

Anti-Corruption Reforms and Shareholder Valuations: Event Study Evidence from China

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Abstract

Chinese shares rose sharply on a 2012 announcement initiating an anticorruption campaign. More productive non-SOEs with more growth potential and external finance dependence in more liberalized provinces gained more. Non-SOEs in less liberalized provinces gained less, especially if their past entertainment and travel costs (ETC) were higher. These results suggest market development and anticorruption reforms are mutually reinforcing. Taking non-SOEs' ETC as (at least partly) investment in "connections, severed connections matter less and cutting corruption boosts more competitive firms' prospects more where market institutions are more developed. SOEs' uniform gains suggest that their ETC mainly funded perks, rather than connections.

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1. Introduction

China, like many other middle-income countries, has problems with corruption. Corruption is thought to hamper economic growth by diverting capital, effort, and talent away from productivity-boosting activities and towards political rent-seeking activities (Murphy et al., 1991, 1993; Shleifer and Vishny, 1993; Mauro, 1995; Fisman and Svensson, 2007, Ayyagari et al 2014). However, in an economy plagued by bureaucratic hold-up problems, bribing officials can emerge as a second-best suboptimal response: an investment in official “connections” that “greases the gears” of the bureaucracy and lets the firm “get things done” (Wei, 2001; McMillan and Woodruff, 2002; Li et al., 2008). This second best may well generate very suboptimal resource allocation, but eliminating corruption without establishing market institutions may render resource allocation even worse (Murphy et al. 1992; Shleifer and Vishny 1993).

In 2012, the Hu Jintao and Wen Jiabao administration’s preset term ended, and the Xi Jinping administration took office. The formal transfer of power took place in the 18th National Congress (November 8th to 14th, 2012), amid a continuing power struggle. With this backdrop, on December 4th 2012, only three weeks after taking office, Xi Jinping’s Politburo announced a new “Eight-point Policy,” a Communist Party policy directive ordering cadres to forego conspicuous perks and other obtrusive behavior. This was widely perceived as launching a major anti-corruption reform.

This announcement lets us empirically measure investors’ expectations of the variegated effects of reduced corruption. Different provinces have implemented market reforms to very different extents (Fan et al., 2011).¹ Listed firms consist of state-owned enterprises (SOEs) and

¹ We use the term *province* in referring to all province-level governments. These include 23 provinces, 4 province-level cities (Beijing, Chongqing, Shanghai and Tianjin) and 5 autonomous regions (Inner Mongolia, Guangxi, Ningxia, Tibet and Xinjiang).

privately-owned firms. Different sorts of firms operating in different provinces might rely to very different extents on bribery to advance their business prospects. Heterogeneity in stocks' reactions to the "Eight-Point Policy" announcement lets us gauge investors' heterogeneous expectations about the impacts of abruptly reduced corruption across firm and location characteristics and how they interact.

Obviously, investors can be wrong, and subsequent events cast doubt on the Xi administration's resolve and objectives. However, this does not invalidate the analysis. Investors' expectations, even if ultimately unfulfilled, provide useful feedback about the likely implications of public policy alternatives. Moreover, additional tests using accounting-based measures of firm performance suggest real effects paralleling these stock price reactions.

Consistent with investors viewing corruption as value-destroying at the economy-level, a market portfolio of all firms listed on China's two mainland exchanges, the Shanghai and Shenzhen Stock Exchanges, has positive significant cumulative returns of +2.6% or +3.3% over 3-day or 5-day windows, respectively, centered on Dec. 4th 2012. These represent economically significant additions of ¥600 billion or ¥760 billion, respectively, to total market capitalization.

That limiting corruption would increase firm valuations is not *a priori* obvious. Limiting corruption might boost valuations rendering resource allocation more market-driven.² However, limiting corruption might instead just make "greasing" bureaucratic wheels and "getting things done" more difficult (Zeume, 2016), and reduce the value of past investments in political connections (Fisman, 2001; Wei, 2001; McMillan and Woodruff, 2002; Li et al., 2008, and Calomiris et al., 2010). We expect the positive effects to be more predominant in provinces whose

² Agarwal et al (2015) show that post anti-corruption connected bureaucrats in China lost their credit line premium related to unconnected citizens.

market reforms are farther along, and which thus provide institutional environments where market forces better effect efficient resource allocation. In contrast, in less reformed provinces, where officials still direct resource allocation, limiting corruption may just make getting anything done harder.

Different provinces have implemented market reforms to varying degrees. China's National Economic Research Institute (NERI) measures their progress with a province-level marketization index. Using its top and bottom terciles to distinguish relatively complete from incomplete marketization, we find the portfolio of firms located in high-marketization provinces posting significantly positive returns of 4.1% and 4.8% in three and five-day windows, respectively, around the announcement date. In contrast, the portfolio of firms in low-marketization provinces has insignificant (positive) returns in both windows. These results are consistent with investors expecting the reforms to better boost the prospects of firms located in provinces whose market institutions are better developed.

To explore firm-level heterogeneity in impact of the reforms on valuations, we partition firms along two more dimensions. First, Chinese listed firms' income statements disclose entertainment and travel costs (ETC). Cai et al. (2011) argue that ETC meaningfully proxies for "connections"; however Morck and Nakamura (1999) interpret the analogous item in Japanese income statements as insider perks consumption. Allowing for both possibilities, we posit that a firm's ETC consists of an unknown mixture of investment in official "connections" (which might boost shareholder valuations) plus perks for insiders (which destroy value for public shareholders). Anticorruption reforms would cut valuations of firms whose ETC investors saw as predominantly investment in "connections" but boost valuations of firms whose ETC investors perceived as predominantly perks, thus providing a way of empirically estimating the relative importance of the

two components of ETC.

In particular, ETC by China's many listed state-owned enterprises may be more predominantly insider perks consumption. This is because listed SOEs were generally created by carving out specific assets of a previous unlisted SOE to form a separate corporation, some of whose shares were then issued to the public. Control blocks in the listed SOE were assigned to a state-owned holding company, often the State-owned Assets Supervision and Administration Commission (SASAC), locking in state control. Listed SOEs were thus born politically well-connected, with favorable access to both SOE bank loans (Cull and Xu, 2003, Allen et al., 2005) and government concessions (Xu, 2011). Top SOE managers have formal political civil service ranks.³ Their careers depend mainly on successfully implementing Party policies (Wu et al 2014, Deng et al 2105). These factors all plausibly render ETC-financed "connections" less important to SOEs than to non-SOEs.

To explore these relations, we partition firms into terciles by prior-year ETC over sales and into SOEs versus non-SOEs. The portfolio of all SOEs rises significantly in both event windows, but rises more for firms in high-marketization provinces and for firms with lower ETC. In firm-level regressions, SOEs stock price reactions are more positively related to a firm's ETC and growth potential as its province's marketization is higher, but are generally insignificantly related to other firm characteristics such as productivity and external financing-dependence. These results are consistent with SOEs being well-connected *ab initio*, and their ETC mainly funding insider perks rather than connections, especially in more marketized regions. The Eight-point Policy, by discouraging ETC, thus benefits SOE shareholders across the board by cutting back both perks

³ Top SOE executives have high civil service grades. For example, a top centrally-controlled SOE might have a vice-ministerial grade, below a cabinet minister but above a typical mayor.

and corruption-driven resource allocation.

The only portfolio of non-SOEs with positive significant event window returns is non-SOEs whose ETC is in the lowest tercile and who are based in provinces in the highest marketization tercile; all other non-SOE portfolios have insignificant event window returns. Regression results confirm that non-SOEs' cumulative and abnormal returns are significantly negatively correlated with past ETC spending only for non-SOEs in low marketization provinces. This pattern of results is consistent with non-SOEs' ETC being, partially at least, investment in "connections". Cutting corruption limits officials' discretionary powers, hurting non-SOEs located in these provinces, where "connections" matter most for greasing bureaucratic wheels.

Firm-level regressions explaining stock price reactions using province- and industry-level clustering reveal higher valuation gains for non-SOEs located in more marketized provinces and with greater productivity, growth potential, and more external financing dependence. These results are consistent with investors expecting anti-corruption reforms to disproportionately benefits more competitive non-SOEs in provinces with more developed market machinery.

The data weigh towards this interpretation and against alternative explanations of the findings. For example, if less marketized provinces were worse governed generally, they might enforce the anti-corruption policy less effectively. Laxer enforcement would drive coefficient point estimates towards zero. However this is not always observed. Province-by-province firm-level regressions show firm productivity, growth potential, and external financing dependence attracting more negative coefficients, not coefficients closer to zero, in less marketized provinces. These findings are consistent with less marketized provinces enforcing the anti-corruption policy effectively, leading to bureaucratic paralysis and reductions in the value of established connections. To delve deeper, we decompose the marketization index into separate legal and economic sub-

indexes. Our results are driven by subindexes associated with pre-existing private sector access to finance and the non-government share of the economy. The legal system development subindex is insignificant.

Of course, a province's progress on market reforms might well correlate with its intrinsic resource allocation capabilities: its culture, history, education levels, past foreign influences, and perhaps also the quality of its government. We posit that when reduced corruption reduces bribery driven government intervention, market machinery, these capabilities, or both, better direct resources to more productive firms.

Changes in real firm performance around the introduction of the Eight-point Policy largely parallel the event window stock returns. Firms located in more marketized provinces show larger increases in valuation (measured by Tobin's Q), return on assets, and sales growth from the year before to the year after the enactment of the policy. These increases are larger for firms with higher prior total factor productivity, external finance dependence, and growth potentials. Non-SOEs show decreased firm valuation, returns on assets, and sales growth across the same intervals if they have larger prior ETC spending, but this is mitigated if they are located in provinces with more complete market reforms.

Our paper is organized as follows. Section 2 introduces the background and the Eight-point Policy. Section 3 describes our methodology and data. Section 4 presents the empirical results. We conclude in section 5.

2. Background and Event Description

2.1 Corruption in China

Dense networks of interpersonal obligations or *guanxi* (关系, lit. “connections”) are a historically and culturally deep-rooted part of business in China (Gold and Guthrie, 2002). The term does not connote venality; developing connections is a normal and respectable part of doing business, indeed of life and not just in China but in many parts of Asia and the world. However, *guanxi* can become excessive and turns into socially corrosive corruption, which is an increasing concern in China in recent years (Wedeman, 2012).

Official corruption is of special importance in China because its market socialism system relies critically on virtuous government officials. The constitution of the People’s Republic of China enshrines the Leading Role of the Communist Party of China. This gives Party policies constitutional precedence over all laws and regulations, whether fully enacted or still being developed, and empowers Party officials to intervene in judicial and regulatory decisions (Chen, 2003; Jones, 2003). The vast discretionary powers officials wield can easily make establishing ties of *guanxi* with them a very high return investment to any non-SOE business enterprises (McGregor, 2010).

In this environment, an innocuous building of human connection becomes an avenue for political rent-seeking, which Krueger (1974) models as firms investing in influencing government officials with the expectation of profiting from regulatory favors, tax breaks, subsidies, and the like. When political rent-seeking becomes more profitable than investing in research and development, new plant and equipment, worker training, or other more conventional forms of capital spending, economy-level growth lags even as corporate profits soar (Murphy et al., 1991, 1993; Shleifer and Vishny, 1993; Mauro, 1995; Svensson, 2005; Prichett and Summers, 2013). Equilibria in which political rent-seeking crowds out investment in productivity plausibly explain the middle-income traps in which many partially developed economies stagnate for decades

(Morck et al., 2005). The avoidance of this trap is an increasingly salient policy concern in China (Woo, 2012).

A sense of obligation can be implanted by providing a government official with extravagantly expensive wining and dining, entertainment, travel, gifts, or other de facto bribes. Business leaders seeking official permissions, regulatory forbearances, or influence over other government decisions therefore invest in lavishly “entertaining” pivotal government or party officials and the connection leads to cronyism. These practices threaten the legitimacy of the Communist Party of China (CPC) because the lifestyles such officials consequently enjoy jar with socialist egalitarianism and because the resultant resource misallocation threatens to slow the rapid growth that sustains the regime’s genuine popularity.

Widespread corruption can form a stable suboptimal political-economy equilibrium. If favor-trading between politicians and firms is extensive⁴, officials would not support anti-corruption reforms. Officials who owe favors would be betraying those to whom they are indebted. Officials owed favors fear their past actions becoming legally or ethically inappropriate under new rules and regulations emerge, and becoming vulnerable to whistle blowing and punishment. This builds inertia: few politicians find anti-corruption reforms in their personal interests, even if they recognize the public good in such reforms. A political shock to destabilize this equilibrium then becomes a necessary precursor to effective reforms.

2.2 Tension mounted power transition in 2012

The Hu Jintao-Wen Jaibao administration’s predetermined term ended in 2012, and the new

⁴ Transparency International ranked China as a “highly corrupt country” in 2012.

administration of Xi Jinping assumed office amid an ongoing struggle between multiple Party factions for political power and economic gain. This struggle appeared increasingly fierce throughout that year. One faction, was allegedly led by Zhou Yongkang, then in the Standing Committee, the highest and most powerful Party committee of CPC, but he might have the backing of established and powerful political grandees. Bo Xilai, a politically ambitious princeling (son of a Mao-era Revolutionary leader) like Xi Jinping, despite being backed by Zhou Yongkang, was dismissed as Chongqing's Party Secretary on March 15th, suspended from the CPC's Central Committee and its Politburo a month later, and expelled from the Party on Sept 28th 2012. The Washington Post wrote that Xi Jinping “disappeared mysteriously for two weeks. He went unseen, unheard, and undiscussed by official Chinese media” after being “hit in the back with a chair hurled during a contentious meeting of the ‘red second generation’.”⁵ Regardless of the veracity of this particular report (the Post's writer expressed doubts), the period leading up to the succession was one of escalating tension.

The Party's 18th National Congress, on Nov 8th to 14th 2012, marked the official transfer of power. On Nov, 14th, Xi assumed the title General Secretary of the Communist Party and Chairman of the Party Central Military Commission.⁶ However, signs of a continuing power struggle continued. At the beginning of the National Congress, “former President Jiang Zemin and other party veterans returned to centre stage ... demonstrating their continued power to shape the country's future” (South China Morning Post, Nov 8th 2012). By its end, Nov 14th 2012, Hu Jintao, the departing President of China and General Secretary of the Party unexpectedly relinquished all

⁵ See “The secret story behind Xi Jinping's disappearance” by Max Fisher, Washington Post Nov. 1st 2012. <https://www.washingtonpost.com/news/worldviews/wp/2012/11/01/the-secret-story-behind-xi-jinpings-disappearance-finally-revealed/>

⁶ Xi assumed the title of President later, in March of 2013.

his titles and positions (Telegraph, Nov 14th 2012). This unprecedented act was thought to be setting an example for other departing leaders. On Nov 17th, 2012, Hu and Xi jointly urged “the Chinese army to be absolutely loyal and to accomplish historic missions” (Xinhua News, Nov 17th 2012). In his final speech to the 18th National Congress, Hu Jintao spoke of his administration’s achievement in building of a moderately prosperous society with deepening reforms that maintained socialism with Chinese Characteristics. On Nov 19th, in meeting with the Politburo, Xi made a speech themed “firmly uphold and develop socialism with Chinese characteristics” and urged the Politburo to “promote and implement the spirit of the 18th CPC National Congress,” (Xinhua News, Nov 20th 2012.) Political tension was still clearly on display, and no clear policy direction was evident.

The first hint of developing policies may have been a report submitted to the 18th National Congress by the Central Commission for Discipline Inspection (CCDI) arguing that the Party must fight corruption and treat this as a major political task (Xinhua News, Nov 20th 2012). However, in China (and elsewhere), attacks on corruption are often smokescreens for attacks on political opponents. Bo Xilai had launched an anti-corruption law and order drive in Chongqing in 2009, a move widely perceived as cover for ousting cadres not overtly loyal to him. Is the anticorruption drive by the Xi administration different?

2.3 The Eight-point Policy, Dec 4 2012, the first shot in the Anti-corruption Drive

The CCDI might well have been right: corruption had become a genuinely serious public concern. Figure 1 summarizes a 2013 PEW Research Center National Survey of Chinese respondents’ top concerns: Corrupt officials come in second, behind only inflation, and are ahead of inequality,

pollution, food safety, and old age security. Second, all mainland Chinese school children learn how corruption weakened Chiang Kai-shek's Kuomintang regime and created popular support for Mao's communist movement. Third, China's increasingly well-educated and cosmopolitan population appears to accept limitations on individual freedoms in return for rapid growth. If corruption threatens to slow that growth, the Party risks being perceived as failing to uphold its half of the bargain. Thus, a CCDI official warned that "*the public's trust in the Party and the government has fallen to a critical level*".

Xi made cutting corruption his signature policy. Wang Qishan, Xi's friend since youth when both performed manual labor in Shaanxi during the Cultural Revolution, played a central role in the campaign. Wang, a member of the CPC Standing Committee, was appointed Secretary of the Central Commission for Discipline Inspection (CCDI), the Party's top anti-graft body.

Xi fired the first shot in the anti-corruption campaign on Dec 4th 2012. This was a policy document by the Politburo of the Central Committee of the CPC entitled the Eight-point Policy (八项规定). Each of its points is an explicit instruction about how officials are to behave going forward. The eight points are:⁷

1. Leaders must keep in close contact with the grassroots, but without inspection tours or formality.
2. Meetings and major events are to be strictly regulated and efficiently arranged; empty grand gestures are to be avoided.
3. The issuance of official documents must be reduced
4. Overseas official visits and related formalities are to be restricted

⁷ For details, see http://cpcchina.chinadaily.com.cn/2012-12/05/content_15991171.htm.

5. Leaders traveling by car must avoid disrupting traffic
6. Media stories about official events are to be limited to events with real news value.
7. Government leaders should not publish self-authored works or congratulatory letters.
8. Leaders must practice thrift and strictly obey regulations regarding accommodation and cars.

Given the background, skeptics saw the Eight-point Policy as cover for an internal power struggle (Broadhurst and Wang, 2014) or simply an attempt to make cadres' behavior less invidious; others saw a genuine anti-corruption campaign unfolding (Yuen, 2014).

Nonetheless, the Eight-point Policy announcement was surprising in several ways. First, the announcement came only 19 days into the administration of President Xi Jinping. This timing was unusual because it preceded the Third Plenum, the traditional forum for announcing a new regime's policy directions, by roughly a year. Second, the statement was unusually concretely detailed and free of slogans. While it does contain some expected refrains, the document mainly specifies detailed rules. Moreover, almost immediately after the initial announcement, official clarifications made the anti-corruption objective clear and that Eight-point reform was the first piece of news of this sustained agenda. Individual provinces quickly rolled out more detailed rules. For example, Tibet autonomous province released its own Ten Rules on December 5th 2012, itemizing how officials should reduce waste and extravagance and simplify official functions. Professor Wang Yukai, a prominent member of the State Council directed Chinese Academy of Governance, explained on Dec 7th 2012 that, "The Politburo took the lead to change work style, it will play a critical role in fighting corruption at the root."⁸ Third, the announcement came amid

⁸ See "Wang Yukai: Central Government Leads Drive to Root Out Corruption" *Communist Party of China News Web*, Dec. 7th 2012 (<http://theory.people.com.cn/n/2012/1207/c40531-19818605.html>).

official warnings of unusual clarity. Premier Li Keqiang promised “zero tolerance to corrupt officials” and “to seriously punish any breach of the Eight-Point anti-bureaucracy and extravagance-busting guidelines as announced by the central authorities.” That is, the Eight-Point Policy’s purpose was explicitly spelled out: it signaled a general condemnation of government officials trading favors.

The Eight-point Policy was the only major national news story on or around Dec. 4th 2012. To verify this, we use the news function in the WIND Information Database, which contains a comprehensive collection of news from different sources, such as major financial media in China, the CSRC, People’s Bank of China, Ministry of Finance, and other government organizations, and in different areas, such as finance, business, government policy, law and regulations. We augment this by searching major news media and internet records. These exercises reveal no other major policy announcements, and confirm that the Eight Point Policy was the only major event in the window period.

The policy gained immediate and widespread media prominence, as evident in Figure 2A, which graphs internet searches using the terms “Eight-Point Policy (八项规定)” and “anti-corruption (反腐)” via Baidu, the Chinese analog of Google. The search volumes for “Eight Point Policy” and “Anti-Corruption” are normalized by their own historical maximums from 2011 to 2014. Fig. 2A graphs searches for “anti-corruption” rising slightly after the 18th National Congress concluded. This coincides Xinhua (the official news agency) reporting on Nov 20th 2012 that the CCDI had made a submission to the 18th National Congress on the need to eliminate corruption and that Xi’s close ally now headed the CCDI.

The major feature of the figure is the surge in mass media reports on anti-corruption and “Eight-Point Policy” on and after Dec 4th 2013. To make these curves visually compatible, we

normalize both search volumes by the historical maximum from 2011 through 2014 of searches for ‘Eight-point Policy’ in Figure 2B and for ‘Anti-corruption’ in Figure 2C. These graphs highlight “Eight-point Policy” searches gaining disproportionately on and after the announcement date. Patterns for searches for terms relating to possible confounding news – ‘Economic Development’ (经济发展), ‘Economic Growth’ (经济增长), and ‘Economic Reform’ (经济改革), graphed in Figure 2D, confirm that the announcement of Eight Point Policy as the major standout event in this period. Thus, while the public showed slightly increased interest in corruption, the announcement of “Eight-Point Policy” was an unambiguously major news story.⁹

In these years, the information environment in China’s stock markets improved substantially relative to the 1990s. Using 1995 to 2012 data, Carpenter et al. (2014) report that “since the reforms of the last decade, China’s stock market has become as informative about future corporate profits as in the US.” Our observation window also precedes China’s high market-volatility episodes of 2015 and 2016. These years of relative market calm are thus favorable times to search for information-driven share price movements in China’s markets.

The above discussion validates the feasibility of an event study of the Dec 4th 2012 announcement; the event date corresponds to no other confounding major news release of

⁹ The Party’s subsequent actions also suggest that the new policy had teeth. Xi Jinping remarked at a plenary meeting of CCPI in Jan 2013 (XinHua News, Jan 22 2013) that the administration should crack down on ‘tigers’ and ‘flies’ in rooting out corrupt politicians, eliminating illegal activities, curbing gift giving and conspicuous consumption, for changing the general behavior of officials and renewing the party. CCPI since launched a website with easy accessing information and simple instructions for the public to file complaints over official’s inappropriate or illegal activities. According to CCPI, in 2013 some 182,000 officials were punished for corruption and abuse of power nationwide, and some 30,420 Party cadres were punished specifically for violating the Eight-point Regulation; with at least 227 being province-level or higher. Other statistics reinforce the veracity of the Party’s commitment. Sales of cigarettes, alcohol, shark fins, edible swallows, Gucci bags and Ferraris all dropped abruptly in 2013. By 2014, a series of heavyweight cadres stood convicted of corruption. These included former Politburo member Zhou Yongkang, former Central Military Commission Vice-Chairman General Xu Caihou, People’s Liberation Army General Logistics Department Deputy Leader Gu Junshan, and even retired President Hu Jintao’s Personal Secretary, Ling Jihua.

potentially economically important. Stock returns around the event therefore plausibly reflect investors' initial expectations about whether the announcement signaled the new administration firmly in charge and launching a substantive reform (with differential impact across the economy) or merely an abruptly fiercer inter-factional power struggle within the Party.

3. Methodology and Data

3.1 Modified Event Study Methodology

Traditional event studies look for common patterns in the reactions of many stocks, each to its own news event on its own event date. Cross-sectional analysis focuses on abnormal returns to remove the influence of news with market-wide implications because the focus is on identifying common patterns in the reactions of the individual stocks on firm-specific event dates – CEO sudden deaths, merger bids, equity issue announcements, or other such news.

The current exercise is somewhat different. The Eight-point Policy was designed to affect the entire economy, not specific firms, and to affect all firms at once. This motivates our first examining the market portfolio's raw return on and around the event date, instead of subtracting it to form abnormal returns.

Second, we expect different sorts of firms in different parts of the country to be differently affected by the Eight-point Policy. We investigate this by comparing the returns of portfolios of firms based in different provinces or with different characteristics. These exercises use the tests Schwert (1981) recommends for event studies of regulatory changes.

Finally, we explore heterogeneity in the reactions of different sorts of firms to the announcement by running regressions explaining either firm-level cumulative raw returns or firm-

level cumulative abnormal returns with firm characteristics. These regressions assume a meaningful degree of independence in the idiosyncratic components of individual firms' reactions to the Eight-point Policy. To mitigate overstating statistical significance, we cluster standard errors both by industry and by province.

3.2 Sample, Firm Type, Spending on Investment, and Market Development

Sample

Our sample is all firms listed on China's two stock exchanges – Shanghai Stock Exchange and Shenzhen Stock Exchange. Stock returns and financial data are from the CSMAR database. We drop all firms with material corporate events, such as stock or cash dividends, stock splits or reverse-splits, new share issuances, or M&A announcements, in the five-day event window surrounding the Dec. 4th 2012 event date.

In looking at how different stocks might react differently to the Eight Point Policy announcement, we consider firm types – SOEs versus non-SOEs, their likely past investment in official connections, and the institutional environment in which they reside.

Firm Type: SOEs and non-SOEs

China has two broadly defined classes of firms, state owned enterprises (SOEs) and non-state owned firms (non-SOEs). SOEs are government controlled businesses, and appear to enjoy favorable official treatment. For example, SOEs have preferential access to bank loans, the dominant form of financing in China (Cull and Xu, 2003; Allen et al., 2005). SOEs often have state-enforced monopolies in key sectors including natural resources, civil aviation,

communications, and finance (Chen et al., 2011) or other forms of government concession (Xu, 2011). Senior SOE managers have formal civil service ranks and their careers depend mainly on successfully implementing Party policies (Wu et al 2014, Deng et al., 2015).

Non-SOEs, in contrast, have less access to state-owned bank loans, capital markets (e.g. IPO) (Cull and Xu, 2003, Allen et al., 2005; Firth et al., 2008; Piotroski and Zhang, 2014) and official licenses to enter new lines of business. As Park and Luo (2001) note, “It is not surprising to find that private firms were often left out of business opportunities due to a lack of materials even if their products were popular in the market.”

These differences suggest that genuinely cutting corruption would affect SOEs and non-SOEs differently. If genuine anti-corruption reforms mitigated officials’ discretionary powers, more competitive firms would obtain financing and business opportunities; and this would likely affect non-SOEs more than SOEs. In contrast, if it leads to bureaucratic paralysis and increasing the cost of doing business, non-SOEs are apt to be worse affected than SOEs.

State control over listed firms is sometimes exercised through control chains of intermediate firms. To classify firms as SOEs or not, we use the China Listed Firm’s Shareholders Research Database (GTA_HLD), which provides details about the large shareholders of all firms listed in Shanghai and Shenzhen from 2003 on. This includes information about each firm’s large direct shareholders, their ultimate controlling shareholders, and the equity control chains that connect them to the firm. Following the CSMAR (China Stock Market and Accounting Research) and guidelines from the CSRC (China Securities Regulatory Commission) issued on Dec 16 1997, we adopt a 30% threshold to trace control chains. We make an indicator variable that flags state-owned enterprises (SOEs), by which we mean firms controlled by the state or state organs at or above the 30% threshold, either directly or indirectly via equity control chains whose weakest link

is 30% or higher. We designate all other firms as non-SOEs. In most cases, the state organ is a State-owned Assets Supervision and Administration Commissions (SASACs), the Ministry of Finance and its provincial branches, or an analogous body.

Our approach likely understates state control, as many non-SOEs are indirectly state-controlled through ostensibly non-SOE holding companies run by government officials. Moreover, all firms of any note have Party Committees and Party Secretaries to assist their boards and CEOs. Nonetheless, the SOE designation plausibly reflects both a more direct state role in governance and preferential treatment by governments and major banks, all of which are SOEs.

Investment in Connection

Prior work suggests that reducing corruption diminishes the value of a firm's political connections (Fisman (2001)). Different firms may have invested different amounts in connections. A binding anti-corruption reform that reduces the importance of such connections might adversely affect firms with substantial such investments, even as it lifts the burden of corruption from the economy as a whole. Cai *et al.* (2011) show that firm-level "entertainment & travel costs" from the WIND database proxy for firms' investment in connections. However, ETC also includes executives spending on their own entertainment and travel, and Morck and Nakamura (1999) interpret the analogous item in Japanese firms' income statements as measuring insider perks consumption. We therefore allow that ETC might reflect either investment in connections or perks.

This dual interpretation is unavoidable relating ETC to the Eight-Point Policy. Non-SOE executives lavishly entertaining officials are not violating the Eight-point Policy; but government officials so entertained are violating it. SOE executives, as government officials, are violating the

Eight-point Policy if they spend their firms' money lavishly entertaining other government officials, themselves, their families, or anyone else. Moreover, because many SOE top executives are career-minded cadres aiming for promotion within the civil service. Thus, SOE ETC might be directed at advancing the promotion prospects of SOE top executives rather than the prospects of the SOE. From public shareholders' perspective, such ETC, which might include wining and dining superiors, or potential superiors, is essentially an insider perk akin to SOE executives spending on lavish living or other private benefits. We speculate that the managerial perks component of ETC is likely higher in SOEs than in non-SOEs. If the Eight-point Policy mitigates perks consumption, SOE shareholders would then benefit more than non-SOE shareholders.

Development of Market Institutions

Market reforms have progressed to very different stages in different provinces. Where market institutions are better developed, reducing corruption plausibly improves resource allocation efficiency more. Where market institutions are less developed, official intervention might be essential to "grease" bureaucratic wheels, and reducing corruption might have ambiguous implications. Indeed, if cutting corruption leaves officials seeking quiet life, this could actually raise the cost of doing business where market reforms are limited. We therefore note the province in which each firm is located, and the extent of market reforms there.

To measure the stage of market reforms, we use the province-level marketization index produced by the National Economic Research Institute (NERI) (Fan *et al.* 2011). The marketization index, based on official statistics and enterprise and household surveys, ranges from zero to ten in the base year 2001, with higher scores indicating more progress towards a market economy, and can exceed ten or fall below zero in subsequent years to reflect a province's progress

or retrogression over time. This index is widely regarded as a meaningful measure of the progress of pro-market reforms in China (Wang et al. 2008; Fan et al. 2011).

We also make use of NERI subindexes based on subsets of the data used in generating the overall marketization index. One type of subindex focuses on progress towards market-based resource allocation. Thus *resource allocation subindex* measures the extent to which the market, rather than government, allocates resource using the government's budget as a fraction of GDP. The index is coded as such that a higher value indicates a larger role for market forces. Another such subindex, *financial sector marketization*, gauges non-state-owned enterprises' access to capital using deposits in non-state-owned enterprise financial institutions and bank lending to non-state-owned enterprises. The second type is the *legal environment subindex*, which uses enterprise survey data to assess the legal environment each province provides for businesses. The variable reflects company leaders' opinions about factors such as provincial courts' efficiency in resolving legal disputes. Fisman and Miguel (2007) show the legal environment to be an important determinant of corruption.

Table I reports the overall marketization index and sub-indexes in 2011 for each province in 2011. The five most "marketized" provinces are Zhejiang, Jiangsu, Shanghai, Guangdong, and Beijing; the least are Tibet, Qinghai, Gansu, Xinjiang and Guizhou.

4. Empirical Findings

4.1. Reaction of the Market

Table II summarizes movement in the market in two windows: a three-day window $[-1, +1]$ from the trading day before the Dec. 4th 2012 announcement date to the trading day after it and a five-

day window [-2, +2] beginning two trading days before the announcement date and ending two trading days after it. The all-China market portfolio gains 2.6% in the three-day window and 3.3% in the five-day window, with both figures statistically significantly different from the baseline.¹⁰ Also, both are economically significant, representing 600 and 760 billion RMB increases, respectively. Table II also shows the fraction of firms gaining versus losing value in each window. Only 25.9% drop in the 3-day window and only 23.9% drop in the 5-day window. Table II is thus consistent with investors viewing the Eight-point Policy as important and, on the net, positive economic news.

If reducing corruption leads to better resource allocation (Shleifer and Vishny 1993; Mauro 1995), firms located in provinces with more developed market institutions would have more positive stock price reactions when corruption is expected to abate. Table II examines the returns of portfolio of firms in provinces at different stages of development of market institutions. The three-day window cumulative return on the portfolio of firms in the highest-tercile marketization provinces is +4.1% and statistically significant, with only 22% of those firms registering negative cumulative returns. In the 5-day window, the same portfolio rises by a statistically significant 4.8%, with only 21% of its component stocks declining. In contrast, the cumulative three-day window return on the portfolio of firms in the lowest-tercile marketization provinces is a statistically insignificant +0.9%, and 36% of its component stocks show a negative cumulative return. In the five-day window, this portfolio registers an insignificant +1.6% rise, and 35% of its component stocks fall in value.

As a robustness check, we repeat the above exercises using the median marketization as a

¹⁰ In this, and the other portfolio significance tests to follow, the portfolio's mean return and standard deviation, estimated using data from 210 to 11 trading days before the event date (-211 to -11), are used to assess statistical significance.

breakpoint. The results are similar: the portfolio of firms in above-median marketization provinces rises in value, the counter-part in below-median marketization provinces does not. The difference between them is smaller than that between the top and bottom terciles.

These results are consistent with investors expecting firms located in provinces where market institutions are more developed to gain from reduced corruption, but expecting negligible net gains for firms in provinces where market institutions are less developed. Of course, other interpretations are possible, and are considered in detail below.

4.2 Province-Level Portfolio Cumulative Returns

We conduct a multivariate regression analysis to explore the relationship between stock price reactions and province characteristics in greater details. We construct portfolios of firms domiciled in each province and regress these portfolios' event window cumulative returns on province characteristics including GDP growth, Education expenditure/GDP, Marketization and Log (GDP/capita). GDP growth proxies for growth trajectory; Education expenditure/GDP captures human capital stock; and Marketization and Log (GDP/capita) capture the development of market institutions and the level of economic development. Appendix Table I reports summary statistics for those province-level variables. Figure 3 tabulates the three-day cumulative returns of each province portfolio. These range from 0.85% for Ningxia 2.95% for Tianjin, and align roughly inversely with the common perception of the provinces' levels of development.

Table III reports the regression results. In Col. 1, where the dependent variable is the three-day cumulative returns, GDP growth and education expenditure/GDP attract positive coefficients significant at 5%. The coefficient on marketization is 0.193, and significant at 1%. Column 2

replaces the overall marketization index with three sub-indices, resource allocation, financial sector marketization, and legal environment. The coefficients on all three subindexes are positive and statistically significant.

The coefficients are also economically significant. GDP growth, education expenditure/GDP, resource allocation, financial sector marketization and legal environment all being one standard deviation above their means imply a 3-day cumulative return of about 2.5%. Recall that the all-China market return of 2.6% in the same window. Cols. 3 and 4 repeat these exercises using each province-level portfolio's five-day cumulative return as the dependent variable. Virtually identical results ensue.

We also construct cumulative abnormal returns for each provincial portfolio. We first compute firm-level abnormal returns using the market model, with parameters estimated over the period from day -210 to -11 (day 0 is the event day) using the value-weighted mean return across all stocks as the market return. We then obtain a provincial portfolio's abnormal return by averaging its component firms' abnormal returns using firms' market values as weights. Table IV reports regressions of these provincial portfolios' cumulative abnormal returns on province characteristics, as in Table III. The results are almost identical to those using raw cumulative returns: the coefficients on GDP growth and Education/GDP are significantly positive in both event windows; the coefficients of marketization and the three sub-indices are all positive and insignificant, save that the coefficient for financial sector marketization becomes insignificant in the five-day window.

Overall, these findings are consistent with reductions in corruption being more advantageous to firms in provinces with faster GDP growth, larger stocks of human capital, and more developed market institutions. These characteristics plausibly identify provinces where firms

can take advantage of productivity-enhancing growth opportunities more readily once currying favor with officials is less necessary. In contrast, restricting corruption appears less helpful to firms located in provinces where market forces are weaker, so the most lucrative growth opportunities more often lie in political rent-seeking and “connections” are more essential for “greasing” bureaucratic gears to let non-SOEs “get things done”.

4.3 Market Development, State Control, and Prior Investment in Connections

To delve deeper, we form portfolios by partitioning firms along the three dimensions described in Section 3.2: as an SOE or non-SOE, located in a top or bottom tercile marketization province, and having prior ETC in that variable’s top or bottom tercile.

Table V shows the portfolio of all non-SOE firms is gain but insignificantly (+1.14% in the 3-day window and +2.23% in the 5-day window). However, the portfolio of non-SOEs domiciled in high marketized locations is gains significantly (+1.83% in the 3-day window and +2.92% in the 5-day window) while its counterpart in low marketized locations hardly moves (-0.08% in the 3-day window and +1.35% in the 5-day window). Among the sub-portfolio of non-SOE firms, that composed of non-SOEs in high marketization provinces and having low prior ETC spending gains significantly: +1.83% in the 3-day window and +2.92% in the 5-day window. In contrast, the subportfolio with the largest proportion of decline is in that of non-SOEs in low marketization provinces and having high past ETC.

The portfolio of all SOEs gains +4.1% and +4.7% in the three- and five-day windows, respectively; and both are highly significant. The portfolios of SOEs in low and high-marketization provinces, the portfolios of SOEs with high and low prior ETC spending, and the subportfolios of

SOEs in all combinations of high and low-marketization provinces and high and low past ETC spending all gain more than their analogous portfolios of non-SOEs. Moreover, the ranking of the returns of the various SOE subportfolios echos that of the analogous non-SOEs subportfolios. That is, the portfolio of SOEs with low past ETC located in high-marketization provinces posts the greatest gain; that of high-ETC SOEs located in low-marketization provinces gains the least; and those of low-ETC SOEs in low-marketization provinces and of high-ETC SOEs in high-marketization provinces post intermediate gains.

Figure 4 plots the cumulative abnormal returns, beginning 20 days before the event date, of portfolios of firms partitioned along all three dimensions – SOEs versus non-SOEs, high versus low-ETC, and location in a high versus low marketization province. The plots show these abnormal returns shifting abruptly after the regulation announcement. The abnormal returns of three of the four SOE portfolios become highly positive, the exception being SOEs having high prior ETC and located in low-marketization provinces. The portfolio of SOEs with low past ETC and located in high-marketization provinces has the highest abnormal return. In contrast, the four non-SOEs portfolios' abnormal returns diverge: both high-marketization non-SOE portfolios rise; both low-marketization non-SOEs portfolios lose value. That is, the strength of the market institutions surrounding a non-SOE appears to affect its stock price reaction to the reform more than does its past ETC.

The Eight-point Policy lifting non-SOE shares the most if the non-SEO has low past ETC and is located in a high marketization province is consistent with greasing bureaucratic wheels being least profitable for such firms, leaving reduced corruption an unmitigated plus. That it least lifts shares of non-SOE with high past ETC spending and located in a low marketization province is consistent with greasing bureaucratic wheels being more valuable to those firms. That it lifts

SOE shares across the board is consistent with shareholders viewing their ETC as predominantly value-decreasing – that is, as perks rather than valuable connection-building. Finally, the finding that the ranking of the various SOE subportfolios nonetheless track the rankings of the analogous non-SOE subportfolios is consistent with SOE ETC still having a detectable connections-building component.¹¹

4.4 Firm-level Regressions

The above calls for refined firm level regressions. The regressions focus on evidence of allocative efficiency by explaining its stock price reaction to the policy announcement with proxies for a firm’s competitiveness and province characteristics. We might expect proxies for competitiveness to correlate more positively with stock price reactions for firms based in provinces with more marketized institutions. Interactions with province characteristics let us investigate these possibilities. Also, to the extent that different firms’ ETC is different mixes of spending on connections versus perks, the coefficient of ETC in these regressions should vary with firm characteristics as well as province business environment characteristics. The regressions therefore also include interactions of ETC with these variables.

The specific province-level business environment variables used include: provincial GDP growth, $\log(\text{GPD}/\text{capita})$, education expenditure/GDP, and the marketization index or select subindexes. The firm characteristics include: firm size, the \log (total assets), leverage (liabilities over total assets), and research and development spending (R&D/total sales). These regressions

¹¹ That it raises low ETC spending SOEs’ share more than high ETC spending SOEs’ share may indicate that investors expect that the latter type of SOEs have worse executives responding less well to Eight-point regulations in serving their shareholders. We shall visit this point when we report our firm level regressions investigating the relationship between stock price reactions and ETC.

also include industry fixed-effects to remove common reactions across industries and cluster residuals both by industry and by province. All variables are 2011 data. Appendix II reports their means and standard deviations in the full sample and in sub-samples of SOEs and non-SOEs.

Given the very different patterns of results for portfolios of SOEs and non-SOEs revealed in Table V, we run separate regressions for the two categories of firms. Table VI reports the results, with the regressions in Panel A and B, respectively, explaining the 3-day and 5-day firm-level raw returns. Table VII repeats this exercise with cumulative abnormal returns on the left-hand side. The two tables are virtually identical, so we focus on Panel A of Table VI.

Development of Market Institutions, Firm Characteristics and Stock Price Reactions

Columns 1 and 4 of Panel A in Table VI reaffirm that development of market institutions in a firm's home province correlates positively with its stock's price reactions to the Eight-point Policy for both SOEs and non-SOEs. In contrast, the other provincial business environment factors – education spending/GDP and GDP growth – matter only for non-SOEs. The coefficient on marketization is also larger for non-SOEs. Pooling the data and running a regression containing an SOE dummy and interactions reveals the difference in magnitude to be statistically significant. Thus, investors expect reducing corruption to boost non-SOEs' valuations more where market institutions are more developed. In other words, corruption hurts non-SOEs more where market forces would have better guided firm decision-making.

To explore this further, we introduce as additional explanatory variables interactions of province-level marketization with firm-level total factor productivity, external financing dependence and growth potential. Total factor productivity is estimated as in Levinsohn and Petrin

(2003). External finance dependence is the industry-median of capital expenditures minus cash flow from operations over capital expenditures (Rajan and Zingales, 1998). Growth potential is measured by industry-median Tobin's q. The regressions include the main effect of total factor productivity; those of external finance dependence and growth potential are subsumed by the industry fixed-effects.

Using the non-SOE subsample, regression 2 reveals significant positive coefficients on the interactions of marketization with productivity, external finance dependence and growth potential, with the main effect for marketization becoming insignificant. Regression 5 presents the analogous regression using the SOE subsample, in which the interactions of marketization with productivity and external financing are all insignificant, the interaction with growth potential is positive and significant, with the main-effect for marketization again becoming insignificant.

These results indicate that investors expect reduced corruption to better help more productive non-SOEs that have more growth potential, need of more external finance, and are located in provinces with more developed market institutions. Likewise, investors expect curtailing corruption to better help SOEs that have more growth potential and are located in provinces with stronger market institutions. These results are consistent with SOEs, unlike non-SOEs, having ready access to financing without having to invest ETC in building connections.

Market machinery vs Legal Environment

Additional tests dig deeper by using marketization sub-indexes that gauge the development of different sorts of market institutions. Two subindexes gauge the importance of market machinery in allocating resources: *finance Sector marketization*, measuring non-SOE access to capital, and

resource allocation, the non-government share of the economy. Higher values of these subindexes indicate a province in which more resource allocation is likely determined by non-state actors. Another subindex, *legal environment*, based on surveys, summarizes business executives' opinions about the efficiency of courts in the province. The market machinery measures more narrowly focus on resource allocation, while the legal environment measure gauges how reliably contracts, rules, and regulations are enforced in the province.

We are interested in which facet of marketization drives the results in Cols. 2 and 5. We replace the interactions of marketization with firm characteristics with three blocks of cross-terms: firm characteristics interacted with *Resource Allocation*, with *Financial Sector Marketization*, and with *Legal Environment*. Columns 3 and 6 report the regression results for the non-SOE sample and the SOE sample, respectively.

The block of firm characteristics interacted with market machinery measures have a statistically significant joint F-statistic; while the block of firm characteristics interacted with *legal environment* does not. This finding is consistent with market machinery mattering more than the legal environment in explaining differences in the prospects of different firms after corruption decreases.

For non-SOEs, *finance sector marketization* interacted with firm-level TFP, external finance dependence and growth opportunities attract positive and significant coefficients. So does the interaction of *resource allocation* with firm-level growth potential. These results are consistent with investors expecting reduced corruption to better help non-SOEs that are more productive have higher growth potential, and need external finance more in provinces whose financial sectors are more market-driven and whose economies are more open to private-sector initiative. This is plausible in that such firms likely have higher value-added investment opportunities and be better

able to finance and undertake those opportunities in provinces where non-SOES have better access to financing and resources are allocated more by market forces.

For SOEs, only the interactions of growth potential with *resource allocation* and *financial sector marketization* are positive and significant. Thus, curtailing corruption better helps SOEs with higher growth potential in provinces where market forces are more in play and where non-SOEs can better raise capital. The flip side of the same set of results is that, in despite expecting less corruption, investors do not expect better resource allocation in provinces with weaker resource allocation-related market machinery..

ETC and Stock Price Reactions

Table VI panel A links higher past ETC spending to lower event window returns for non-SOEs, but not for SOEs. This is consistent with non-SOEs' ETC being grease for bureaucratic gears, but SOEs' ETC being perks consumption.

Regression 2, where Marketization*ETC attracts a significantly positive coefficient in the non-SOE subsample, implies inflection points in the data. Using the province-level marketization index in Table I (Col. 1), the coefficients in Regression 2 of Panel A in Table VI imply that top-tercile ETC implies a negative event window return for non-SOEs in provinces at or below the marketization stage of Hainan, ranked 19th of 31. This affirms that in less developed provinces corruption might indeed help grease bureaucratic gears, and that anti-corruption can reduce the value of non-SOEs' past investment in connections. In provinces with more developed market institutions, where connections are less valuable, non-SOEs' ETC is more likely perks, so that cutting it boosts valuations. The cross term results in Col. 3 reinforce this: where *financial sector*

marketization and *resource allocation* are high, ETC is less an investment in connections for access to finance or markets than insider perks consumption.

For SOEs, the interaction of marketization with ETC (Col 5) is also positive and significant, but ETC itself is insignificant. This result is not consistent with the interpretation that SOEs with lower ETC are better managed and their management serves shareholders even better under anti-corruption. If that were the case, ETC itself would be negatively associated with SOE's stock price reactions. A plausible interpretation is that ETC of SOEs domiciled in more marketized provinces might mainly be managerial on-the-job consumption, with scant value to shareholders in terms of greased gears; or worse, ETC in such case might primarily proxy for SOE manager self-dealing. This interpretation is reinforced by the positive and significant coefficient for the cross term between ETC and *legal environment* in Col. 6. The meaning is that with better legal environment, mitigating SOE managerial consumption is more effective and thus benefits shareholders more.

Thus, our findings suggest that the Eight-point Policy unreservedly boosted SOE share valuations by checking insider perks consumption and self-dealing; but reduced the valuations of non-SOE whose ETC spending is more likely to be bureaucracy gear greasing while boosting the valuations of non-SOE whose ETC spending is more likely to be managerial private benefits.

To graphically summarize these patterns, albeit sacrificing statistical efficiency, we re-estimate the regressions in Table VI separately – twice for each province, once using all non-SOEs based in the province, then using all SOEs based in the province. The graphs in Figure 5 plot the coefficients of ETC, TFP, EFD and GROWTH in each province's regression against that provinces' marketization index. The plots show non-SOE firms' productivity, external finance dependence and growth opportunities become positively associated with cumulative returns only in provinces with better than median market institutions development. The province-level regression

coefficients estimated using SOEs are generally not significantly different from zero, and distributed more evenly across marketization levels.

Consistent with ETC proxying more for past investment in connections amongst non-SOEs than amongst SOEs, the figure shows most provinces with negative ETC coefficients in non-SOE regressions, but over half having positive coefficients in SOE regressions. The non-SOE regression ETC coefficients also rise from negative to positive territory as marketization rises to higher levels; the SOE regression ETC coefficients do not. The SOE coefficients' pattern is consistent with their ETC reflecting waste or insider perks.

In low-marketization provinces, non-SOE stock price reactions are more negatively and significantly related to ETC, and to external finance dependence and growth potential as well. This is consistent with investors expect that cutting corruption raises barriers to “getting things done” in these provinces, and with this particularly adversely affecting non-SOEs with higher growth potential and greater external financing needs.

4.5. Change in Firm Performance

We supplement our results by examining how various firm-performance measures change around the introduction of the Eight-point Policy. One such measure is the change in firm valuation, measured as its average daily M/B over the year after the passage of the policy (2013) minus its average daily M/B over the year before the enactment of the policy (2012). This is essentially the change in its Tobin's Q, and we denote this ΔQ . We also use the firm's return on assets in 2013 minus its return on assets in 2012, ΔROA , and its sales growth in 2013 minus its sales growth in 2012, ΔSG , to measure change in operating performance. The variables used to construct ΔROA and ΔSG are adjusted for inflation using the provincial level CPI index with 2010 as the base year

and collected from the PRC National Bureau of Statistics. We then run regressions with ΔQ , ΔROA , and ΔSG as left-hand side variables and with the same list of right-hand variables used in the previous two tables.

We interpret these regressions cautiously. Many economic implications of an effective anti-corruption policy may well not appear the next year, but might nonetheless become evident over the longer term. Furthermore, while the “Eight-point Policy” event was the only news event of importance in its surrounding five-day window, it was obviously not the only important event in the two surrounding years. Other developments doubtless add noise to the year-on-year changes. These caveats in place, we turn to the results in Table VIII.

In Panel A, the dependent variable is ΔQ . In the non-SOE sample, regressions explaining ΔQ mimic those explaining event window returns and abnormal returns in Table VI. Specifically, firms’ valuation ratios rise more if they are based in provinces with more developed market institutions, higher education expenditure and higher past growth. Valuation ratios rise even more for firms based in more marketized provinces that also have high prior productivity and greater external financial dependence. Valuation ratios drop with ETC spending only in low-marketization provinces. The blocks of cross-terms between the marketization sub-indices and firm characteristics retain the same pattern as the Table 6; namely, the cross terms with *financial sector marketization* is highly significant, those with non-governance access to opportunities (*resource allocation*) has a prob-value of 15% and the block of cross terms with *legal environment* is utterly insignificant.

In the SOE sample, Col. 5 shows that the coefficient on ETC is insignificantly but its cross term with marketization is positive and significant. Col. 6 shows that *legal environment* contributes the observation, as in its counter-part in Table VI. These results echo the previous finding that ETC in SOEs might proxy for managerial perks consumption, or self-dealing, so that the crackdown on such activities boosts shareholder valuations. Moreover, and in contrast to the

corresponding regression above, more productive SOEs in more marketized provinces exhibits positive ΔQs . Possibly, as the anti-corruption campaign gained force, more market-based resource allocation, as captured by *financial sector development*, even boosted SOE valuations over this somewhat longer horizon.

Panels B and C, whose dependent variables are ΔROA and ΔSG , respectively, exhibit a similar pattern of results. However, these regressions for the SOE and non-SOE samples show notably more similar patterns. In particular, SOEs with higher productivity, in industries with faster growth, and domiciled in provinces with more developed market machinery exhibit accelerated sales growth and, to a lesser extent, increased ROA. Overall, the results are consistent with the intensifying anti-corruption campaign inducing more market-based resource allocation, even among SOEs.

4.6 Robustness Discussion

Statistical Robustness

Our findings survive a battery of robustness checks. Where a robustness check generates a pattern of signs and statistical significance identical to that in the tables, and point estimates roughly concordant to those in the tables, we say qualitatively similar results ensue. Where qualitatively similar results do not ensue, we explain the discrepancies in detail.

To ensure that our results are not driven by outliers, we repeat our cumulative return regressions excluding observations whose estimated residuals exceed ± 2.5 time the standard deviations of the residuals. We find the same pattern of signs and significance.

To ensure that our results are not driven by unusual provinces, we first exclude firms based in Tibet, whose cultural, social, political, and economic characteristics differ substantially from

other provinces. This generates qualitatively similar results. We next exclude firms based in Beijing and Shanghai, as these are China's most developed province-level jurisdictions and because firms with nationwide operations tend to be headquartered in them. This also generates qualitatively similar results. Finally, we drop firms based in Beijing, Shanghai, and Tibet to ensure that the results do not depend on the contrast between China's most and least developed provinces. This too generates qualitatively similar results.

Financial and real estate firms are regulated differently from other firms, so we next repeat our tests dropping firms in those sectors.¹² Dropping firms in finance, real estate, and in both sectors all yield qualitatively similar results.

We use total assets to measure firm size and scale R&D and ETC by total sales. Rerunning our tests using total assets to scale R&D and ETC yields qualitatively similar results.

The firm-level tests cluster separately by industry and province (two-way clustering). Redoing the tests clustering by industry only, by province only, or by industry-province cell all generate identical signs and point estimates to those in the tables, but uniformly higher t-ratios than those in the tables. We therefore present the two-way clustering results as the most conservative.

Our tests use Chinese stocks trading in the two mainland stock exchanges – Shenzhen and Shanghai. We re-estimate Table II using Chinese mainland firms listed in Hong Kong. Precisely the same pattern ensues. The 3-day cumulative return of the portfolio of these shares is a significantly positive 1.89% ($p < 1\%$), with only 22% of them dropping. The 5-day cumulative

¹² A separate reason is that financial firms, e.g., state run banks, may be very national. Their economic fortune may be affected not just by the development of their home provinces but by many provinces. These banks are all headquartered in Beijing or Shanghai, and dropping firms headquartered in Beijing and Shanghai generates qualitatively similar results.

return of the portfolio is also significantly positive: 2.83% ($p < 5\%$) and only 21% of them drop in this window. This contrasts with the insignificant +0.40% and +0.57 three and five-day cumulative returns, respectively, for the portfolio of all other Hong Kong stocks. Of these, 57% and 52% decline in the three and five day windows, respectively.

Because foreign investors have unrestricted access to the Hong Kong market, listed mainland companies' share prices can be interpreted as gauging Hong Kong and international investors' expectations about the reforms. These results are consistent with Hong Kong and international investors also viewing the Eight-point Policy announced on Dec 4th 2012 as positive economic news. Unfortunately, most of these shares are not cross-listed on mainland exchanges, and Hong Kong accounting rules do not mandate the disclosure of entertainment and travel costs. The 81 cross-listed shares constitute a sample only 3.6% the size of the full sample of mainland stocks, and this is insufficient to allow meaningful statistical comparisons.¹³

Robustness in Interpretation

Our empirical analyses show that stock price reactions to anti-corruption are positively related to productivity, growth opportunities and external finance dependence and negatively related to past spending on building relations. The positive relationship is amplified while the negative relationship is mitigated by a location's "marketization". We shall call these cross-term results. The meaning of "marketization" or its sub-indexes is critical to interpreting these cross term results.

Our interpretation is that marketization represents market machinery that, when less vulnerable to official intervention, better allocates resources to more competitive firms. Impeding corruption limits intervention by corrupt officials, letting that machinery function – if it exists.

¹³ They also may not be representative of mainland-listed stocks (Hung et al., 2012).

However, absent adequately-functioning market machinery, impeding corruption limits firms' scope for influencing officials, whose intervention is the only way of getting anything done.

One *prima fascia* plausible alternative interpretation is that marketization proxies for the quality of government. In more "marketized" location, the anti-corruption policy is better enforced and the government manages resource allocation better, and either could drive our observed cross term results. Weighing against this interpretation, interactions with the *legal environment* subindex, measuring judicial efficiency and plausibly proxying for general government efficiency, are insignificant, individually as well as jointly. If government efficiency were driving our results, this subindex should stand out in the cross term results. It does not: instead, interactions with the subindexes gauging non-SOEs' access to finance and the importance of the private-sector are significant.

Also weighing against this interpretation, recall that the coefficients in Regression 2 of Panel A in Table VI imply that high ETC non-SOEs' share prices actually declining in provinces at or below the marketization stage of Hainan. If the anti-corruption policy were less vigorously enforces in lower marketization provinces, its effect would be attenuated (that is, become closer to zero) in those provinces. That the effect becomes increasingly negative in very low marketization provinces is inconsistent with this alternative explanation, but readily explicable if cutting corruption makes it harder for firms to get anything done in those provinces. Finally, the Party is plausibly stronger, not weaker, in less marketized provinces. Investors might reasonably expect that in these regions cadres obey Eight-point Policy, but that resource allocation does not improve.

Still, yet other alternative explanations might have traction. Perhaps, the market machinery measures reflect hidden province characteristics such as a culture more supportive of entrepreneurship, a history of commercial activity, greater openness to foreign ideas, or any other latent factor that, when intervention by corrupt officials is blocked, effects better resource allocation. We accept alternative explanations of this ilk as friendly amendments to the one we posit. Variation in some province characteristic, highly correlated with progress on market reforms, may well explain the heterogeneous stock price reactions we observe. We welcome further research exploring this.

5. Conclusion

Chinese markets rose significantly and broadly on the Politburo's Dec. 4th 2012 announcement of its Eight-point Reform. This announcement came unusually soon after the Nov. 8th to 14th People's Congress, at which the new leadership assumed power, and contained unusually detailed directives instructing party members in government, public institutions and SOEs to avoid conspicuous, extravagant or otherwise invidious behavior. At the time, this new policy was heralded as the beginning of a serious anti-corruption campaign.

Chinese markets rose significantly and broadly on the announcement, consistent with shareholders expecting the reforms to be meaningful, rather than propaganda, as well as beneficial on net to public investors. The positive reaction is evident across many different sorts of firms, suggesting that shareholders viewed these benefits as widely distributed. Furthermore, the positive reaction is larger, more significant, and more prevalent in provinces with more human capital and higher past growth. These variations suggest that the positive reaction is not just across the board

positive reaction to possible resolution of high level power struggle, but, is about net positive reaction to anti-corruption with varied impact on firms.

Firm level regressions reveal that the stocks on SOEs and non-SOEs react differently to the announcement, possibly the first shot for anti-corruption reform. Non-SOEs' shares rise more on news if they are based in provinces with more developed market institutions, more human capital, and higher past growth. The valuations of non-SOE located in provinces with more developed market machinery rise even more on the reform announcement if those firms have higher past productivity growth, more growth opportunities, and more need for external financing. This heterogeneity in stock price reactions across firms and provinces is consistent with investors expecting measures to reduce corruption to be more valuable to more competitive firms if prior reforms have strengthened market forces. Thus, investors' opinion is that mitigating corruption improves resources allocation only when a location has the capabilities and machineries to do so.

A positive stock price reaction is not a priori obvious. In corruption-ridden economies, firms can earn high returns by investing in "connections" with officials who can clear bureaucratic obstructions, open paths around regulatory barriers, or "grease the wheels" of an otherwise obstructive institutional environment. In such an environment, reforms that block firms' investment in "connections" can compromise firms' economic prospects and reduce valuations. Consistent with this, the stock price reaction of non-SOE firms located in these provinces is negatively correlated with those firms' past investment in "connections". Furthermore, province by province regressions confirm that in these locations productive private sector firms with growth opportunities and external financial dependence lose value, consistent with that anti-corruption rises the cost of doing business in these locations. If successful political rent-seeking buttressed shareholder valuations in corruption-prone environments, shareholder valuation becomes a

potentially problematic measure of a firm's contribution to economy-level prosperity in such environments.

The stocks of SOEs rise on news of the Eight-point Reform regardless of where they are located or how much they have spent on entertainment and travel. This is consistent with SOEs, run by career Communist Party cadres, being intrinsically well-connected with Party and government officials. Perhaps, rather than building valuable connections, their ETC spending might predominantly proxy for perks consumption, self-dealing, or other private benefits extracted by their top cadres. If these all erode public shareholders' valuations, a reform that curtailed them would unambiguously lift valuations. This suggests that reducing corruption might bolster SOE firms' valuations, enhancing revenues to the government from their subsequent privatizations.

More speculatively, these findings suggest that curtailing corruption might better let non-SOEs utilize growth opportunities and human capital, and might clear the way for higher productivity non-SOES with better investment opportunities and greater external financing dependence to prosper. They suggest an interaction between pro-market and anti-corruption reforms: prior pro-market reforms may be a necessary condition for anti-corruption reforms to be shareholder value-enhancing. Absent sufficiently developed market institutions, reforms that meaningfully reduce corruption might impair "connections" firms need to cope with otherwise obstructive bureaucracies. More generally, our findings are consistent with anti-corruption reforms unfettering market mechanisms.

Our findings weigh against the contention that the anti-corruption reforms impaired China's overall economic growth. First, the rapid growth associated with rapid catch-up development inevitably slows as the economy actually catches up (Barro and Sala-i-Martin, 1992). Our findings of a broad-based boost to shareholder valuations and of changes in Q ratios, return

on assets and sales growth auger that, absent the reforms, China's slowdown might well have been more pronounced. Second, a country's investment rate can be inefficiently high - especially if it funds grandiose megaprojects, ghost cities, and the like. Such inefficient investments can boost economic growth in the short term, but retard long-term growth. If the anti-corruption reforms impede economically inefficient investment decisions, any ensuing short-term slowdown might augment longer-term growth. Third, where the reforms reduced economic activity by impairing connections between business leaders and officials, provincial governments might consider further market reforms that make such connections less consequential. Finally, our findings do not totally eliminate the possibility that China's Eight-point anti-corruption Reform conceals a political power struggle, they suggest that investors expect the Reform (or perhaps the struggle itself) is a net plus for public shareholders and perhaps for the economy as a whole.

Finally, we admit that our results capture only investors' expectations around Dec 4th 2102. How the political events and policies unfold are to a large extent beyond the control of investors and scope of our study. They are in the hands of the current administration.

Figure 1: Fraction of Respondents Views Issues as a “Big Problem”

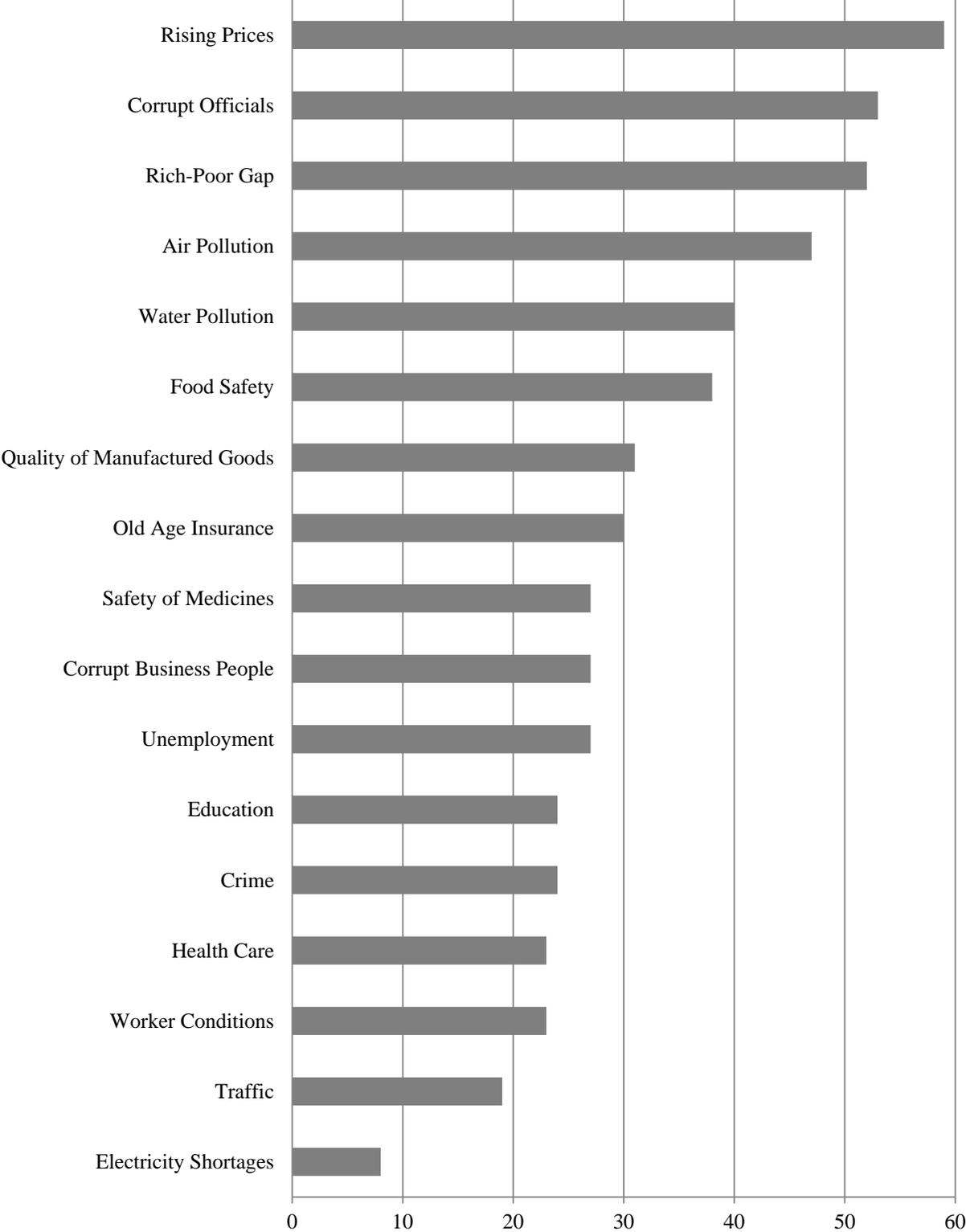


Figure 2A: Online Attention to the Eight-point Policy

Daily Baidu internet search volume for the keyword ‘Eight-point policy’ in Chinese (八项规定), which is indicated by the solid line. The search volume is normalized by its historical maximum from 2011 to 2014, which occurred the day after the announcement date of December 4 2012. Search volume indexed by the keyword ‘anti-corruption’ (反腐) is indicated by the long-dashed line, similarly scaled.

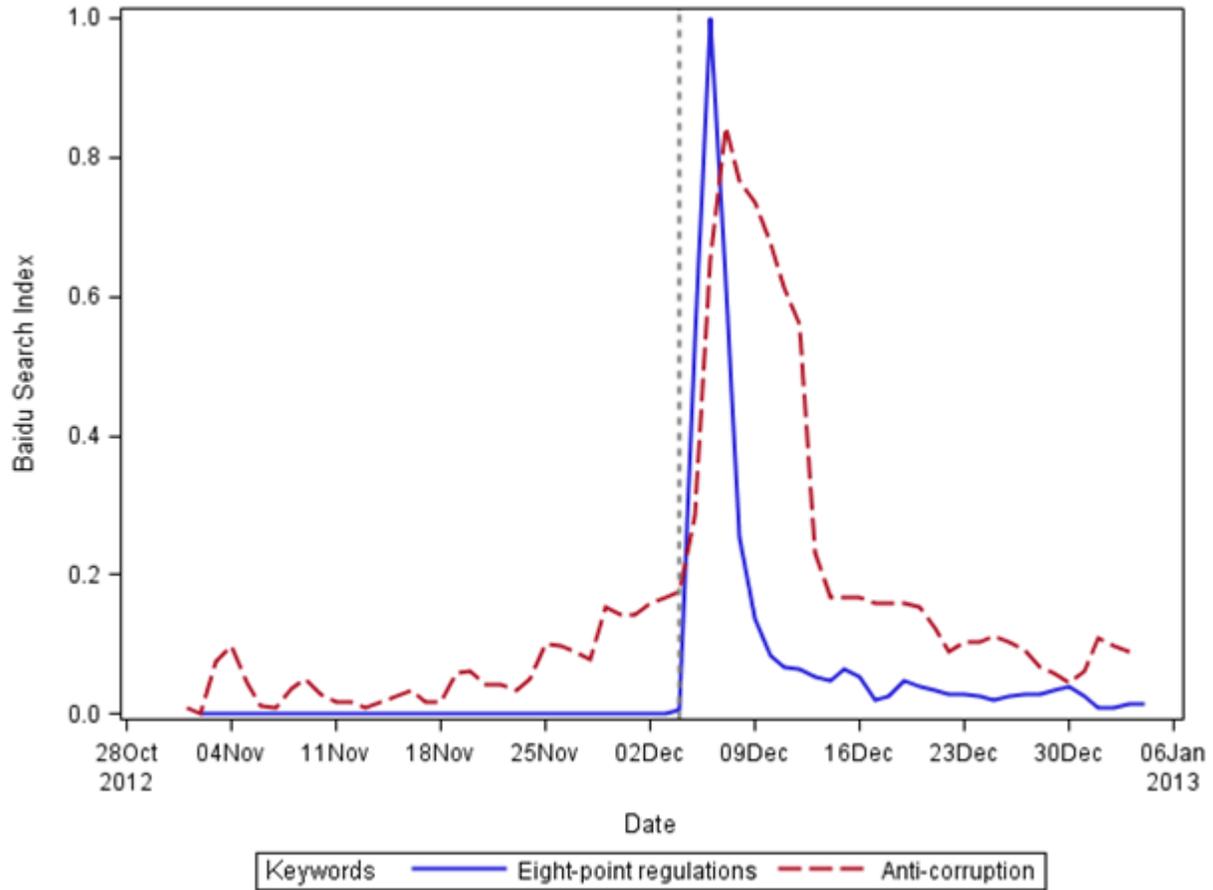


Figure 2B: Online Attention to the Eight-point Policy

Daily Baidu internet search volume for the keyword ‘Eight-point policy’ in Chinese (八项规定), which is indicated by the solid line. Search volume indexed by the keyword ‘anti-corruption’ (反腐) is indicated by the long-dashed line. To make these two lines comparable with each other, the search volumes are normalized by the historical maximum of the keyword ‘Eight-point policy’ from 2011 to 2014.

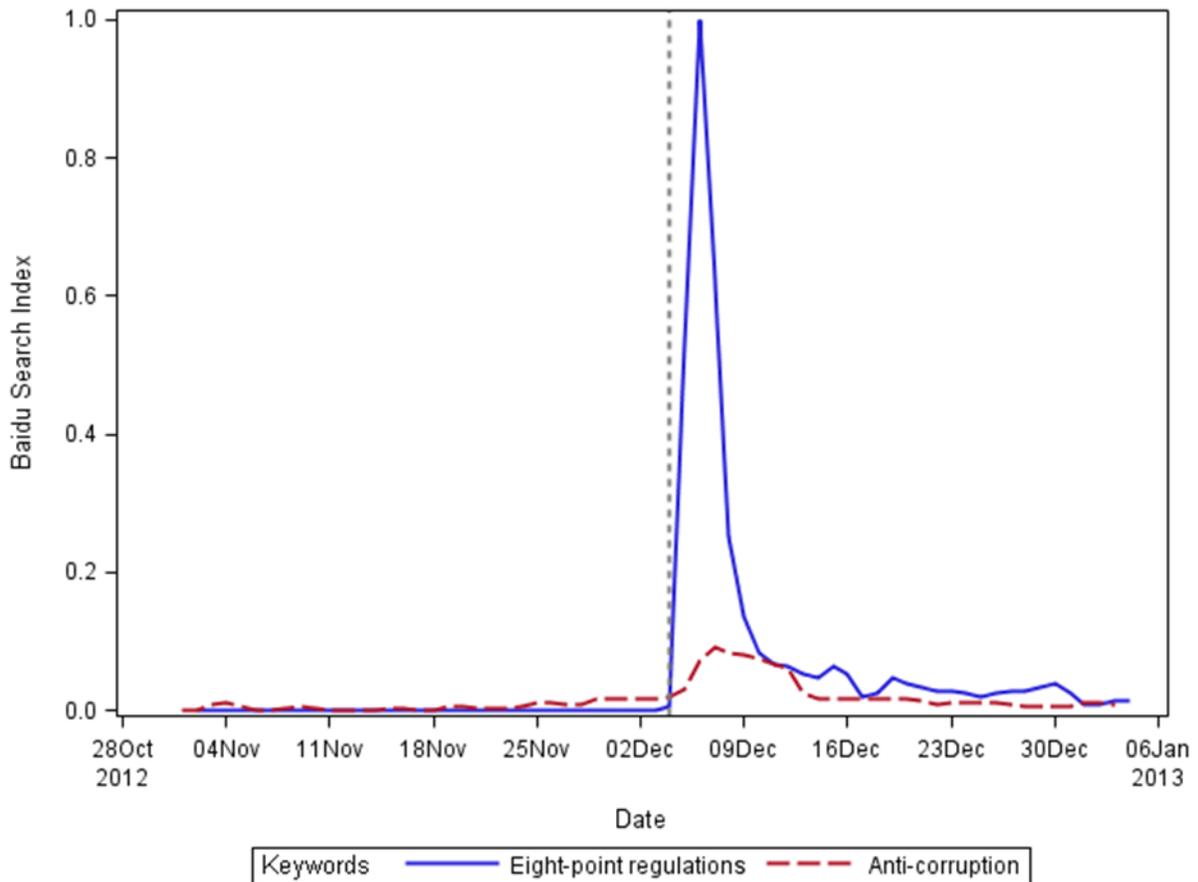


Figure 2C: Online Attention to the Eight-point Policy

Daily Baidu internet search volume for the keyword ‘Eight-point policy’ in Chinese (八项规定), which is indicated by the solid line. Search volume indexed by the keyword ‘anti-corruption’ (反腐) is indicated by the long-dashed line. To make these two lines comparable with each other, the search volumes are normalized by the historical maximum of the keyword ‘anti-corruption’ from 2011 to 2014.

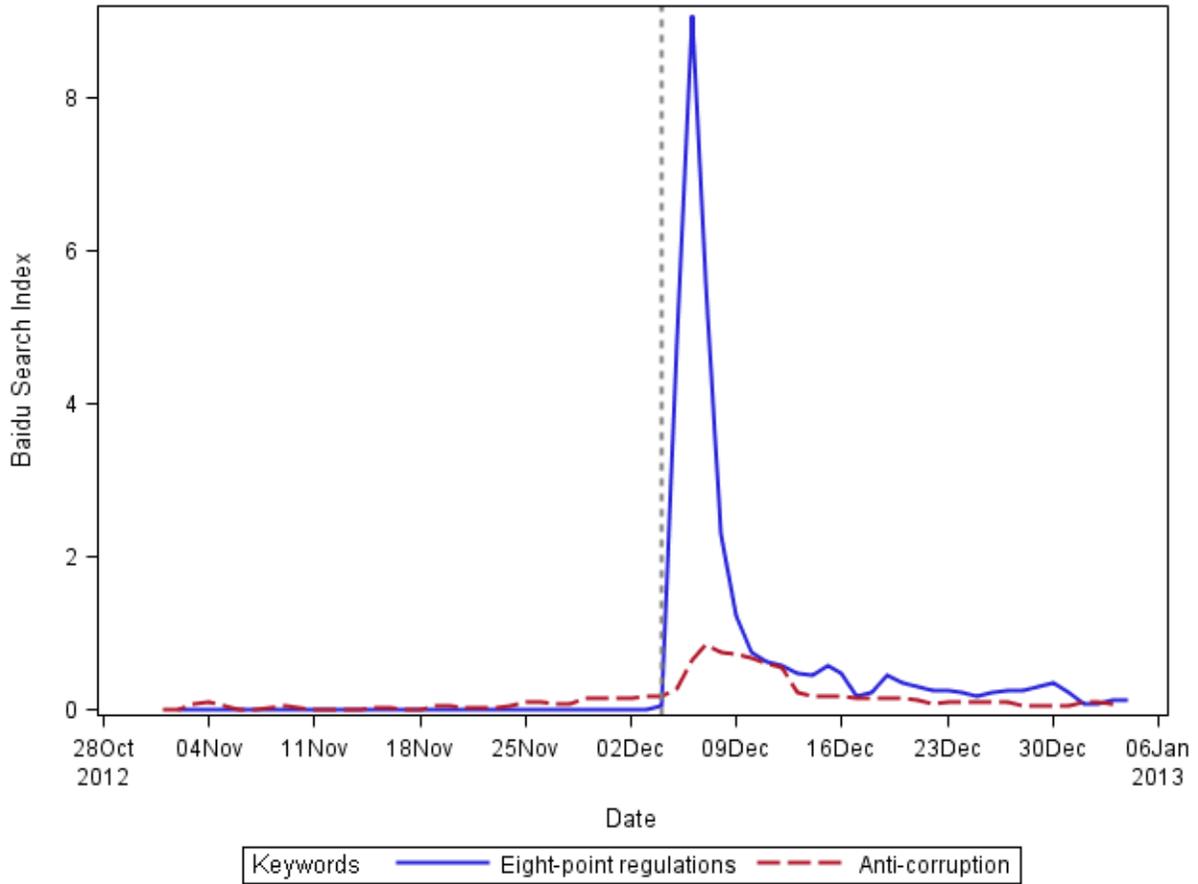


Figure 2D: Online Attention to the Eight-point Policy

Daily Baidu internet search volume for the keywords of ‘Economic Development’ (经济发展), ‘Economic Growth’ (经济增长), and ‘Economic Reform’ (经济改革). Daily Baidu internet search volume for the keyword ‘Eight-point policy’ in Chinese (八项规定), which is indicated by the solid line. To make these two lines comparable with each other, the search volumes are normalized by the historical maximum of the keyword ‘Eight-point policy’ from 2011 to 2014.

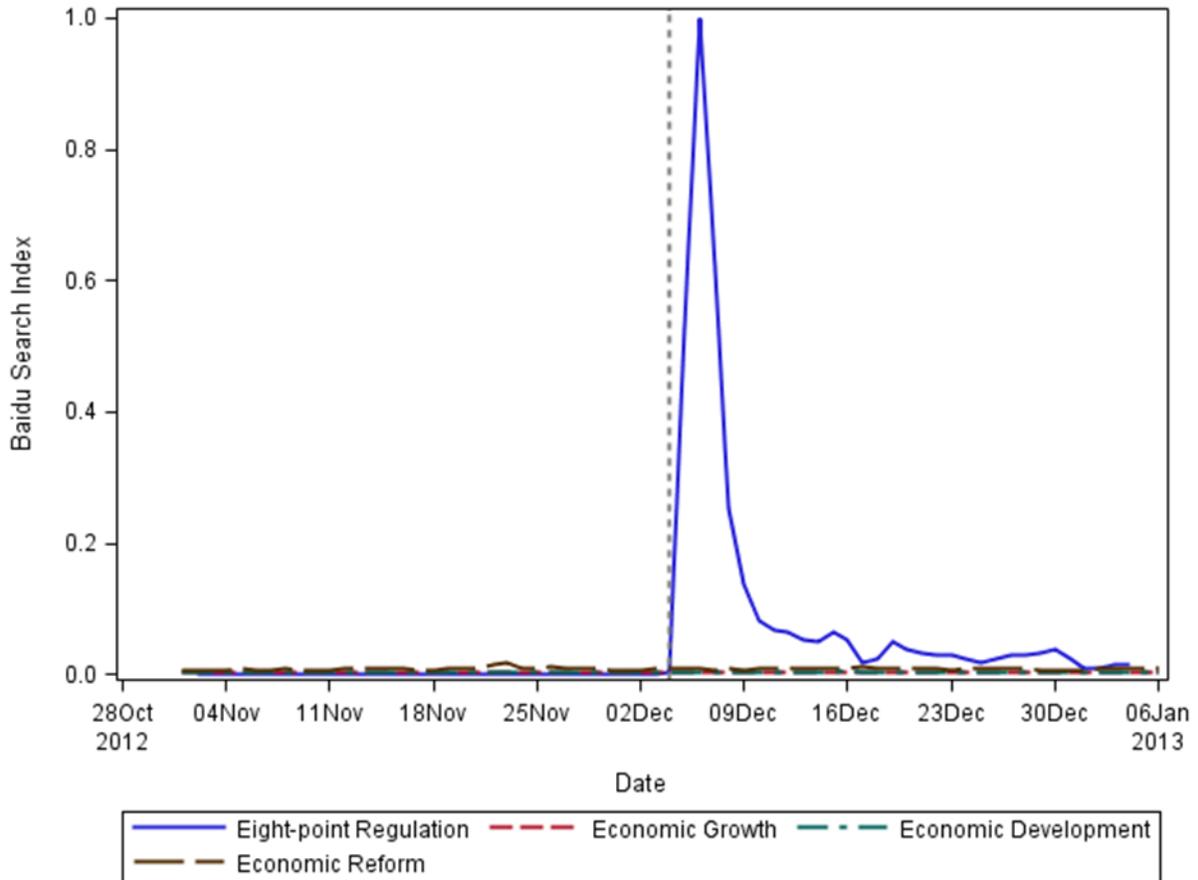


Figure 3: Cumulative Returns of Province Portfolios

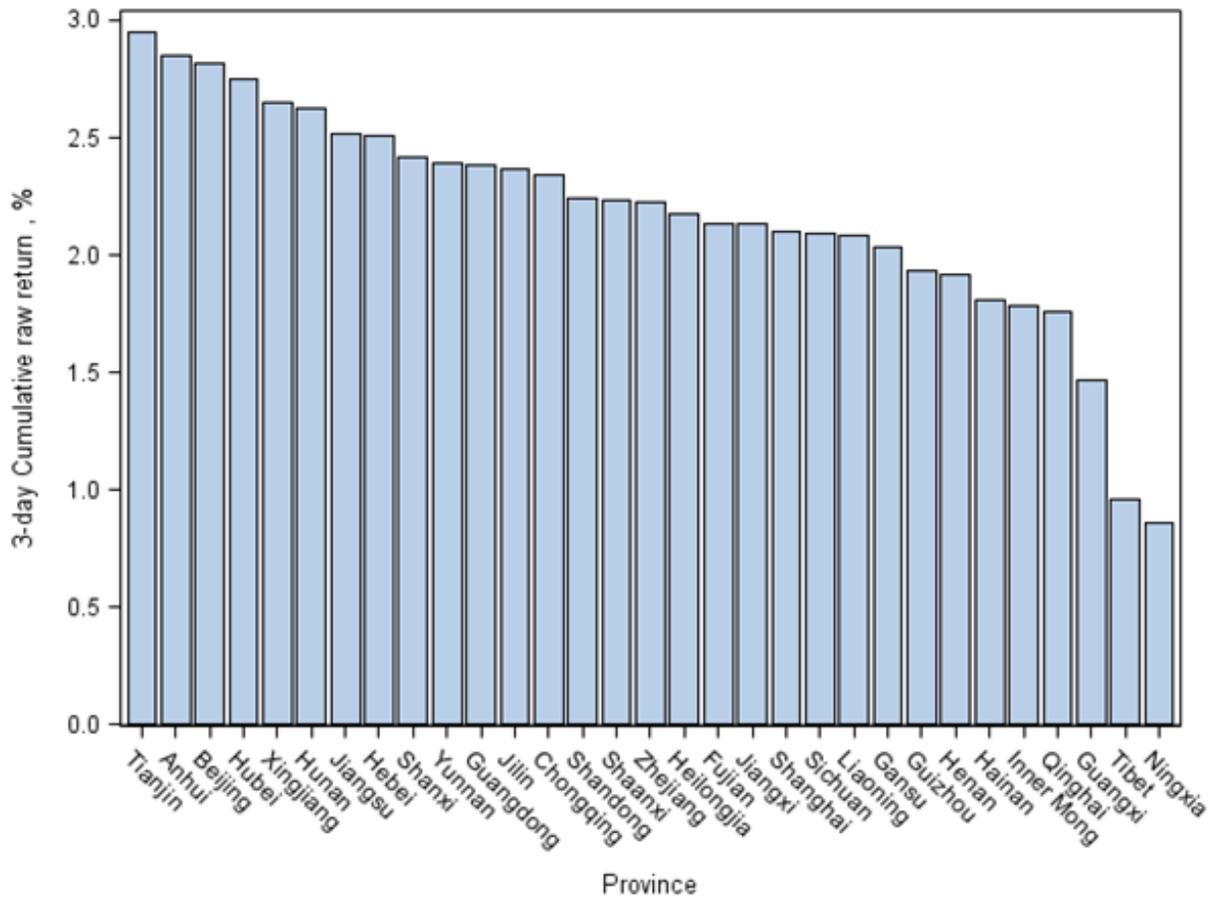


Figure 4: Cumulative Abnormal Returns around the Passage of the Eight Point Policy

This figure displays the value-weighted average of cumulative abnormal returns of four portfolios, high ETC and high marketization, high ETC and low marketization, low ETC and high marketization, and low ETC and low marketization. Portfolios on the top panel are formed based on private enterprises. Portfolios on the bottom panel are formed based on SOEs.

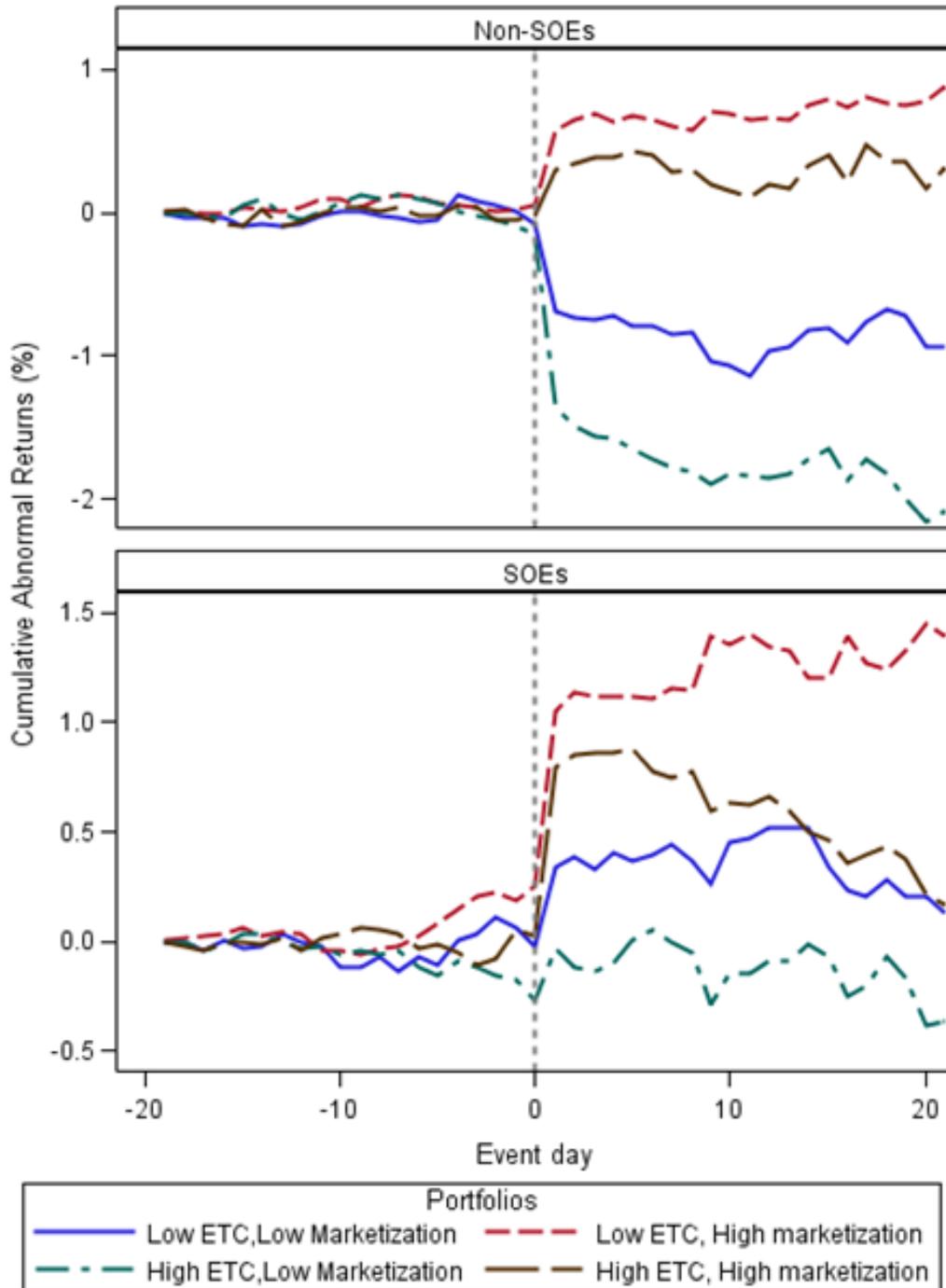


Figure 5: The Coefficients of Province Regressions vs. Marketization

For each province, we run a two firm-level regressions explaining 3-day cumulative stock returns, one using non-SOEs based in that province, the other using its SOEs. The key explanatory variables are entertainment and travel costs (*ETC*), total factor productivity (*TFP*), external finance dependence (*EFD*), and growth potential (*GROWTH*). Each regression also includes the other firm-level control variables included in the baseline regressions. Each graph plots the coefficient of the key independent variable indicated (vertical axis) against the marketization index (horizontal axis) by province. Significant and insignificant coefficients are marked with \oplus and \circ respectively. Solid lines represent regression fits; the adjacent shaded areas indicate 95% confidence limits.

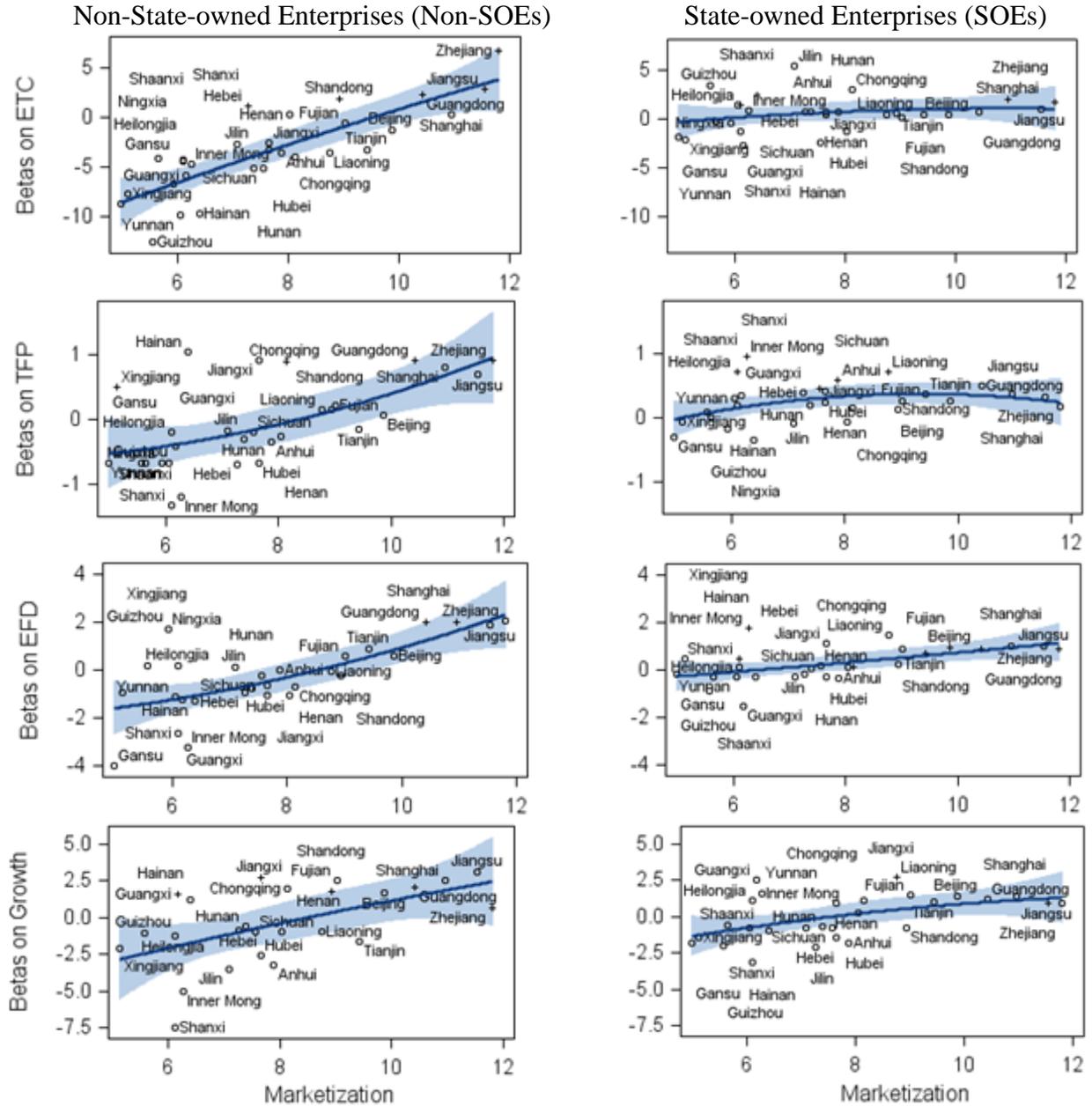


Table I
Marketization Index and subindexes, by province, including province-level cities and autonomous regions

Province	Marketization index	Marketization Sub-indexes		
		Resource allocation	Financial sector marketization	Legal environment
Zhejiang	11.8	9.1	12.7	6.9
Jiangsu	11.5	9.3	11.3	7.2
Shanghai	11.0	6.4	12.6	8.9
Guangdong	10.4	9.6	11.4	5.3
Beijing	9.9	6.9	10.3	6.5
Tianjin	9.4	8.7	10.5	6.8
Fujian	9.0	9.4	10.5	5.4
Shandong	8.9	10.3	11.3	4.4
Liaoning	8.8	7.2	12.1	5.1
Chongqing	8.1	6.9	10.7	5.7
Henan	8.0	8.5	11.0	3.9
Anhui	7.9	6.3	10.4	5.9
Jiangxi	7.7	6.5	9.9	5.0
Hubei	7.7	7.9	10.7	4.8
Sichuan	7.6	5.1	10.5	5.4
Hunan	7.4	7.4	9.9	4.1
Hebei	7.3	9.0	9.6	3.9
Jilin	7.1	6.6	9.4	5.4
Hainan	6.4	4.3	7.7	2.3
Inner Mongolia	6.3	6.9	9.9	2.9
Guangxi	6.2	6.0	9.7	4.0
Shanxi	6.1	6.0	10.4	4.0
Heilongjiang	6.1	6.2	8.4	4.0
Yunnan	6.1	3.2	10.8	5.7
Ningxia	5.9	2.2	10.2	3.0
Shaanxi	5.7	5.4	10.0	3.2
Guizhou	5.6	1.4	9.8	4.0
Xinjiang	5.1	3.2	8.3	3.8
Gansu	5.0	1.2	9.2	3.0
Qinghai	3.3	-1.4	7.3	4.1
Tibet	0.4	-23.3	5.9	-1.9

Source: National Economic Research Institute (NERI) data as reported by Fan et al. (2011)

Table II
Stock Market Reaction and Differentiate by Marketization

This table reports the value-weighted cumulative stock returns of market portfolios around the announcement of the eight point policy on Dec 4 2012. Low (High) marketization indicates that the portfolio is formed based on firms domiciled in provinces having marketization level at the bottom (top) tercile. We report both the cumulative stock raw returns (CRR) and the percentage of firm having negative CRR (% Negative). In Panel A, a 3-day window is used. The standard deviation used to test whether CRR(-1, 1) is significantly different from zero is the square root of 3 x the variance of daily stock return from day -211 to day -11. In Panel B, a 5-day window is used. The standard deviation used to test whether CRR(-2, 2) is significantly different from zero is the square root of 5 x the variance of daily stock return from day -211 to day -11. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: 3-day cumulative raw return		
	All firms	
	CRR(-1, 1)	% Negative
All China	2.613**	25.9%
Low marketization provinces	0.927	36.0%
High marketization provinces	4.101***	21.9%
Panel B: 5-day cumulative raw return		
	All firms	
	CRR(-2, 2)	% Negative
All China	3.323**	23.9%
Low marketization provinces	1.641	35.0%
High marketization provinces	4.824***	20.9%

Table III
Province Level Portfolio Raw Returns

This table summarizes regressions explaining the cumulative raw returns (*CRR*) of province-level portfolios around the passage of the Eight Point Policy on Dec 4th 2012. Province-level portfolios are value-weighted portfolios of the stocks of all listed firms headquartered in each province. Explanatory variables are the corresponding province's characteristics: *GDP growth*, *GDP per capita*, *education expenditures/GDP*, and either the province's marketization index or three of its marketization sub-indices (from Fan *et al.* 2011). *Resource allocation* gauges the extent to which market forces, rather than government officials, allocate resources; and is higher if the provincial government budget is a lower fraction of GDP. *Financial sector marketization* gauges non-SOEs' access to capital using deposits in non-state financial institutions and the share of bank loans to non-SOEs. *Legal environment* measures courts' efficiency in resolving legal disputes, and is based on a survey of business leaders. For detailed definitions, see Appendix A. The explained variable is a 3-day *CRR* in regressions 3.1 and 3.2 and a 5-day window *CRR* in 3.3 and 3.4 Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable	CRR (-1, 1)		CRR (-2, 2)	
	(1)	(2)	(3)	(4)
GDP growth	11.221** (2.35)	12.122** (2.43)	9.463* (1.86)	9.494* (1.94)
Log(GDP/capita)	0.007 (0.02)	-0.066 (-0.23)	-0.023 (-0.06)	0.125 (0.31)
Education expenditures/GDP	30.306** (2.44)	28.997** (2.24)	42.038** (2.37)	41.652** (2.32)
Marketization	0.193*** (2.67)		0.206*** (2.74)	
Resource allocation		0.146*** (3.55)		0.197*** (3.47)
Financial sector marketization		0.194** (2.13)		0.194* (1.74)
Legal environment		0.084*** (2.61)		0.065** (2.45)
Intercept	0.898 (0.24)	0.524 (0.16)	0.965 (0.54)	0.105 (0.02)
Observations	31	31	31	31
Adjusted R-squared	33.83%	43.82%	24.95%	32.87%

Table IV
Province Level Portfolio Cumulative Abnormal Returns

This table summarizes regressions explaining the cumulative abnormal returns (*CAR*) of province-level portfolios around the passage of the Eight Point Policy on Dec 4th 2012. Province-level portfolios are value-weighted portfolios of the stocks of all listed firms headquartered in each province. Explanatory variables are the corresponding province's characteristics: *GDP growth*, *GDP per capita*, *education expenditures/GDP*, and either the province's marketization index or three of its marketization sub-indices (from Fan *et al.* 2011). *Resource allocation* gauges the extent to which market forces, rather than government officials, allocate resources; and is higher if the provincial government budget is a lower fraction of GDP. *Financial sector marketization* gauges non-SOEs' access to capital using deposits in non-state financial institutions and the share of bank loans to non-SOEs. *Legal environment* measures courts' efficiency in resolving legal disputes, and is based on a survey of business leaders. For detailed definitions, see Appendix A. The explained variable is a 3-day *CAR* in regressions 3.1 and 3.2 and a 5-day window *CAR* in 3.3 and 3.4 Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable	CAR (-1, 1)		CAR (-2, 2)	
	(1)	(2)	(3)	(4)
GDP growth	9.556* (1.83)	11.342** (2.19)	8.579* (1.71)	10.408* (1.89)
Log(GDP/capita)	0.232 (0.69)	0.297 (0.98)	0.281 (0.61)	0.454 (1.11)
Education expenditures/GDP	33.013** (2.34)	44.328*** (3.29)	45.983** (2.16)	63.012*** (3.48)
Marketization	0.147** (2.03)		0.152** (2.22)	
Resource allocation		0.190*** (4.45)		0.267*** (4.66)
Financial sector marketization		0.174* (1.84)		0.151 (1.43)
Legal environment		0.050** (1.99)		0.057* (1.76)
Intercept	-3.329 (-0.96)	-6.071 (-1.21)	-3.659 (-0.70)	-6.865 (-1.47)
Observations	31	31	31	31
Adjusted R-squared	34.72%	45.21%	20.32%	35.46%

Table V
Returns, Market Development and Entertainment and Travel Costs (ETC)

This table reports the value-weighted cumulative stock returns of ETC/marketization portfolios around the announcement of the eight point policy. Low (High) marketization indicates that the portfolio is formed based on firms domiciled in provinces having marketization level at the bottom (top) tercile. Low (High) ETC indicates that the portfolio is formed based on firms having ETC ratio at the bottom (top) tercile. We report both the cumulative stock raw returns (CRR) and the percentage of firm having negative CRR (% Negative). We divide the full sample into non-SOEs and SOEs subsamples. In Panel A, a 3-day window is used. The standard deviation used to test whether CRR(-1, 1) is significantly different from zero is the square root of 3 x the variance of daily stock return from day -211 to day -11. In Panel B, a 5-day window is used. The standard deviation used to test whether CRR(-2, 2) is significantly different from zero is the square root of 5 x the variance of daily stock return from day -211 to day -11. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively

Panel A: 3-day cumulative raw return				
	Non-SOEs		SOEs	
	CRR(-1, 1)	% Negative	CRR(-1, 1)	% Negative
Full	1.144	31.1%	4.141***	20.0%
Low marketization	-0.077	41.3%	2.331**	22.1%
High marketization	1.825*	25.0%	5.118***	18.0%
Low ETC	1.731	26.3%	4.923***	18.9%
High ETC	-0.332	43.5%	2.231**	22.3%
Low marketization, Low ETC	0.671	37.7%	2.917**	21.6%
Low marketization, High ETC	-0.660	46.6%	1.524*	22.9%
High marketization, Low ETC	2.534**	22.1%	5.741***	16.1%
High marketization, High ETC	0.443	38.3%	3.012**	21.9%
Panel B: 5-day cumulative raw return				
	Non-SOEs		SOEs	
	CRR(-2, 2)	% Negative	CRR(-2, 2)	% Negative
Full	2.231	27.6%	4.721***	19.5%
Low marketization	1.346	38.6%	2.914**	21.9%
High marketization	2.919*	24.6%	5.613***	18.8%
Low ETC	2.708*	24.5%	4.537***	17.2%
High ETC	1.117	40.9%	3.621**	21.0%
Low marketization, Low ETC	1.734	36.5%	3.309**	21.3%
Low marketization, High ETC	0.435	44.4%	2.424*	22.6%
High marketization, Low ETC	4.331***	19.7%	6.012***	16.1%
High marketization, High ETC	1.907	34.4%	4.112***	20.5%

Table VI
Regression Analyses on Firm Level Cumulative Returns

Regression of firm level cumulative returns on initial firm level productivity, external finance dependence, and growth opportunity. Total factor productivity is the Levinsohn-Petrin (2003) estimate of the total factor productivity. External finance dependence is the industry median of capital expenditures minus cash flow from operations divided by capital expenditures using 2011 data (Rajan and Zingales, 1998). Growth opportunity is industry median market equity value over total book equity using 2011 data. In Panel A, the dependent variable is the 3-day cumulative raw returns. In Panel B, the dependent variable is the 5-day cumulative raw returns. (Variable definitions are in Appendix A.) Explanatory variables are observed in the year 2011. Industry fixed effects are included. Errors are clustered by industry and province (two-way). The t statistics are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: Dependent variable is 3-day cumulative raw return CRR(-1,1)						
Samples	Non-SOEs			SOEs		
	(1)	(2)	(3)	(4)	(5)	(6)
ETC	-1.618***	-8.184***	-13.732***	0.047	-0.495	-0.563
	(-2.63)	(-3.33)	(-2.99)	(0.44)	(-0.62)	(-0.59)
Total factor productivity	0.056**	0.019	0.019	0.023	0.003	0.003
	(2.28)	(0.99)	(0.98)	(0.80)	(0.40)	(0.41)
GDP growth	8.660**	6.876*	6.567*	5.941	4.985	4.983
	(2.27)	(1.82)	(1.81)	(1.49)	(1.08)	(1.14)
Log(GDP/capita)	0.150	0.524	0.523	0.207	0.098	0.095
	(0.36)	(0.91)	(0.94)	(0.57)	(0.23)	(0.21)
Education expenditures/GDP	18.727	32.628**	31.184**	1.330	29.958	28.938
	(0.97)	(2.01)	(2.02)	(0.30)	(1.44)	(1.44)
Marketization	0.598**	0.033		0.204**	-0.064	
	(4.60)	(0.17)		(2.06)	(-0.30)	
Marketization*Total factor productivity		0.029*			0.012	
		(1.77)			(1.16)	
Marketization*External finance dependence		0.032**			0.015	
		(2.12)			(1.34)	
Marketization*Growth potential		0.141**			0.159**	
		(2.29)			(2.11)	
Marketization*ETC		1.258***			0.465**	
		(3.09)			(2.25)	
<i>Block 1: Resource allocation</i>						
Resource allocation			-0.147			0.069
			(-0.30)			(0.22)
Resource allocation*Total factor productivity			0.010			0.004
			(1.43)			(0.72)
Resource allocation*External finance dependence			0.012			0.005
			(1.56)			(0.85)
Resource allocation*Growth potential			0.079*			0.104*
			(1.86)			(1.71)
Resource allocation*ETC			0.506**			0.026
			(2.26)			(0.73)
<i>Block 2: Financial sector marketization</i>						
Financial sector marketization			-0.320			-0.214
			(-0.75)			(-0.70)
Financial sector marketization*Total factor productivity			0.028*			0.015
			(1.83)			(0.36)
Financial sector marketization*External finance dependence			0.034*			0.021
			(1.91)			(0.84)
Financial sector marketization*Growth potential			0.145**			0.183*
			(2.12)			(1.83)
Financial sector marketization*ETC			1.076***			0.513*
			(2.82)			(1.90)
<i>Block 3: Legal environment</i>						
Legal environment			1.016			0.024
			(1.26)			(0.63)
Legal environment*Total factor productivity			-0.007			0.002
			(-0.58)			(0.23)
Legal environment*External finance dependence			0.027*			0.014
			(1.84)			(1.08)
Legal environment*Growth potential			-0.056			0.058
			(-0.73)			(0.69)
Legal environment*ETC			-0.176			0.463*
			(-0.46)			(1.82)
P-value of the F-test on the coeff. in Block 1			0.067			0.357
P-value of the F-test on the coeff. in Block 2			0.007			0.081
P-value of the F-test on the coeff. in Block 3			0.212			0.337
Control	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov
N	1228	1228	1228	1015	1015	1015
Adj. R-squared	23.38%	33.31%	38.34%	18.6%	20.89%	23.24%

Panel B: Dependent variable is 5-day cumulative raw return CRR(-2,2)

Samples	Non-SOEs			SOEs		
	(1)	(2)	(3)	(4)	(5)	(6)
ETC	-1.733*** (-2.83)	-8.453*** (-3.43)	-14.331*** (-3.11)	0.032 (0.28)	-0.747 (-1.13)	-0.461 (-0.41)
Total factor productivity	0.052 (1.50)	0.013 (0.68)	0.012 (0.60)	0.013 (0.47)	-0.025 (-0.54)	-0.023 (-0.54)
GDP growth	7.092* (1.81)	7.112* (1.70)	6.706* (1.69)	5.337 (1.29)	4.686 (1.17)	4.670 (1.15)
Log(GDP/capita)	0.567 (1.05)	0.818 (1.55)	0.816 (1.53)	0.605 (1.01)	0.714 (1.13)	0.681 (1.12)
Education expenditures/GDP	15.838 (0.80)	30.754* (1.89)	28.017* (1.86)	1.165 (0.16)	25.258 (1.14)	22.853 (1.11)
Marketization	0.493*** (3.55)	0.054 (0.11)		0.278** (2.11)	-0.158 (-1.23)	
Marketization*Total factor productivity		0.024 (1.41)			0.008 (0.91)	
Marketization*External finance dependence		0.036** (2.02)			0.012 (1.09)	
Marketization*Growth potential		0.188** (2.05)			0.121** (2.03)	
Marketization*ETC		1.296*** (3.38)			0.507** (2.40)	
<i>Block 1: Resource allocation</i>						
Resource allocation			0.096 (0.25)			0.070 (0.19)
Resource allocation*Total factor productivity			0.009 (0.94)			0.004 (0.67)
Resource allocation*External finance dependence			0.016 (1.47)			0.006 (0.71)
Resource allocation*Growth potential			0.090* (1.72)			0.093 (1.59)
Resource allocation*ETC			0.581* (1.84)			0.040 (0.81)
<i>Block 2: Financial sector marketization</i>						
Financial sector marketization			-0.449 (-0.55)			-0.267 (-0.79)
Financial sector marketization*Total factor productivity			0.034* (1.93)			0.010 (0.51)
Financial sector marketization*External finance dependence			0.041 (1.53)			0.022 (0.95)
Financial sector marketization*Growth potential			0.203** (2.26)			0.198* (1.89)
Financial sector marketization*ETC			1.153*** (2.95)			0.543* (1.77)
<i>Block 3: Legal environment</i>						
Legal environment			1.225 (1.43)			0.188 (0.86)
Legal environment*Total factor productivity			-0.016 (-1.23)			-0.011 (-0.91)
Legal environment*External finance dependence			0.021 (1.40)			-0.016 (-0.45)
Legal environment*Growth potential			-0.060 (-0.84)			-0.076 (-0.38)
Legal environment*ETC			-0.368 (-0.78)			0.413 (1.59)
P-value of the F-test on the coeff. in Block 1			0.079			0.479
P-value of the F-test on the coeff. in Block 2			0.009			0.094
P-value of the F-test on the coeff. in Block 3			0.432			0.452
Control	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov
N	1228	1228	1228	1015	1015	1015
Adj. R-squared	20.99%	29.14%	0.3259	17.03%	20.34%	22.17%

Table VII

Regression Analyses on Firm Level Cumulative Abnormal Returns

Regression of firm level cumulative abnormal returns on initial level of productivity, external finance dependence, and growth opportunity. Total factor productivity is the Levinsohn-Petrin (2003) estimate of the total factor productivity. External finance dependence is the industry median of capital expenditures minus cash flow from operations divided by capital expenditures using 2011 data (Rajan and Zingales, 1998). Growth opportunity is measured by the industry median of market equity value over total book equity using 2011 data. In Panel A, the dependent variable is the 3-day cumulative abnormal returns. In Panel B, the dependent variable is the 5-day cumulative abnormal returns. (Variable definitions are in Appendix A.) Explanatory variables are observed in the year 2011. Industry fixed effects are included. Errors are clustered by industry and province (two-way). The t statistics are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: Dependent variable is 3-day cumulative abnormal return CAR(-1,1)						
Samples	Non-SOEs			SOEs		
	(1)	(2)	(3)	(3)	(4)	(6)
ETC	-2.040*** (-3.19)	-9.982*** (-3.41)	-11.600*** (-3.32)	0.041 (0.28)	-0.456 (-0.96)	-0.221 (-0.20)
Total factor productivity	0.041* (1.87)	0.002 (0.47)	0.002 (0.44)	0.029 (1.21)	0.020 (0.89)	0.020 (0.83)
GDP growth	5.307 (1.50)	5.431 (1.59)	4.905 (1.55)	3.179 (0.93)	3.296 (0.91)	3.009 (0.87)
Log(GDP/capita)	0.146 (0.38)	0.157 (0.32)	0.157 (0.28)	0.010 (0.05)	0.058 (0.14)	0.052 (0.13)
Education expenditures/GDP	20.340 (0.93)	23.241 (1.15)	21.841 (1.13)	5.353 (0.40)	6.883 (0.40)	6.276 (0.35)
Marketization	0.578*** (3.51)	0.023 (0.60)		0.163* (1.94)	-0.017 (-0.21)	
Marketization*Total factor productivity		0.021** (1.97)			0.008 (0.90)	
Marketization*External finance dependence		0.024** (2.02)			-0.007 (-0.58)	
Marketization*Growth potential		0.248* (1.69)			0.186* (1.90)	
Marketization*ETC		1.518** (2.13)			0.448* (1.82)	
<i>Block 1: Resource allocation</i>						
Resource allocation			-0.058 (-0.25)			0.048 (0.96)
Resource allocation*Total factor productivity			0.011 (1.47)			0.002 (0.51)
Resource allocation*External finance dependence			0.019* (1.83)			0.001 (0.13)
Resource allocation*Growth potential			0.141* (1.70)			0.169 (0.73)
Resource allocation*ETC			0.823** (2.49)			0.201 (1.33)
<i>Block 2: Financial sector marketization</i>						
Financial sector marketization			-0.177 (-0.61)			-0.026 (-0.36)
Financial sector marketization*Total factor productivity			0.030* (1.85)			0.009 (0.53)
Financial sector marketization*External finance dependence			0.026 (1.15)			0.030 (0.95)
Financial sector marketization*Growth potential			0.599* (1.92)			0.310* (1.83)
Financial sector marketization*ETC			2.949*** (2.77)			0.952* (1.95)
<i>Block 3: Legal environment</i>						
Legal environment			0.595 (1.15)			0.240 (0.96)
Legal environment*Total factor productivity			-0.011 (-0.78)			-0.001 (-0.14)
Legal environment*External finance dependence			0.027* (1.91)			-0.021 (-1.03)
Legal environment*Growth potential			-0.091 (-0.95)			-0.032 (-0.37)
Legal environment*ETC			-0.745 (-1.43)			0.259 (1.61)
P-value of the F-test on the coeff. in Block 1			0.023			0.412
P-value of the F-test on the coeff. in Block 2			0.013			0.087
P-value of the F-test on the coeff. in Block 3			0.204			0.401
Control	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov
N	1228	1228	1228	1015	1015	1015
Adj. R-squared	22.17%	29.29%	33.79%	18.56%	20.26%	21.79%

Panel B: Dependent variable is 5-day cumulative abnormal return CAR(-2,2)

Samples	Non-SOEs			SOEs		
	(1)	(2)	(3)	(3)	(4)	(6)
ETC	-2.113*** (-3.42)	-9.486*** (-3.21)	-11.230*** (-3.06)	0.144 (0.99)	-0.532 (-0.98)	-0.402 (-0.31)
Total factor productivity	0.035** (2.01)	0.005 (0.81)	0.005 (0.76)	0.031 (1.05)	0.029 (0.36)	0.027 (0.32)
GDP growth	7.045 (1.63)	8.477* (1.73)	8.323* (1.67)	4.913 (1.43)	5.384 (1.49)	5.046 (1.45)
Log(GDP/capita)	0.803 (1.43)	0.784 (1.61)	0.721 (1.52)	0.093 (0.24)	0.184 (0.38)	0.175 (0.35)
Education expenditures/GDP	20.315 (1.14)	32.831* (1.85)	31.157* (1.85)	7.019 (0.55)	7.537 (0.64)	6.967 (0.59)
Marketization	0.460*** (3.15)	0.035 (0.11)		0.251** (2.07)	-0.421 (-1.01)	
Marketization*Total factor productivity		0.023** (2.29)			0.009 (0.92)	
Marketization*External finance dependence		0.020* (1.81)			-0.019 (-0.96)	
Marketization*Growth potential		0.121 (1.53)			0.196* (1.92)	
Marketization*ETC		1.449** (2.07)			0.482** (2.03)	
<i>Block 1: Resource allocation</i>						
Resource allocation			-0.028 (-0.10)			0.050 (1.00)
Resource allocation*Total factor productivity			0.013* (1.77)			0.005 (0.79)
Resource allocation*External finance dependence			0.013 (1.51)			0.005 (0.38)
Resource allocation*Growth potential			0.090 (1.25)			0.185 (0.99)
Resource allocation*ETC			0.688* (1.88)			0.332* (1.87)
<i>Block 2: Financial sector marketization</i>						
Financial sector marketization			-0.270 (-0.79)			-0.147 (-1.01)
Financial sector marketization*Total factor productivity			0.034* (1.93)			0.012 (0.63)
Financial sector marketization*External finance dependence			0.018 (0.88)			0.011 (0.23)
Financial sector marketization*Growth potential			0.466* (1.88)			0.404** (2.45)
Financial sector marketization*ETC			2.392** (2.49)			0.739 (1.62)
<i>Block 3: Legal environment</i>						
Legal environment			0.681 (1.37)			0.209 (0.86)
Legal environment*Total factor productivity			-0.016 (-0.89)			-0.010 (-0.84)
Legal environment*External finance dependence			0.024* (1.77)			-0.023 (-1.14)
Legal environment*Growth potential			-0.051 (-0.32)			-0.063 (-0.72)
Legal environment*ETC			-0.485 (-1.03)			0.241 (1.14)
P-value of the F-test on the coeff. in Block 1			0.071			0.274
P-value of the F-test on the coeff. in Block 2			0.019			0.096
P-value of the F-test on the coeff. in Block 3			0.281			0.517
Control	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov
N	1228	1228	1228	1015	1015	1015
Adj. R-squared	20.66%	25.82%	28.40%	14.54%	16.81%	17.31%

Table VIII
Change of Performance

Regressions of firm-level performance (year after the reforms minus year prior to the reforms) explained by provincial market reforms (marketization), entertainment and travel costs over sales (ETC), and interactions of marketization with total factor productivity growth (TFP), external finance dependence (EFD), and growth opportunities (Growth). Total factor productivity is the Levinsohn-Petrin (2003) estimate of the total factor productivity. External finance dependence is the industry median of capital expenditures minus cash flow from operations divided by capital expenditures using 2011 data (Rajan and Zingales, 1998). Growth opportunities are industry median market equity value over total book equity using 2011 data. Industry fixed effects subsume main effects of EFD and Growth. In Panel A, the dependent variable is the change of firm value (ΔQ) defined as the average of daily M/B one year after the passage of the eight point policy (2013) minus the average of daily M/B one year before the passage of the policy (2012). Daily M/B is: (daily closing price * total shares outstanding)/total book equity in the year. In Panel B, the dependent variable is ΔROA . It is the return on assets in 2013 minus that in 2012 where return on assets is defined as operating income before depreciation and amortization/total assets. In Panel C, the dependent variable is ΔSG . It is the sales growth rate in 2013 minus the rate in 2012 where sales growth rate is defined as (total sales in year t – total sales in year t-1)/total sales in year t-1. Errors are clustered by industry and province (two-way). The t statistics are reported in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

Panel A: Dependent variable is change in firm value (ΔQ)						
Samples	Non-SOEs			SOEs		
	(1)	(2)	(3)	(4)	(5)	(6)
ETC	-0.348** (-2.04)	-1.831*** (-2.58)	-2.061*** (-2.63)	0.091** (2.01)	0.273 (0.91)	0.122 (0.70)
Total factor productivity	0.013 (1.25)	-0.017 (-1.09)	-0.016 (-1.07)	0.016 (1.13)	-0.028 (-1.18)	-0.024 (-1.01)
GDP growth	8.537* (1.71)	9.033* (1.69)	8.380 (1.60)	-0.737 (-0.28)	-0.863 (-0.30)	-0.796 (-0.15)
Log(GDP/capita)	0.450* (1.74)	0.393 (1.46)	0.342 (1.33)	0.005 (-0.01)	0.045 (0.15)	0.042 (0.00)
Education expenditures/GDP	18.120* (1.84)	17.526* (1.82)	16.091* (1.75)	4.768 (0.36)	3.709 (0.19)	3.467 (0.10)
Marketization	0.195*** (3.59)	0.016 (0.06)		0.045 (1.02)	0.011 (0.45)	
Marketization*Total factor productivity		0.006*** (2.73)			0.009** (2.36)	
Marketization*External finance dependence		0.011* (1.69)			0.006 (0.81)	
Marketization*Growth potential		0.091 (0.97)			0.006 (0.05)	
Marketization*ETC		0.266** (2.29)			1.078* (1.72)	
<i>Block 1: Resource allocation</i>						
Resource allocation			0.078 (1.35)			0.076 (1.40)
Resource allocation*Total factor productivity			0.003 (1.39)			0.002 (0.70)
Resource allocation*External finance dependence			0.002 (0.37)			0.003 (0.28)
Resource allocation*Growth potential			0.054 (1.43)			0.066 (0.21)
Resource allocation*ETC			0.129* (1.78)			0.018 (0.93)
<i>Block 2: Financial sector marketization</i>						
Financial sector marketization			-0.065 (-0.58)			-0.051 (-0.64)
Financial sector marketization*Total factor productivity			0.015** (2.29)			0.016* (1.96)
Financial sector marketization*External finance dependence			0.020* (1.71)			0.010 (1.57)
Financial sector marketization*Growth potential			0.220* (1.83)			0.501 (1.64)
Financial sector marketization*ETC			0.347** (2.43)			0.149* (1.80)
<i>Block 3: Legal environment</i>						
Legal environment			0.125 (1.11)			0.106 (0.80)
Legal environment*Total factor productivity			0.001 (0.25)			-0.004 (-0.78)
Legal environment*External finance dependence			0.015 (1.54)			0.003 (0.15)
Legal environment*Growth potential			-0.172 (-1.40)			-0.170 (-0.88)
Legal environment*ETC			0.077 (0.82)			0.068* (1.91)
P-value of the F-test on the coeff. in Block 1			0.151			0.613
P-value of the F-test on the coeff. in Block 2			0.008			0.053
P-value of the F-test on the coeff. in Block 3			0.325			0.211
Control	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov
N	1228	1228	1228	1015	1015	1015
Adj. R-squared	18.56%	20.93%	23.79%	9.57%	11.22%	13.98%

Panel B: Dependent variable is change in return on assets (*ΔROA*)

Samples	Non-SOEs			SOEs		
	(1)	(2)	(3)	(4)	(5)	(6)
ETC	-0.238**	-4.107***	-4.522**	0.076	-0.075	-0.081
	(-2.14)	(-2.67)	(-2.52)	(0.58)	(-1.00)	(-1.14)
Total factor productivity	0.066	-0.106	-0.104	0.101	-0.119	-0.112
	(1.51)	(-1.06)	(-1.00)	(1.51)	(-1.17)	(-1.16)
GDP growth	16.387	17.075	14.140	-4.765	-3.703	-3.240
	(1.48)	(1.45)	(1.33)	(-0.59)	(-0.46)	(-0.33)
Log(GDP/capita)	-0.229	-0.177	-0.149	-0.781	-0.723	-0.706
	(-0.44)	(-0.39)	(-0.36)	(-1.50)	(-1.37)	(-1.30)
Education expenditures/GDP	23.095	15.244	14.726	1.244	1.143	1.086
	(1.05)	(0.70)	(0.51)	(0.34)	(0.34)	(0.30)
Marketization	0.307**	0.092		0.239*	0.047	
	(2.33)	(0.77)		(1.80)	(0.86)	
Marketization*Total factor productivity		0.019**			0.032***	
		(2.01)			(3.43)	
Marketization*External finance dependence		0.047***			0.020	
		(2.94)			(1.16)	
Marketization*Growth potential		0.122			0.403	
		(1.40)			(1.34)	
Marketization*ETC		0.537***			0.112**	
		(2.73)			(2.34)	
<i>Block 1: Resource allocation</i>						
Resource allocation			0.059			0.143
			(0.30)			(1.30)
Resource allocation*Total factor productivity			0.009			0.002
			(0.93)			(0.30)
Resource allocation*External finance dependence			0.021*			0.001
			(1.93)			(0.07)
Resource allocation*Growth potential			0.076			0.123
			(0.80)			(0.88)
Resource allocation*ETC			0.289**			0.022
			(2.32)			(0.47)
<i>Block 2: Financial sector marketization</i>						
Financial sector marketization			-0.089			-0.052
			(-0.43)			(-0.80)
Financial sector marketization*Total factor productivity			0.039**			0.059**
			(2.47)			(2.41)
Financial sector marketization*External finance dependence			0.064*			0.060
			(1.77)			(1.52)
Financial sector marketization*Growth potential			0.201			0.667
			(1.52)			(1.54)
Financial sector marketization*ETC			0.686*			0.193**
			(1.86)			(2.48)
<i>Block 3: Legal environment</i>						
Legal environment			-0.031			0.085
			(-0.05)			(0.96)
Legal environment*Total factor productivity			0.018*			0.020*
			(1.88)			(1.68)
Legal environment*External finance dependence			0.022*			0.016
			(1.91)			(1.59)
Legal environment*Growth potential			-0.085			-0.108
			(-0.77)			(-1.21)
Legal environment*ETC			0.150			0.059
			(1.44)			(0.60)
P-value of the F-test on the coeff. in Block 1			0.056			0.822
P-value of the F-test on the coeff. in Block 2			0.012			0.015
P-value of the F-test on the coeff. in Block 3			0.061			0.211
Control	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Ind, Prov					
N	1228	1228	1228	1015	1015	1015
Adj. R-squared	18.83%	20.46%	23.89%	19.14%	21.91%	25.60%

Panel C: Dependent variable is change in sales growth (ΔSG)

Samples	Non-SOEs			SOEs		
	(1)	(2)	(3)	(4)	(5)	(6)
ETC	14.887*** (-4.64)	66.284*** (-3.02)	75.105*** (-3.24)	1.067 (0.71)	-10.470 (-1.38)	-12.860 (-1.37)
Total factor productivity	0.307 (1.00)	-0.690 (-1.26)	-0.631 (-1.14)	0.490 (1.23)	-1.046 (-1.34)	-0.893 (-1.25)
GDP growth	7.112 (0.11)	18.193 (0.29)	17.492 (0.28)	-3.243 (-0.05)	-2.529 (-0.07)	-2.461 (-0.07)
Log(GDP/capita)	-4.517 (-0.66)	-4.517 (-0.67)	-4.464 (-0.62)	-5.513 (-0.78)	-4.530 (-0.69)	-4.066 (-0.56)
Education expenditures/GDP	407.340** (2.07)	456.056** (2.29)	409.297** (2.15)	350.209 (1.31)	291.797 (1.00)	274.602 (0.97)
Marketization	4.454*** (2.95)	1.052 (1.00)		5.501** *	1.309 (1.09)	
Marketization*Total factor productivity		0.153** (2.27)			0.190** (2.15)	
Marketization*External finance dependence		0.407* (1.88)			0.384 (0.98)	
Marketization*Growth potential		4.858* (1.80)			3.665* (1.77)	
Marketization*ETC		8.110*** (3.34)			1.961** (2.06)	
<i>Block 1: Resource allocation</i>						
Resource allocation			0.994 (0.74)			0.844 (0.67)
Resource allocation*Total factor productivity			0.110 (1.42)			0.102 (1.33)
Resource allocation*External finance dependence			0.263*** (2.88)			0.283** (2.55)
Resource allocation*Growth potential			2.038 (1.08)			1.326 (0.76)
Resource allocation*ETC			3.795 (1.40)			0.613 (0.73)
<i>Block 2: Financial sector marketization</i>						
Financial sector marketization			-2.706 (-0.28)			-1.850 (-0.11)
Financial sector marketization*Total factor productivity			0.292 (1.52)			0.275 (1.29)
Financial sector marketization*External finance dependence			0.777** (1.99)			0.561 (1.35)
Financial sector marketization*Growth potential			7.184* (1.92)			6.317* (1.84)
Financial sector marketization*ETC			14.559** (2.25)			3.547* (1.82)
<i>Block 3: Legal environment</i>						
Legal environment			2.150 (0.92)			3.688 (1.36)
Legal environment*Total factor productivity			0.116 (1.62)			0.282* (1.89)
Legal environment*External finance dependence			-0.296 (-0.95)			0.120 (0.60)
Legal environment*Growth potential			-2.415 (-1.04)			-1.640 (-1.15)
Legal environment*ETC			4.574* (1.91)			1.005 (0.76)
P-value of the F-test on the coeff. in Block 1			0.063			0.097
P-value of the F-test on the coeff. in Block 2			0.012			0.059
P-value of the F-test on the coeff. in Block 3			0.194			0.199
Control	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov	Ind, Prov
N	1228	1228	1228	1015	1015	1015
Adj. R-squared	19.33%	20.93%	22.49%	17.71%	19.06%	22.18%

Appendix I
Summary Statistics for the Analysis of Province Level Portfolio Cumulative Returns

Variables	N	Mean	Std.	Q1	Q2	Q3
CRR(-1, 1), %	31	2.26	0.50	2.09	2.31	2.62
CRR (-2, 2), %	31	3.43	0.63	2.93	3.51	3.91
CAR(-1, 1), %	31	0.02	0.52	-0.21	0.03	0.23
CAR (-2, 2), %	31	0.03	0.71	-0.39	0.02	0.37
GDP growth	31	0.11	0.02	0.11	0.12	0.13
Log(GDP/capita)	31	10.49	0.44	10.17	10.41	10.83
Education expenditures/GDP	31	0.04	0.02	0.03	0.03	0.05
Marketization	31	7.34	2.39	6.06	7.39	8.93
Resource allocation	31	5.22	5.97	4.28	6.45	8.45
Financial sector marketization	31	10.07	1.45	9.61	10.28	10.75
Legal environment	31	7.91	4.85	5.25	6.00	8.30

Appendix II
Summary Statistics for the Analysis of Firm Level Cumulative Returns

Samples	Full		Non-SOEs		SOEs	
	N	2243	1228	1015		
	Mean	Std.	Mean	Std.	Mean	Std.
CRR(-1, 1), %	2.30	3.37	1.52	3.40	3.17	3.04
CRR(-2, 2), %	3.48	3.87	2.76	3.19	4.23	3.94
CAR(-1, 1), %	0.19	3.00	-0.51	2.98	0.47	3.17
CAR(-2, 2), %	0.32	3.98	-0.70	3.87	0.67	4.08
ETC	0.64	1.17	0.71	1.15	0.54	1.24
Marketization	9.22	2.02	9.50	1.96	8.88	2.05
Resource allocation	7.58	2.81	7.85	2.88	7.26	2.70
Financial sector marketization	10.97	1.16	11.14	1.14	10.78	1.15
Legal environment	12.20	5.68	12.81	5.69	11.46	5.59
Log(total assets)	21.83	1.49	21.66	1.31	22.03	1.65
Liability/total assets	0.47	0.57	0.45	0.67	0.50	0.42
R&D	0.01	0.03	0.02	0.03	0.01	0.03
Total factor productivity	4.16	5.71	4.44	5.73	3.82	5.29
GDP growth	0.11	0.03	0.10	0.02	0.11	0.03
Log(GDP/capita)	10.75	0.40	10.79	0.38	10.71	0.43
Education expenditures/GDP	0.03	0.00	0.03	0.01	0.03	-0.01
External finance dependence	-0.87	3.79	-0.71	3.61	-1.05	4.00
Growth potential	1.55	0.25	1.55	0.25	1.54	0.26
ΔQ	-0.32	1.51	-0.28	1.39	-0.37	1.66
ΔROA , %	-0.33	5.60	-0.30	5.43	-0.36	5.84
ΔSG , %	3.77	66.30	3.09	57.03	4.73	77.58

Appendix III
Variable Descriptions

Variables	Description
ETC, %	Entertainment and travel costs scaled by annual sales
CRR(-1,1), %	3-day cumulative stock raw returns around the passage of the Eight-point policy on Dec 4 th 2102.
CRR(-2,2), %	5-day cumulated stock raw returns around the passage of the Eight-point policy.
CAR(-1,1), %	3-day cumulative stock abnormal returns around the passage of the Eight-point policy using the market model. The market model parameters are estimated over the period from day -210 to -11 (day 0 is the event day) with the value-weighted return as the market return.
CAR(-2,2), %	5-day cumulated stock raw abnormal around the passage of the Eight-point policy using the market model. The market model parameters are estimated over the period from day -210 to -11 (day 0 is the event day) with the value-weighted return as the market return.
ΔQ	The average of daily M/B one year after the passage of the Eight-point policy minus the average of daily M/B one year before the passage of the rules. Daily M/B is defined as: (daily closing price * total shares outstanding)/total book equity in the year.
ΔSG , %	The change of sales growth rate from year 2012 to 2013. Sales growth rate is defined as (total sales in year t - total sales in year t-1)/total sales in year t-1.
ΔROA , %	The change of return on assets from year 2012 to year 2013. Return on assets is defined as operating income before depreciation and amortization/total assets.
SOEs	1 if the firm is ultimately controlled by the state government and 0 otherwise, using a 30% control threshold following CSMAR (China Stock Market and Accounting Research) and guidelines from the CSRC (China Securities Regulatory Commission).
Marketization	An aggregated index measuring the relative progress in marketization for China's provinces; the higher the value the higher level of marketization. The data source is the National Economic Research Institute (NERI) index of Marketization of China's Provinces constructed by Fan et al (2011).
Resource allocation	An index measuring the extent to which resource allocation is effected by governments using the share of government budgetary expenses in GDP; the higher the value the more significant market's roles in resource allocation. It is the sub-field index under the "Government and market relations" in the NERI index of Marketization of China's Provinces.
Financial sector marketization	An index measuring non-SOEs' access to capital. It combines two indicators, the level of deposit in non-state financial institutions and the share of bank loans credited to non-state enterprises; the higher the value the better non-SOE's access to capital. It is the sub-field index under the "Development of factor markets" in the NERI index of Marketization of China's Provinces.
Legal environment	An index measuring the court's efficiency in resolving legal cases, which is based on 4000 company leaders' judgments collected from enterprise surveys; the higher the value the stronger the legal environment. It is the sub-field index under the "Market intermediaries and the legal environment for the market" in the NERI index of Marketization of China's Provinces.
Log(total assets)	The logarithm of total assets.
Liability/total assets	Total debts over total assets.
R&D	R&D expenses scaled total sales.
Total factor productivity	The Levinsohn-Petrin estimate of the total factor productivity, estimated separately for each industry.
GDP growth	The province's average of real GDP growth from 2009 to 2011.
Log(GDP/capita)	The province's average of log(real GDP/capita) from 2009 to 2011.
Education expenditures / GDP	The province's average of education expenditures over GDP from 2009 to 2011.
External finance dependence (EFD)	The industry median of capital expenditures minus cash flow from operations divided by capital expenditures. 2011 data.
Growth potential (GROWTH)	The industry median of market equity value divided by total book equity. 2011 data.

References

- Agarwal, Sumit, Wenlan Qian, Amit Seru, and Jian Zhang 2015. Disguised corruption: Evidence from consumer credit in China. Working paper presented at the Asia Bureau of Finance and Economics Research.
- Allen, F., Qian, J., Qian, M., 2005. Law, finance, and economic growth in China. *Journal of Financial Economics* 77, 57-116
- Ayyagari, M., Demirguc-Kunt., and V. Maksimovic, "Bribe Payments and Innovation in Developing countries: Are Innovating Firms Disproportionately Affected?" *Journal of Financial Economics and Quantitative analysis*, 2014, 49(01), 51-75.
- Barro, Robert J., and Xavier Sala-i-Martin. 1992. Convergence. *Journal of Political Economy* 100(2): 223-251.
- Broadhurst, R., Wang, P., 2014. After the Bo Xilai trial: Does corruption threaten China's future? *Survival: Global Politics and Strategy* 56, 157-178
- Cai, H., Fang, H., Xu, L.C., 2011. Eat, drink, firms and government: An investigation of corruption from entertainment and travel costs of Chinese firms. *Journal of Law and Economics* 54, 55-78
- Calomiris, C.W., Fisman, R., Wang, Y., 2010. Profiting from government stakes in a command economy: Evidence from Chinese asset sales. *Journal of Financial Economics* 96, 399-412
- Carpenter, J.N., Lu, F., Whitelaw, R., 2014. The real value of China's stock market. Available at SSRN
- Chen, S., Sun, Z., Tang, S., Wu, D., 2011. Government intervention and investment efficiency: Evidence from China. *Journal of Corporate Finance* 17, 259-271
- Chen, Z., 2003. Capital markets and legal development: The China case. *China Economic Review* 14, 451-472
- Cull, R., Xu, L.C., 2003. Who gets credit? The behavior of bureaucrats and state banks in allocating credit to Chinese state-owned enterprises. *Journal of Development Economics* 71, 533-559
- Deng, Yongheng, Wu Jing, Randall Morck, and Bernard Yeung, 2015, "China's Pseudo Monetary Policy" (previously titled: Monetary and Fiscal Stimuli, Ownership Structure and China's Housing Market) with, *Review of Finance*, Vol. 19, pp. 55-93, 2015. (NBER WP 16871 2010)
- Fan, G., Wang, X., Zhu, H., 2011. NERI index of marketization of China's provinces: 2011 report (in Chinese). Economic Science Press, Beijing
- Firth, M., Lin, C., Liu, P., Wong, S.M.L., 2009. Inside the black box: Bank credit allocation in China's private sector. *Journal of Banking & Finance* 33, 1144-1155
- Fisman, R., 2001. Estimating the value of political connections. *American Economic Review*, 1095-1102
- Fisman, R., Miguel, E., 2007. Corruption, norms, and legal enforcement: Evidence from diplomatic parking tickets. *Journal of Political economy* 115, 1020-1048

- Fisman, R., Svensson, J., 2007. Are corruption and taxation really harmful to growth? Firm level evidence. *Journal of Development Economics* 83, 63-75
- Gold, T., Guthrie, D., 2002. *Social connections in China: Institutions, culture, and the changing nature of guanxi*. Cambridge University Press
- Hung, M., Wong, T., Zhang, T., 2012. Political considerations in the decision of Chinese SOEs to list in Hong Kong. *Journal of Accounting and Economics* 53, 435-449
- Jones, W.C., 2003. Trying to understand the current Chinese legal system. In: *Understanding China's Legal System: Essays in Honor of Jerome A. Cohen* New York University Press, New York and London.
- Krueger, A.O., 1974. The political economy of the rent-seeking society. *The American Economic Review* 64, 291-303
- Levinsohn, J., Petrin, A., 2003. Estimating production functions using inputs to control for unobservables. *The Review of Economic Studies* 70, 317-341
- Li, H., Meng, L., Wang, Q., Zhou, L.-A., 2008. Political connections, financing and firm performance: Evidence from Chinese private firms. *Journal of Development Economics* 87, 283-299
- Mauro, P., 1995. Corruption and growth. *The Quarterly Journal of Economics*, 681-712
- McGregor, R., 2010. *The Party: The secret world of China's communist rulers*. Penguin UK.
- McMillan, J., Woodruff, C., 2002. The central role of entrepreneurs in transition economies. *Journal of Economic Perspectives* 16, 153-170
- Morck, R., Nakamura, M., 1999. Banks and corporate control in Japan. *Journal of Finance* 54, 319-339
- Morck, R., Wolfenzon, D., Yeung, B., 2005. Corporate governance, economic entrenchment and growth. *Journal of Economics Literature* 43, 657-722
- Murphy, K.M., Shleifer, A., Vishny, R.W., 1991. The allocation of talent: implications for growth. *Quarterly Journal of Economics* 106, 503-30
- Murphy, K. M., Shleifer, A, Vishny, R.W.. 1992. The Transition to a Market Economy: Pitfalls of Partial Reform. *Quarterly Journal of Economics* 107, 889-906.
- Murphy, K.M., Shleifer, A., Vishny, R.W., 1993. Why is rent-seeking so costly to growth? *American Economic Review* 83, 409-414
- Park, S.H., Luo, Y., 2001. Guanxi and organizational dynamics: Organizational networking in Chinese firms. *Strategic Management Journal* 22, 455-477
- Piotroski, J.D., Zhang, T., 2014. Politicians and the IPO decision: The impact of impending political promotions on IPO activity in China. *Journal of Financial Economics* 111, 111-136
- Pritchett, Lant & Summers, Lawrence H., 2013. "[Asiaphoria meet regression to the mean.](#)" *Proceedings, Federal Reserve Bank of San Francisco*, issue Nov, pages 1-35. (NBER wp 20573)
- Rajan, R.G., Zingales, L., 1998. Financial dependence and growth. *American Economic Review* 88, 559-587

- Schwert, G.W., 1981. Using financial data to measure effects of regulation. *Journal of Law and Economics* 24, 121-158
- Shleifer, A., Vishny, R., 1993. Corruption. *Quarterly Journal of Economics* 108, 599-617
- Sun, Q., Tong, W.H.S., 2003. China share issue privatization: The extent of its success. *Journal of Financial Economics* 70, 183-222
- Svensson, J., 2005. Eight questions about corruption. *The Journal of Economic Perspectives* 19, 19-42
- Wedeman, Andrew. 2012. *Double paradox: Rapid growth and rising corruption in China*. Cornell University Press.
- Wang, Q., Wong, T.-J., Xia, L., 2008. State ownership, the institutional environment, and auditor choice: Evidence from China. *Journal of Accounting and Economics* 46, 112-134
- Wei, S.-J., 2001. Corruption in economic transition and development: grease or sand? United Nations Economic Commission for Europe, Geneva.
- Wei, Z., Xie, F., Zhang, S., 2005. Ownership structure and firm value in China's privatized firms: 1991–2001. *Journal of Financial and Quantitative Analysis* 40, 87-108
- Woo, W.T., 2012. *A new economic growth engine for China: Escaping the middle-income trap by not doing more of the same*. World Scientific.
- Wu, Jing, Yongheng Deng, Jun Huang, Randall Morck, and Bernard Yeung, 2014, “Incentives and Outcomes: China’s Environmental Policy,” *Capitalism and Society*, Vol. 9 No. 1, Article 2, 2014 (NBER WP 18754)
- Xu, C., 2011. The fundamental institutions of China’s reforms and development, *Journal of Economic Literature* 49, 1076-1151
- Yuen, S., 2014. Disciplining the Party. Xi Jinping’s anti-corruption campaign and its limits. *China Perspectives*, 41-47.
- Zeume, Stefan, 2016. Bribes and firm value, Ross School of Business Working Paper No. 1273 (Jan)