Criteria
					Catering to high-end customers	Historic brands	The three-year average of gross profit margin from 2009 to 2011(%)[c]
1	000721	Xi'an Yin Shi	11 restaurant brands owned by the Company are recognized as "China Time-honored Brand" by the Ministry of Commerce. Among these brands, the cooking technics of Tong Sheng Xiang shredded cakes in mutton and beef soup is included in the national intangible cultural heritage list. The cooking skills of Xi'an Hotel China, Lao Sun Jia, De Fa Chang, Chun Fa Sheng, and Tong Sheng Xiang are included in Shannxi intangible cultural heritage list. The company ranks high in the "national top 100 catering company", and is one of the "national top 10 catering company".	1	yes	yes	59.57
2	002186	Quan Ju De	A famous China time-honored brand. The company was established in 1864. Quan Ju De is favored by lots of national leaders, government officials and tourists across the world. The Quan Ju De full duck banquet was appointed as the state banquet by China's founding prime minister Zhou Enlai for multiple times.	1	yes	yes	56.95
3	000796	Yi Shi Gu Fen	Main business of the company is to provide airline and railway catering. The largest customer of the company in 2012 is Hainan Airlines company. Sales to Hainan Airlines in accounts for 34.16% of the total sales in 2012.	0	no	no	42.74

Panel C. Firms in the hotel industry

LUXURY equals one if a listed firm owns primarily five-star hotels.

Index	Stock code	Stock name	*LUXURY*	Judging criterion: Five-star hotel
1	000428	Hua Tian Jiu Dian	1	yes
2	000524	Dong Fang Bin Guan	1	yes
3	601007	Jin Ling Fan Dian	1	yes
4	000613	Da Dong Hai A	0	no
5	600754	Jin Jiang Gu Fen	0	no
6	000007	Ling Qi Gu Fen	0	no
7	000033	*ST Xin Du	0	no
8	600258	Shou Lv Jiu Dian	0	no

Footnotes:

a. Data are obtained from the segment disclosure section of the annual report.

b. These two firms only disclosed total medium and high-end liquor sales. The two numbers here represent the ratio of total medium and high-end liquor sales to total sales.

c. Calculated as (operating revenue - operating cost)/operating revenue *100%. Operating revenue and cost data are disclosed in the annual report.

d. A Wine brand is classified as a valuable wine brand if it is in the list of “top 100 most valuable Chinese alcohol brands in 2012”, rated by the 4th “Hua Zun Bei” Conference.

Appendix D. The list of regulated industries

Industries	Code	References
Mining	B	Fan et al. (2007,JFE); Luo and Liu, 2009; Yu et al., 2010; Tian and Estrin, 2008; Wei et al., 2005
Manufacturing:		
Petroleum processing, coking, and nuclear fuel processing	C25	Luo and Liu, 2009; Yu et al., 2010;
Ferrous metal smelting and rolling processing	C31	Luo and Liu, 2009;
Non-ferrous metal smelting and rolling processing	C32	Luo and Liu, 2009;
Automobile manufacturing	C36	Luo and Liu, 2009;
Manufacturing of railways, ships, aircrafts, spacecrafts and other transportation equipment	C37	Luo and Liu, 2009;
Electric power, heat, gas and water production and supply	D	Fan et al. (2007,JFE)，Luo and Liu, 2009; Yu et al., 2010;
Construction:		
Civil engineering construction	E48	Yu et al., 2010;
Transport, storage and postal service:		
Railway transportation	G53	Luo and Liu, 2009;
Road transport	G54	Luo and Liu, 2009;
Waterway transport	G55	Luo and Liu, 2009;
Air transport	G56	Luo and Liu, 2009;
Information transmission, software and information technology services:		
Telecommunications, radio and television and satellite transmission services	I63	Luo and Liu, 2009;
Internet and related services	I64	Luo and Liu, 2009;
Real estate	K	Fan et al. (2007,JFE)，Yu et al., 2010;
Culture, sports and entertainment	R	Luo and Liu, 2009;

Appendix E. Variable definitions

Variables	Definitions
ROA	Operating income divided by average total assets, in percentage (%).
LUXURY	A dummy variable that equals 1 if the firm sells luxury goods and services, and 0 otherwise. Appendix C shows the criteria we used to determine the list of luxury goods and services selling firms.
SOE	A dummy variable that equals 1 if the state is the ultimate controller, and 0 otherwise.
REGULATED	A dummy variable that equals 1 if the company is in the more regulated industry, and 0 otherwise. See Appendix D for the list of regulated industries.
POST	A dummy variable that equals 1 for 2013 and 2014, and 0 for 2011 and 2012.
SIZE	The natural logarithm of total assets.
BM	The ratio of book value of equity to market value of equity.
LEV	The ratio of total debts to total assets.
LARGESTOWN	The percentage of shares held by the largest shareholder
STDROA	Standard deviation of ROA in the prior three years (t-3, t-1).
$SG\&A_t/ASSETS_{t-1}$	Total sales and administrative expenses (*SG&A*) in year t divided by total assets (*ASSETS*) at the end of year t-1, in percentage.
EXCESSIVE_PERKS	Excessive perks calculated from the perk estimation model per Roychowdhury (2006), in percentage.
STDPERKS	Standard deviation of $SG\&A_t/Assets_{t-1}$ in the prior three years (t-3, t-1).
$EVENT_j$	A dummy variable that equals one divided by the total number of trading days in an event window j associated with the launch and implementation of Xi's anti-corruption campaign, and 0 otherwise. For each event listed in Appendix B, we compute the abnormal return for the event using a three-trading day window centred on the event date. Because of the way we define $EVENT_j$, the coefficient on $EVENT_j$ represents the cumulative abnormal return over all the trading days of a relevant event window j.
INSPECT	A dummy variable that equals one for all the years following (including) the year of the central government's inspection of the province in which the listed firm's headquarters is located, and zero otherwise.

Table 1. Sample selection procedures for H1

Panel A: sample selection

	No. of unique companies	No. of firm-year observations
Original Sample	42	168
Exclude:		
Firms with major asset restructuring and change of main operations (Bao Li Lai)	(1)	(4)
Stocks with long-term suspension and uncertainty in operation continuity (*ST Guang Xia)	(1)	(4)
Firms with IPO after Jan 1, 2010 (Qing Qing Ke Jiu, Zhu Jiang Pi Jiu)	(2)	(8)
Firms with missing data	(2)	(8)
Final sample	36	144

Panel B: sample distribution

Industry	*LUXURY*=1		*LUXURY*=0		Total	
	# of firms	% of firms	# of firms	% of firms	# of firms	% of firms
Alcohol	10	66.67	15	71.43	25	69.44
Catering	2	13.33	1	4.76	3	8.33
Hotel	3	20.00	5	23.81	8	22.22
Total	15	100.00	21	100.00	36	100.00

Table 2. Stock market reactions to the announcements of the events associated with the launch of Xi's anti-corruption campaign (H1)

Panel A. Announcement effects of individual events

	cons	*LUXURY*
$EVENT_1$	-0.0198	-0.0328
	(-1.027)	(-1.380)
$EVENT_2$	-0.0124*	-0.0252**
	(-1.929)	(-2.023)
$EVENT_3$	-0.0032	0.0016
	(-0.419)	(0.123)
$EVENT_4$	0.0140	0.0097
	(1.018)	(0.953)
$EVENT_5$	-0.0062*	-0.0380***
	(-1.861)	(-3.479)
$EVENT_6$	-0.0060*	0.0235**
	(-1.806)	(2.159)
$EVENT_7$	-0.0019	-0.0499***
	(-0.526)	(-7.049)
$EVENT_8$	-0.0153	-0.0072
	(-1.218)	(-0.421)

Panel B. Combined announcement effects of all individual events

	cons	*LUXURY*
$EVENT_{1-8}$	-0.0494	-0.1190**
	(-1.408)	(-2.211)

Sefcik and Thompson (1986) methodology is applied to address the cross-sectional correlation concern. See Appendix E for variable definitions. Robust t-statistics in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% levels (two-tailed), respectively.

Table 3. The impact of Xi's anti-corruption campaign on the accounting performance of luxury goods and services selling firms (H1)

Panel A. Descriptive statistics

Variable	N	Mean	Median	Std. Dev	Min.	25%	75%	Max.
***LUXURY*=1**								
ROA	60	14.302	11.046	14.593	-16.692	3.131	25.748	43.418
SIZE	60	22.060	21.895	1.209	20.390	21.006	22.757	24.535
BM	60	0.301	0.258	0.187	0.069	0.165	0.384	0.876
LEV	60	0.320	0.312	0.139	0.091	0.219	0.371	0.764
LARGESTOWN	60	0.414	0.421	0.151	0.133	0.310	0.504	0.700
STDROA	60	3.786	3.067	3.176	0.288	1.471	5.066	13.646
***LUXURY*=0**								
ROA	84	4.972	4.871	6.690	-16.692	1.190	8.356	28.202
SIZE	84	21.214	21.091	1.213	18.567	20.629	21.836	24.033
BM	84	0.313	0.284	0.199	0.056	0.160	0.416	0.876
LEV	84	0.396	0.398	0.173	0.069	0.266	0.518	0.764
LARGESTOWN	84	0.318	0.305	0.155	0.051	0.174	0.427	0.601
STDROA	84	2.712	1.931	2.252	0.288	1.041	3.470	11.086

Panel B. Regression Results

	Dependent variable = $ROA_{i,t}$	
	Coefficients	t-statistics
$\boldsymbol{LUXURY_i \times POST}$	**-7.327*** **	**-3.52**
$SIZE_{i,t-1}$	-8.033**	-2.25
$BM_{i,t-1}$	-8.324*	-1.77
$LEV_{i,t-1}$	7.425	1.38
$LARGESTOWN_{i,t-1}$	-22.246**	-2.27
$STDROA_{i,t-1}$	-1.043***	-4.27
Constant	192.478**	2.51
Year fixed effects	yes	
Firm fixed effects	yes	
N	144	
R^2	0.541	

All continuous variables are winsorized at the top and bottom 1% level. See Appendix E for variable definitions. The t-statistics are based on standard errors clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1% levels (two-tailed), respectively.

Table 4. Regression results of excessive perk consumption for the luxury goods and services consuming firms (H2 and H4)

Panel A. Descriptive statistics

Variable	N	Mean	Median	Std. Dev	Min.	25%	75%	Max.
SOEs:								
EXCESSIVE_PERKS	2920	-0.079	-0.511	5.825	-18.027	-2.375	1.663	32.937
REGULATED	2920	0.449	0.000	0.497	0.000	0.000	1.000	1.000
SIZE	2920	22.388	22.253	1.294	18.886	21.516	23.224	25.706
BM	2920	0.537	0.466	0.353	-0.093	0.280	0.705	1.692
LEV	2920	0.561	0.576	0.202	0.082	0.421	0.706	1.233
LARGESTOWN	2920	0.387	0.382	0.154	0.050	0.258	0.503	0.849
STDPERKS	2920	2.223	0.871	6.237	0.039	0.391	1.788	78.072
Non-SOEs:								
EXCESSIVE_PERKS	1670	0.763	-0.227	7.960	-18.027	-2.805	2.595	32.937
REGULATED	1670	0.274	0.000	0.446	0.000	0.000	1.000	1.000
SIZE	1670	21.672	21.715	1.269	18.886	20.826	22.525	25.400
BM	1670	0.381	0.328	0.272	-0.093	0.193	0.516	1.692
LEV	1670	0.517	0.509	0.228	0.082	0.356	0.660	1.233
LARGESTOWN	1670	0.301	0.264	0.154	0.022	0.200	0.375	0.894
STDPERKS	1670	4.212	1.070	12.437	0.039	0.522	2.390	78.072

Panel B. Regression results

	Dependent variable = $EXCESSIVE\_PERKS_{i,t}$	
	SOEs	Non-SOEs
REGULATED*$_i$×*POST	**-0.541****	-0.253
	(-2.11)	(-0.53)
$SIZE_{i,t-1}$	-3.134***	-3.288***
	(-3.53)	(-5.03)
$BM_{i,t-1}$	-1.172**	-1.002
	(-2.28)	(-0.87)
$LEV_{i,t-1}$	1.807	-3.198
	(1.00)	(-1.52)
$LARGESTOWN_{i,t-1}$	1.716	-3.743
	(0.51)	(-0.83)
$STDPERKS_{i,t-1}$	-0.130***	-0.040
	(-2.67)	(-1.15)
Constant	68.662***	74.222***
	(3.42)	(5.39)
Year fixed effects	yes	yes
Firm fixed effects	yes	yes
N	2,920	1,670
R^2	0.119	0.147

All continuous variables are winsorized at the top and bottom 1% level. See Appendix E for variable definitions. The t-statistics reported in parentheses are based on standard errors clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1% levels (two-tailed), respectively.

Table 5. Event study regression results for the luxury goods and services consuming firms (H3 and H5)

Panel A. Announcement effects of individual events

Panel A1. SOEs

	cons	*REGULATED*
$EVENT_1$	-0.0012	0.0077*
	(-1.288)	(1.960)
$EVENT_2$	-0.0050***	-0.0013
	(-4.960)	(-0.266)
$EVENT_3$	-0.0049***	0.0126***
	(-2.833)	(10.793)
$EVENT_4$	0.0021	-0.0080
	(0.896)	(-1.021)
$EVENT_5$	0.0051**	-0.0017
	(2.130)	(-0.222)
$EVENT_6$	0.0034	0.0004
	(1.420)	(0.046)
$EVENT_7$	-0.0015	0.0051
	(-0.943)	(0.800)
$EVENT_8$	0.0017	-0.0033
	(0.806)	(-0.422)

Panel A2. Non-SOEs

	cons	*REGULATED*
$EVENT_1$	0.0002	0.0049
	(0.255)	(0.419)
$EVENT_2$	-0.0016	-0.0103
	(-0.503)	(-1.535)
$EVENT_3$	-0.0052*	0.0208***
	(-1.658)	(9.655)
$EVENT_4$	0.0115***	-0.0149
	(4.325)	(-1.619)
$EVENT_5$	-0.0034***	0.0163**
	(-2.691)	(2.207)
$EVENT_6$	-0.0003	-0.0095
	(-0.231)	(-1.274)
$EVENT_7$	0.0012	0.0060
	(0.634)	(0.788)
$EVENT_8$	0.0079***	-0.0122***
	(3.723)	(-5.296)

Panel B. Combined announcement effects of all individual events

Panel B1. SOEs

	(1) cons	(2) *REGULATED*
$EVENT_{1-8}$	-0.0012 (-0.137)	0.0146 (0.744)

Panel B2. Non-SOEs

	(1) cons	(2) *REGULATED*
$EVENT_{1-8}$	0.0103 (0.935)	0.0047 (0.169)

Sefcik and Thompson (1986) methodology is applied to address the cross-sectional correlation concern. See Appendix E for variable definitions. Robust t-statistics in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% levels (two-tailed), respectively.

Table 6. Regression results of accounting performance for the luxury goods and services consuming firms (H3 and H5)

Panel A. Descriptive statistics

Variable	N	Mean	Median	Std. Dev	Min.	25%	75%	Max.
SOEs:								
ROA	3152	2.659	2.534	6.445	-21.337	0.185	5.691	24.043
REGULATED	3152	0.455	0.000	0.498	0.000	0.000	1.000	1.000
SIZE	3152	22.416	22.250	1.346	18.946	21.498	23.270	25.876
BM	3152	0.538	0.465	0.353	-0.045	0.280	0.704	1.684
LEV	3152	0.555	0.572	0.202	0.078	0.413	0.701	1.143
LARGESTOWN	3152	0.394	0.388	0.156	0.050	0.266	0.507	0.864
STDROA	3152	3.114	1.909	3.820	0.133	0.923	3.784	28.440
Non-SOEs:								
ROA	2176	3.850	3.136	7.324	-21.337	0.690	7.193	24.043
REGULATED	2176	0.236	0.000	0.425	0.000	0.000	0.000	0.000
SIZE	2176	21.581	21.564	1.205	18.946	20.784	22.359	25.400
BM	2176	0.371	0.321	0.253	-0.045	0.195	0.490	1.684
LEV	2176	0.491	0.489	0.221	0.078	0.331	0.634	1.143
LARGESTOWN	2176	0.311	0.284	0.149	0.022	0.208	0.399	0.894
STDROA	2176	4.165	2.495	5.011	0.133	1.242	4.861	28.440

Panel B. Regression results

	Dependent variable = $ROA_{i,t}$	
	SOEs	Non-SOEs
REGULATED*$_i$×*POST	0.036	-0.121
	(0.11)	(-0.20)
$SIZE_{i,t-1}$	-2.072***	-0.644
	(-3.16)	(-1.17)
$BM_{i,t-1}$	-4.804***	-7.125***
	(-8.41)	(-6.01)
$LEV_{i,t-1}$	-1.835	1.426
	(-1.04)	(0.58)
$LARGESTOWN_{i,t-1}$	3.467	6.074**
	(1.12)	(2.12)
$STDROA_{i,t-1}$	0.032	0.033
	(0.55)	(0.59)
Constant	51.028***	17.051
	(3.58)	(1.49)
Year fixed effects	yes	yes
Firm fixed effects	yes	yes
N	3,152	2,176
R^2	0.086	0.040

All continuous variables are winsorized at the top and bottom 1% level. See Appendix E for variable definitions. The t-statistics reported in parentheses are based on standard errors clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1% levels (two-tailed), respectively.

Table 7. Testing the Parallel Trends assumption

Panel A: The impact of Xi's anti-corruption campaign on the accounting performance of luxury goods and services selling firms (H1)

	Dependent variable = $ROA_{i,t}$
LUXURY×YR2012	1.744
	(0.91)
LUXURY×POST	**-6.424*** **
	(-2.96)
N	144
R^2	0.543

Panel B: Regression results of excessive perk consumption for the luxury goods and services consuming firms (H2 and H4)

	Dependent variable = $EXCESSIVE\_PERKS_{i,t}$	
	SOEs	Non-SOEs
$REGULATED_i$×*YR2012*	-0.093	0.237
	(-0.30)	(0.32)
$REGULATED_i$×*POST*	**-0.590***	-0.129
	(-1.82)	(-0.19)
N	2,920	1,670
R^2	0.119	0.147

Panel C: Regression results of accounting performance for the luxury goods and services consuming firms (H3 and H5)

	Dependent variable = $ROA_{i,t}$	
	SOEs	Non-SOEs
$REGULATED_i$×*YR2012*	0.193	1.319**
	(0.55)	(2.18)
$REGULATED_i$×*POST*	0.135	0.567
	(0.31)	(0.78)
N	3,152	2,176
R^2	0.086	0.042

The control variables, year and firm fixed effects are included in estimation but not reported. See Appendix E for variable definitions. The t-statistics reported in parentheses are based on standard errors clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1% levels (two-tailed), respectively.

Table 8. The effects of on-site inspections on ROA of luxury goods and services consuming firms

	Dependent variable = $ROA_{i,t}$			
	(1) SOEs	(2) Non-SOEs	(3) SOEs	(4) Non-SOEs
INSPECT	-0.233	0.494	-0.205	0.482
	(-0.73)	(0.95)	(-0.52)	(0.91)
REGULATED×INSPECT			-0.058	0.048
			(-0.16)	(0.07)
$SIZE_{i,t-1}$	-2.068***	-0.654	-2.068***	-0.656
	(-3.16)	(-1.18)	(-3.16)	(-1.19)
$BM_{i,t-1}$	-4.814***	-7.088***	-4.798***	-7.096***
	(-8.35)	(-6.00)	(-8.49)	(-5.86)
$LEV_{i,t-1}$	-1.828	1.461	-1.825	1.464
	(-1.03)	(0.59)	(-1.03)	(0.60)
$LARGESTOWN_{i,t-1}$	3.440	6.040**	3.433	6.039**
	(1.11)	(2.10)	(1.11)	(2.10)
$STDROA_{i,t-1}$	0.032	0.035	0.032	0.035
	(0.54)	(0.63)	(0.54)	(0.63)
Constant	50.953***	17.237	50.943***	17.266
	(3.59)	(1.49)	(3.58)	(1.50)
Year fixed effects	yes	yes	yes	yes
Firm fixed effects	yes	yes	yes	yes
N	3,152	2,176	3,152	2,176
R^2	0.086	0.040	0.086	0.040

See Appendix E for variable definitions. The t-statistics reported in parentheses are based on standard errors clustered at the firm level. *, **, and *** denote significance at 10%, 5%, and 1% levels (two-tailed), respectively.

Table 9. Pseudo-event study results

Panel A. Event study regression results for the luxury goods and services selling firms (H1)		
	cons	*LUXURY*
$EVENT_{1-8}$	-0.0549 (-1.246)	0.0092 (0.214)
Panel B. Event study regression results for the luxury goods and services consuming SOEs (H3)		
	cons	*REGULATED*
$EVENT_{1-8}$	0.0016 (0.115)	-0.0043 (-0.204)
Panel C. Event study regression results for the luxury goods and services consuming non-SOEs (H5)		
	cons	*REGULATED*
$EVENT_{1-8}$	-0.0152 (-1.105)	-0.0105 (-0.360)

Sefcik and Thompson (1986) methodology is applied to address the cross-sectional correlation concern. See Appendix E for variable definitions. Robust t-statistics in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% levels (two-tailed), respectively.