Under the radar: The role of subsidiaries in concealing political connections in Chinese land transactions

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Abstract

This paper provides evidence that politically connected firms in China conceal their political favors through the use of subsidiaries. While the headquarters of these connected listed firms pay land prices comparable to those of other firms, their subsidiaries receive significant discounts, ranging from 12.1% to 13.2%. These discounts are more pronounced when land is acquired through non-transparent methods or in regions with weak institutional environments. Additionally, larger charitable donations often precede greater discounts for subsidiaries, indicating a reciprocal relationship between firms and officials. The anti-corruption campaign has effectively reduced discounts associated with corruption but has intensified those linked to government subsidies. These findings illustrate how firms discreetly leverage political connections and hide their rent-seeking behavior through complex corporate structures. This study shed light on how corporate structures are used to hide political favoritism, leading to resource allocation distortions, particularly in contexts with weak regulatory frameworks.

JEL Classifications: D73, G38, H7, R30

Keywords: Political connection, Headquarter, Subsidiary, Land prices, Corruption

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1. Introduction

Political connections are widely recognized as a key tool for firms to gain preferential access to resources, particularly in emerging economies where government influence is pervasive (Acemoglu and Verdier, 2000; Fisman, 2001).[1] Numerous studies have documented the benefits firms derive from political ties, such as preferential access to financing (Khwaja and Mian, 2005), government contracts (Schoenherr, 2019), and regulatory favors (Faccio et al., 2006). Since political favoritism is subject to scrutiny and regulatory pressure, more recent studies (e.g., Chen and Kung, 2019; Haselmann et al., 2018; Brugues et al., 2024) suggest that firms may benefit even more by building covert political ties through social networks. However, less is known about whether, and how, these firms hide their rent-seeking activities, when their political ties are overt.

This paper provides novel evidence on how firms hide their rent-seeking activities through corporate structure. Specifically, they utilize their subsidiaries to acquire land at discounted prices, a strategy that allows them to benefit from political connections while minimizing public visibility. We focus on the differential treatment of politically connected firms' headquarters and their subsidiaries, revealing hidden channels of rent-seeking behavior. The choice of the headquarter-subsidiary relationship aligns with the idea that the business activities of subsidiaries are more covert due to consolidation accounting reporting rules. Moreover,

[1] According to Transparency International, a non-government organization that oversees the corruption situations and accountability of the governments of 174 countries, political corruption is not limited to only financial benefits or political finance but also includes other forms, such as vote-buying. Its Corruption Perception Index ranges between 0 (highly corrupt) and 100 (corruption-free). Denmark, Finland, and New Zealand are tied for the least corrupt government in 2021, with index values of 88, indicating some politically connected corruption still exists. See https://www.transparency.org/en/about for more details.

firms can strategically manage subsidiary disclosures, including basic information like location (Dyreng et al., 2020). This idea is also supported by the longstanding literature on how firms use subsidiaries to avoid taxes (e.g., Coppola et al., 2021; Dyreng et al., 2013; Hope et al., 2013). Although tax avoidance through corporate structure is well-documented, the use of corporate structure for political rent-seeking has yet to be explored in prior studies.

China presents a unique institutional context to study the impact of political connections on firm behavior. The country's institutional environment was characterized by a strong government presence in the economy, weak legal protections, and a high level of corruption (Fan et al., 2007; Chen et al., 2017). At the same time, China's land market has undergone significant reforms in recent years, with local governments processing significant authority in the land auction process (e.g., Cai et al., 2017) and increasingly relying on land sales as a key source of fiscal revenue (Liu and Xiong, 2020). This has created opportunities for politically connected firms to obtain land at preferential prices, but it has also exposed them to greater regulatory risks, particularly in the wake of the anti-corruption campaign launched by President Xi Jinping in 2012 (Pan and Tian, 2020).

To investigate this mechanism, we construct a comprehensive dataset of land transactions in China from 2007 to 2020, matched with the political connections of listed firms and their subsidiaries. Using a spatial matching approach (Chen and Kung, 2019), we find that politically connected firms pay comparable prices to unconnected firms when purchasing land through their headquarters but receive substantial discounts when purchasing through subsidiaries. These discounts are more pronounced for land sold through less transparent methods, such as negotiated sales and two-stage auctions, and in regions with weaker legal protections and less developed private sectors.

Moreover, the fact that the anti-corruption campaign has effectively reduced the price discounts obtained by politically connected subsidiaries indicates that rent seeking rather than efficiency drives these practices. More interestingly, the land price discount moves closely with the strength of the anti-corruption campaign. It was minimized in 2017 when the strength of the anti-corruption campaign peaked, and reemerged thereafter, albeit moderately, when anti-corruption was less vigorous. This finding is consistent with recent studies showing that the anti-corruption campaign has curbed corporate fraud (Hu et al., 2020) and improved investment efficiency (Pan and Tian, 2020) in China.

We also find a significantly negative relationship between charitable donations and subsequent land purchase prices paid by connected subsidiaries, indicating a reciprocal relationship between local government officials and connected firms. While this corruption-related reciprocal relationship has been eliminated following the anti-corruption campaign, the marginally significant negative relationship between government subsidies and land purchase prices has amplified afterward. These findings provide additional evidence for the corruption hypothesis and shed light on the complex dynamics between firms, government officials, and institutional factors in shaping economic outcomes.

In addition, we have conducted several robustness checks to address potential alternative explanations. First, one might argue that politically connected firms could intentionally assign lower-cost land to their subsidiaries rather than obtain larger discounts through subsidiary purchases. To address this concern, we use the geographic distance between corporate headquarters and purchased land parcels as an instruction for subsidiary land purchases. Headquarters farther from the land location face an information disadvantage compared to local firms, and this distance is not directly related to land transaction prices. Our 2SLS estimates

align with our main findings. Second, the control group in our sample includes a large amount of land transactions by unlisted firms with unidentifiable political connections. This suggests that our calculations represent a lower bound for the land price discounts obtained by firms with overt political ties. To further mitigate the concerns about the control group, we include land purchased by both politically connected and unconnected listed firms in our analysis, finding that only politically connected subsidiaries benefit from significant land price discounts. Notably, only the land prices secured by connected subsidiaries are affected by the anti-corruption campaign. Third, one potential alternative explanation is that government ownership might drive the main results. Since the government acts as both the land provider and owner of statement owned enterprises (SOEs), it could be motivated to prioritize SOEs by lowering land prices. However, our results suggest the opposite: land price discounts are driven by private firms. Fourth, firm-level regression results suggest that politically connected listed firms purchase more land, both in terms of area and expenditure, through subsidiaries than their unconnected listed counterparties, implying that politically connected firms actively seek to leverage this mechanism.

Our study is closely related to the work of Chen and Kung (2019), who find that "princeling-connected firms" obtain land at deep discounts during the 2004-2016 period. We extend their work by considering a broader set of bureaucrat-firm connections and exploring the hidden channels between headquarters and their subsidiaries. To the best of our knowledge, this study is the first to illustrate how political connections penetrate through corporate structures. Unlike Chen and Kung's (2019) focusing on the impact of building indirect political ties through social networks, our manuscript reveals how connected firms use corporate structures to hide politically favorable treatment, rather than blurring political ties.

Our study makes several contributions to the literature on political connections and corporate governance. First, we identify the mechanisms through which politically connected firms hide their rent-seeking behavior. This deepens our understanding of how political connections influence resource allocation, setting our work apart from previous studies that have primarily focused on either the effects of direct political ties (Faccio et al, 2006; Fan et al., 2007; Schweizer et al., 2019) or the greater benefits from indirect political ties (Brugues et al., 2024; Broadstock et al., 2020; Chen and Kung, 2019).

Second, we extend our understanding of the potential implication of exploiting corporate structures, especially regarding subsidiaries. The phenomenon of using subsidiaries for tax avoidance is well-studied in the literature (e.g., Coppola et al., 2021; Dyreng et al., 2013; Hope et al., 2013). Our study, on the other hand, illustrates how firms use subsidiaries to hide their political favoritism and the possible reciprocal relationships between connected firms and local officials. The effects are more effective when connected firms using less transparent sales methods (as in Qin et al., 2016), and in targeting regions with weaker institutions (as in Wang and Hui, 2017).

Finally, this study sheds light on the effectiveness of anti-corruption measures in curbing rent-seeking behavior and promoting market efficiency. Prior studies have documented the impact of China's anti-corruption campaign on various outcomes, such as firm investment and performance (Pan and Tian, 2020; Hu et al., 2020). We instead show that while the anti-corruption campaign has effectively eliminated corruption-based resource allocation distortions, subsidy-based resource allocation distortions have actually intensified. Our findings suggest that political favors can be persistent, albeit responsive to changes in the incentives of public officials and the strength of legal enforcement.

Even though this study focuses on China's land market, its implications extend far beyond this specific context. The strategic use of subsidiaries to exploit implicit channels of political connections occurs in various forms across different countries and markets. This mechanism reveals a sophisticated approach to rent-seeking that may be particularly prevalent in emerging economies with weak institutional environments. Our findings suggest that traditional measures of corruption and political connectedness may significantly underestimate the extent of these practices globally. Moreover, this study highlights the need for policymakers worldwide to consider the corporate structures of firms when designing and implementing regulatory policies such as anti-corruption measures. The effectiveness of the Chinese anti-corruption campaign in reducing overt favoritism, while leaving more subtle forms of advantage intact, offers valuable lessons for regulatory efforts in other countries struggling with similar issues.

The remainder of the paper proceeds as follows. Section 2 provides background on China's land market reforms of the early 2000s and develops our main hypotheses. Section 3 describes our data, sample selection, and empirical strategy. Section 4 presents our main results and robustness tests. Section 5 concludes with a discussion of the implications of our findings and directions for future research.

2. Institutional background, and hypotheses development

2.1 Background of China's primary land market

In China, urban land ownership remains with the State, but the land use rights can be transferred between private investors after the amendment of the Constitution in 1988 (see, for example, Qin et al., 2016). Henceforth, we use "sell land parcels" or "sell land" to denote "sell

the land use rights of land parcels" for brevity. In the 1990s to early 2000s, the Chinese primary land market gradually transferred from a planned market to an open market. However, administration allocation (*huabo*) — the non-market-oriented land sales method inherited from the planned economy era — still constituted 41.4% of the total urban land supply area in 2001 (Qian, 2008). Negotiation (*xieyi*) was the most used market-oriented land sales method in the early 2000s, and was also the most informally opaque method (Cai et al., 2013). The "hidden" price negotiation process enabled government officials to abuse their discretionary power to extract private benefits leading to corruption.

Consequently, the Central Commission for Discipline Inspection set up provisions to combat land-related corruption in 2004.[2] The Ministry of Land and Resources also requires the provincial land bureaus to dispose of all land for business use, such as commerce, tourism, entertainment, and commodity housing, through a transparent auction-based land sales system (i.e., sealed bid auctions (*zhaobiao*), two-stage auctions (*guapai*) or English auctions (*paimai*)).[3] Figure 1 shows that land parcels sold through negotiation have declined from 61.87% in 2007 to 33.71% in 2020. At the same time, two-stage auctions have become the primary land sales method (53.93% of the total land transactions and 73.62% of the total area of land supply in 2020).

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[2] "*Notice of the Disciplinary Supervision Department of the Central Commission for Discipline Inspection about punishments on abuse of authority to extract private benefits by intervening in the bidding and tendering process of construction projects, land transfers and real estate development and operation, and other related market economic activities*," issued by the Central Commission for Discipline Inspection on February 3, 2004. See https://zzb.fzu.edu.cn/info/1031/1733.htm (in Chinese) for more details.

[3] Decree No. 11 of the Ministry of Land and Resources, titled "*Provisions on the assignment of the state-owned land use rights by means of sealed bid auctions, two-stage auctions or English auctions*" was issued on May 9, 2002. See http://www.gov.cn/gongbao/content/2003/content_62586.htm (in Chinese) for more details.

Even though the most used two-stage auctions are more transparent than negotiation and administrative allocation, they still cannot solve the problem of land-related corruption. For example, Cai et al. (2013) argue that two-stage auctions could be manipulated and are associated with corruption, because favored bidders in the first stage can signal that the auctions have been "taken", discouraging subsequent potential entrants, leading to lower land prices (around 17% lower than English auctions). Wang and Yang (2021) also find a price discount for two-stage auctions, and Cai et al. (2017) suggest that real estate developers are more likely to exceed the floor-to-area ratio limit if they acquire land parcels through two-stage auctions. Another piece of evidence of land-related corruption comes from princeling firms purchasing land parcels at below-market prices (Chen and Kung, 2019). Province-level officials who have provided the price discount to princeling firms are more likely to be promoted to national leadership positions.

In addition to pecuniary benefits, local officials also have incentives to intervene in the primary land market because of the GDP-based evaluation and promotion system. For example, local officials are motivated to attract manufacturing investments by suppressing industrial land prices (Liu and Xiong, 2020) and negotiating land prices with industry firms (Tu et al., 2014), which in turn promote local economic growth, tax revenue, and employment (Tao et al., 2010). Wang and Hui (2017) provide empirical evidence that city-level officials deliberately intervene in the primary land market to make a balance between collecting enough land revenue and curbing housing prices.

2.2 Hypotheses development

The literature on political connections has well documented that connected firms, especially connected private firms, receive more favorable treatment than other firms. For example, politically connected firms have better access to bank credit in Pakistan (Khwaja and Mian, 2005), Brazil (Claessens et al., 2008), and China (Wang, 2015). In addition, connected firms, on average, have lower costs of capital (Boubakri et al., 2012), higher probabilities of IPO approval (Liu et al., 2013), better access to government bailouts (Faccio et al., 2006) and regulated industries (Feng et al., 2015), and hence have higher market valuations (Goldman et al., 2009). However, firms might want to avoid being seen as favorably treated, especially in countries like China where politicians are sensitive to favoritism. A solution is to have the firm's subsidiary with less obvious political connections exploit the benefit.

In this paper, we look at the possible discounts from the detailed information about every land auction that is publicly available. This contrasts the relatively opaque and difficult-to-quantify favorable treatments in previous studies, such as credit granting process (e.g., Khwaja and Mian, 2005), the IPO approval process (e.g., Liu et al., 2013), and the process of issuing permits for regulated industries (Feng et al., 2015). The Chinese primary land market is under regulatory scrutiny by the Central Commission for Discipline Inspection and the media. Therefore, local officials are less likely to provide land price discounts to firms with direct political ties. Wang and Yang (2021) finds that, Chinese state-owned enterprises (SOEs) on average pay 9.5-11.9% more than private firms when acquiring land parcels. On the contrary, firms with indirect political ties through linking to family members of a handful of political elites sitting on the Politburo and its Standing Committee (a.k.a. princeling firms) enjoy a 55.4% land price discount (Chen and Kung, 2019). Broadstock et al. (2020) also shows that indirect

political connections through recruiting colleagues of government officials bring more benefits than direct political connections by recruiting former government officials.

We use headquarter-subsidiary relationships as an identification of explicit and implicit political connections.[4] Firms can strategically manage subsidiary disclosures, even the basic location information (Dyreng et al., 2020), leading to a relatively opaque information environment for firm subsidiaries. As a result, firms could potentially utilize subsidiaries to hide unethical or illegal behaviors, such as pollution-intensive activities (Lee and Bansal, 2024), tax avoidance (Dyreng et al., 2013) and shareholder expropriation (O'Donovan et al., 2019). Therefore, we consider the headquarters of politically connected listed firms as explicitly, and their subsidiaries as implicitly, politically connected firms. We expect that firms with implicit political ties can extract rent better, and therefore develop the following hypothesis:

H1: *Politically connected firms pay less when they purchase land parcels through their subsidiaries than through their headquarters*.

In addition, the discretionary power of local government officials in the primary land market is the premise of firms' rent-seeking behavior. For example, land parcels disposed of through relatively opaque negotiation sales and two-stage auctions methods are constantly lower than through English auctions (e.g., Cai et al., 2013; Qin et al., 2016; Wang and Yang, 2021). Because land price manipulation is positively correlated with the opacity of land sales

[4] Due to limitations in data availability, we define political ties based solely on the top managers at the firm headquarters and cannot separately identify political ties established by subsidiaries. Since the headquarters and subsidiaries are part of the same firm, we use the term "implicit" instead of "indirect" political ties to capture the impact of political connections formed at headquarter on the business activities of the subsidiaries.

methods, connected firms can gain a competitive advantage if the market price can be manipulated rather than entirely determined by competition. We therefore formulate the second hypothesis as follows:

H2: *Subsidiaries of politically connected firms purchase land parcels at discount when they are disposed of through informationally opaque sales methods.*

We also investigate the two potential reasons for the linkage between land prices and political connections, being government subsidy and corruption. As mentioned earlier, local governors tend to grant industrial land at subsidized prices in order to boost production for the hope of GDP-based promotion. Cheap land for other purposes would most likely be due to corruption, and therefore vanishes after anti-corruption campaign. We thus have the following two hypotheses:

H3a (Government subsidy hypothesis): *The price discount obtained by subsidiaries of politically connected firms is larger for subsidized industrial land parcels than those for other land use*.

H3b (Corruption hypothesis): *The price discount obtained by subsidiaries of politically connected firms has been significantly reduced after the anti-corruption campaign, while the discount for industrial land parcels persists*.

3. Sample, measurements, and descriptive statistics

Our sample is initially composed of all land transactions between January 2007 and August 2020. We started in 2007 because local authorities have been required to disclose land transaction information on the China Land Market website (www.landchina.com) since August

2006.[5] To maintain a clean treatment sample, we exclude land parcels purchased by individuals because their identities are opaque (Wang and Yang, 2021). We also exclude land parcels purchased by public institutions and government agencies (such as local municipal government, local courts, local education bureau, etc.) and sold through administrative allocation because they are mainly used for public services and cannot be directly transferred between investors (Tan et al., 2011). We delete land parcels sold through administrative allocation and land parcels with a zero-transaction price. Our final sample consists of 904,476 land transactions. The average land price of the selected observations is significantly higher than that of excluded observations (2,058.43 versus 1,188.69 *yuan* or CNY per square meter, 1 *yuan* ≈ 0.15 USD). The average land size of the selected observations is also larger (34,601.91 versus 32,193.71 square meters).

The financial information, subsidiary names, and executives' resume of listed firms are obtained from China Stock Market & Accounting Research (CSMAR) database. Following Fan et al. (2007), Cao et al. (2017), and Wang and Wu (2020), we define a listed firm as politically connected if one or more of its CEOs or board chairpersons is/are (was/were) a county head or higher-level government official, member of the People's Congress (CPC), or member of the People's Political Consultative Conference (CPPCC). To investigate whether politically connected firms could purchase land parcels at a discount through their headquarters and their subsidiaries separately, we match land transaction data and firm-level data by firm (subsidiary) name following the procedure in Tan et al. (2020) and Arora et al. (2021). The detailed

[5] "*Detailed rules on the assignment of land use rights by means of sealed bid auctions, two-stage auctions or English auctions* (*Trail Implementation*)" issued by the Ministry of Land and Resources on May 31, 2006. See http://www.mnr.gov.cn/gk/tzgg/201207/t20120723_1989380.html (in Chinese) for more details.

matching procedure is covered in Appendix A. We use subsidiaries to denote both subsidiaries and branches for brevity.

The challenge is that the price differences between land transactions could be affected not only by political connections and observed control variables, but also by unobserved local economic conditions. To address this issue, we consider land transactions made by politically connected listed firms as the treatment group and use nearby recent land transactions as the control group to mitigate unobserved heterogeneities between the two groups. We adopt the spatial matching approach proposed by Chen and Kung (2019), matching each land parcel purchased by politically connected listed firms (including subsidiaries) with land parcels purchased in the same year and within a 1,500-meter radius (about eight blocks).

To address potential endogeneity concerns, we employ several strategies beyond our primary spatial matching approach. First, we use an instrumental variable approach, leveraging the geographical distance between corporate headquarters and purchased land parcels as an instrument for subsidiary land purchases. This strategy exploits the fact that firms are more likely to use local subsidiaries for distant land acquisitions, while the distance itself should not directly affect land prices. Second, we exploit the quasi-natural experiment of China's anti-corruption campaign, using a difference-in-differences framework to isolate the causal effect of political connections on land prices. Third, we conduct a series of placebo tests, randomly assigning political connections to firms in our sample and re-estimating our main specifications. These additional identification strategies, combined with our extensive set of fixed effects and control variables, help to mitigate concerns about omitted variables and reverse causality, strengthening the causal interpretation of our results.

This matching method assumes that land parcels within the same area have similar quality and hence similar selling prices if sold in the same year. Additionally, following Chen and Kung (2021), we control for a comprehensive set of land-level and firm-level characteristics, such as land parcel quality (subjectively evaluated by government officials), land usage types (industrial, commercial or residential), and industry classification of land buyers (industrial classification code for National Economic Activities) to mitigate possible unobserved heterogeneities. For robustness check, we also use a more restrictive 500-meter radius (about three blocks).

The summary statistics of land parcels in Panel A of Table 1 show that the average land cost for politically connected firms is 2,605.464 *yuan* per square meter and is 27.44% (2,605.464 / 2,044.499 – 1) higher than that for other firms (2,044.499 *yuan* per square). Meanwhile, the dispersion of land cost for politically connected firms is around 1.92% (9,845.661 / 512,688.927) of that for other firms, indicating the existence of significant heterogeneity in the control group (i.e., other firms). By matching all land transaction observations in the treatment group with comparable observations in the control group, we are able to reduce the dispersion of land cost for the control group by 98.49% (7,738.050 / 512,688.927 – 1) as shown in Panel B. Note that the treatment group (politically connected listed firms) is identical for both the full sample and all other different matched samples.

As exhibited in Panel C, the average land cost for politically connected listed firms is lower than that for unlisted firms but higher than that for unconnected listed firms. We are not able to identify whether the unlisted firms are politically connected firms because such data are unavailable. Second, Panel B also shows that politically connected firms are more likely to acquire larger land parcels (48,856.851 versus 38,170.560 square meters) and with slightly

better quality (4.869 versus 5.019) and commercial land (34.0% versus 21.1% of total land parcels).[6] Third, politically connected firms have purchased 93.1% of land parcels through their subsidiaries (reflected by the indirect land purchase identifier, *Subsidiary*). Similarly, other listed firms with no political connections have purchased 90.91% (0.030/0.033) of land parcels through their subsidiaries.[7]

Table 2 shows that politically connected listed firms (treated firms) constitute 18.63% of total land buyers in the matched sample (within a 1,500-meter radius). Note that 9,520 of the 9,863 politically connected listed firms are subsidiaries. This highlights the crucial role of subsidiaries in land transactions. Among listed land buyers, the sectoral distribution of politically connected land buyers is similar to that of unconnected land buyers, as shown in Panel B of Table 2. The top two origins of listed firms are the manufacturing industry (30.47% and 37.48% of politically connected and unconnected listed land buyers, respectively) and the real estate industry (22.36% and 27.05%). The sectoral distribution of unlisted land buyers is more concentrated than that of listed land buyers. Around two-thirds of unlisted land buyers are either manufacturing firms (41.97%) or real estate firms (25.89%).

[6] Land parcel quality, *Quality*, is a subjective measure initially evaluated by local Departments of Natural Resources, and subsequently verified by both local governments and higher-level Departments of Natural Resources. We include it as a categorial control variable as in Chen and Kung (2021).

[7] Within the matched sample (as shown in Panel B of Table 1), politically unconnected listed firms in total have purchased 2,395 (3.3% × 72,585) land parcels, among which 2,178 (3.0% × 72,585) land parcels are purchased through their subsidiaries. Because of data limitations, we could only identify subsidiaries of listed firms.

4. Methodologies and empirical results

4.1 Price discounts obtained by subsidiaries of politically connected firms

We first follow the empirical framework of Chen and Kung (2019) to investigate whether politically connected firms can purchase land parcels at a discount, especially when they use their subsidiaries in the bidding process. The baseline regression model is specified as:

$$Price_{i,b,j,s,t} = \beta_0 + \beta_1 Connected_{b,t} + \beta_2 Connected_{b,t} \times Subsidiary_{b,t} + \gamma X_{i,t} + \omega_{s,t} + \varphi_{j,t} + v_{i,b,j,s,t} \quad (1)$$

where $Price_{i,b,j,s,t}$ denotes the natural logarithm of the price (*yuan* per square meter) for land parcel *i* purchased by land buyer *b* in city *j* for usage *s* in year *t*. Recall that the six land usage types are residential land, commercial land, industrial land, infrastructure land, public services land, and other land (as described in Appendix B).[8] $Connected_{b,t}$ equals 1 if the firm *b* or the headquarter of firm *b* is a politically connected firm, and 0 otherwise. $Subsidiary_{b,t}$ equals 1 if firm *b* is a subsidiary or a local branch of a listed firm, and 0 otherwise. Because politically connected and unconnected listed firms tend to purchase land parcels at different locations, *Subsidiary* and *Connected* × *Subsidiary* are highly correlated (correlation coefficient of 0.9358) in the matched sample. We therefore drop the variable, *Subsidiary*, in main regressions to avoid the multicollinearity problem. However, this exclusion assumes no differences in land purchase prices between headquarters and subsidiaries for politically unconnected listed firms. If this assumption is invalid, omitting the variable, *Subsidiary*, can significantly bias our results. To

[8] The group of other usage types includes public services land (0.99% of the matched sample), infrastructure land (4.59% of the matched sample), and other lands (0.01% of the matched sample). Public services and infrastructure land can be influenced by unobserved macroeconomic factors, such as social security concerns, and only comprise around 5% of the sample. Therefore, we have not reported the regression results for the group of other usage types.

mitigate this concern, we perform a robustness test in Section 4.2 to investigate whether politically unconnected list firms can also acquire land parcels at discount prices through their subsidiaries as their connected counterparts.

In Equation (1), β_1 captures the average land price discount due to explicit political ties (headquarters of connected firms), and $\beta_1 + \beta_2$ for implicit ties (subsidiaries). The key independent variable in this study is the interacting term $Connected_{b,t} \times Subsidiary_{b,t}$ as β_2 reflects the impact difference between implicit and explicit political ties. $X_{i,t}$ is a vector of transaction-level control variables, including the log of land size (square meters), land quality dummies, land sales method dummies, firm size, firm ownership, firm listed status, and industry dummies (See Appendix B for detailed definitions).

To account for unobserved factors that may influence land prices, we include city-year fixed effects ($\varphi_{j,t}$), usage-year fixed effects ($\omega_{s,t}$), and month fixed effects. City-year fixed effects capture time-varying heterogeneity across cities, such as changes in local economic conditions, policies, or growth rates that may affect both firms' political connections and land prices. Usage-year fixed effects control for systematic differences in land prices across usage types and how these differences evolve over time due to changes in supply and demand conditions or regulations. With these fixed effects, we effectively control for any potential first-mover advantage of politically connected firms. Specifically, connected firms might be able to acquire private information about government policies in advance (Wang and Yang, 2021; Jagolinzer et al 2020), and therefore are more likely to purchase land and begin development activities in a given area before other firms, potentially leading to lower land prices due to their early mover advantage. Moreover, the fixed effects also absorb land price discounts/premiums

due to unobserved factors, such as land price heterogeneity across city and across year, local government subsidies (e.g., Tao et al., 2010), the turnover of local officials (e.g., Shen et al., 2022), and the use of land finance (e.g., Han et al., 2015). Standard errors are clustered at the firm and province levels to account for potential correlation in land prices within firms and provinces over time, unless otherwise specified.

Table 3 reports the baseline regression results (with control variable details omitted). Column 1 shows that politically connected firms, in aggregate, could not obtain a statistically significant land price discount (the coefficient of *Connected* is negative but insignificant). However, when we further differentiate between land parcels purchased by headquarters and those by subsidiaries of politically listed firms in column 2, the coefficient of *Connected* becomes positively significant (0.097). This suggests that the headquarters of the politically connected firm actually pay a 9.7% premium over comparable land transactions. On the other hand, subsidiaries of politically connected firms pay 12.8% less than their headquarters (the coefficient of *Connected* × *Subsidiary* equals 0.128), although they do not have a significant price advantage over comparable transactions (coefficient of *Connected* + Coef. of *Connected* × *Subsidiary* is insignificant at 10% level based on the Wald test).

Note however that politically connected firms can afford to purchase higher quality land parcels closer to city centers because they have better access to bank credit (see Wang, 2015) and equity capital (see Liu et al., 2013). This selection bias can lead to biased estimates in Columns 1 and 2 of Table 3. To mitigate this concern, we repeat Equation (1) on matched samples and report the results in columns 3 and 4. As expected, the coefficients of *Connected* become smaller in magnitude and insignificant. In contrast, the sum of coefficients of *Connected* and *Connected* × *Subsidiary* becomes larger in magnitude and negatively significant

(see Wald tests, coefficient of *Connected* + coefficient of *Connected* × *Subsidiary* equals −0.132 and −0.121 for 1,500-meter radius and 500-meter radius matched samples, respectively). In other words, the baseline regression results support our hypothesis H1 that politically connected firms pay similar land prices to other firms when purchasing land parcels through their headquarters, but enjoy a 12.1% to 13.2% (0.014+0.107 and 0.019+0.113 respectively) price discount when purchasing land parcels through their subsidiaries. Finally, in columns 5 and 6 of Table 3, we re-estimate Equation (1) by including alternative fixed effects, controlling for the city, year, and usage fixed effects and not controlling for fixed effects, respectively. Results are consistent.

The results of control variables (as reported in Appendix C) are mostly consistent with previous studies (e.g., Chow and Ooi, 2014; Gilje and Taillard, 2016; Wang and Yang, 2021) in the following ways. Land size is negatively associated with land price. Public firms facing less asymmetric information and financial constraints can afford more capital-intensive investment opportunities and purchase more expensive land parcels. Land quality is positively associated with land price. Regarding different land sales methods, two-stage auctions result in lower land prices than English auctions. Similarly, the average land price in sealed bid auctions is also lower than that in English auctions based on matched samples (in columns 3 and 4 in Appendix C). Consistent with the previous finding that local governments tend to lure manufacturing investments with low industrial land prices, manufacturing companies as major land buyers (30.47% of total politically connected land buyers as in Panel B of Table 2) acquire land parcels at discounts, while real estate companies (22.36% of total politically connected buyers) acquire land parcels at premia.

4.2 Robustness Checks

As we have dropped the variable, *Subsidiary*, from main regressions to avoid multicollinearity, we cannot entirely rule out that politically unconnected subsidiaries may also acquire land parcels at discount prices. To examine this alternative hypothesis, we consider land parcels purchased by all subsidiaries as the treatment group and use the above-mentioned spatial matching to re-generate the comparable control group.

Table 4 presents the results, showing that politically connected subsidiaries, on average, are able to obtain significant land price discounts, while unconnected subsidiaries cannot.[9] More importantly, the positive and significant coefficients of *Connected* × *Subsidiary* × *Post*-2013 in columns 4 and 6 suggest that the anti-corruption campaign can mitigate the price discount obtained by connected subsidiaries. On the contrary, the coefficients of *Unconnected* × *Subsidiary* × *Post*-2013 are insignificant and are much smaller in magnitude. These findings further support our main results, demonstrating that only land price discounts obtained by politically connected subsidiaries are significant and can be effectively mitigated by government interventions that disrupt political connections (Chen and Kung, 2019).

We also perform robustness checks using two-way matching approaches to mitigate the concern that unobserved differences may drive the price difference between treatment and control groups. Specifically, in addition to the spatial matching criteria, we further require land parcels in each matched pair to (i) have similar land size (measured as the difference in land

[9] We are unable to identify firms that build covert political ties through social networks, which politically lead to larger political benefits than covert ties (Chen and Kung, 2019; Haselmann et al., 2018; Brugues et al., 2024). As a result, our estimations for land price discounts represent lower bounds, and the estimations for unconnected subsidiaries exhibit relatively larger variance as shown in Table 4.

size between matched land parcels purchased by politically connected firms and by other firms being less than one standard deviation apart), (ii) have identical usage type, and (iii) be sold through the same land sales method. For example, by conducting Spatial + Land Size matching in column 1, we match each land parcel purchased by a politically connected firm with land parcels of similar size (i.e., size matching) purchased in the same year and within a 1,500-meter radius (i.e., spatial matching). We do the same for Spatial + Usage and Spatial + Supply matching approaches. Table 5 shows that the results from the three different two-way matching approaches draw similar conclusions as our baseline results in Table 3.

4.3 Different land sales methods

Different land sales methods have different levels of information transparency. Among four market-oriented land sales methods, negotiation is commonly viewed as opaquest (see Qin et al., 2016), while English auction is the most transparent (see Cai et al., 2017). Since participants in an English auction can acquire more information by observing others' bidding behavior, English auction is more transparent than sealed-bid auction (McAfee and McMillan, 1987) and leads to higher prices (Chow and Ooi, 2014). The most used land sales method, two-stage auction (69.7% of land transactions), is also less informationally transparent than English auction, because local authorities and privileged firms may reach an under-the-table side deal during the first stage (Cai et al., 2013). To further verify that the price discount obtained by subsidiaries of politically connected firms is a result of market manipulation rather than market competition, we divide the treatment group based on land sales methods and use spatial matching method to re-construct the control groups and repeat the tests.

The regression results for different land sales method subsamples presented in Table 6 confirm our hypothesis H2. The subsidiaries of politically connected firms are able to obtain a 27.8% to 37.9% discount through negotiations (the sum of coefficients of *Connected* and *Connected* × *Subsidiary* in columns 1 and 5) and a 6.2% to 8.5% price discount through two-stage auctions (columns 3 and 7). Moreover, the price differences between headquarters and subsidiaries of politically connected firms (captured by coefficients of *Connected* × *Subsidiary*) are negatively significant for sealed bid auctions (columns 2 and 6) and two-stage auctions, showing that the use of subsidiaries for buying land can effectively exploit discounts even with these sales methods. For negotiations, although the coefficients of *Connected* × *Subsidiary* are insignificant, the magnitude of *Connected* × *Subsidiary* for negotiated sales is similar to that for two-stage auctions. In contrast, we could not observe significant price discounts in the most transparent English auctions from columns 4 and 8. To sum up, the benefits of implicit political connections through land price discounts obtained by subsidiaries of politically connected firms are driven by informationally opaque land sales methods rather than locational informational advantage.

4.4 Different land use types

To further quantify the impact of two possible channels (namely, government subsidy or corruption) on land prices, we re-construct the treatment groups by grouping land transactions made by politically connected firm based on land usage types. As before, we use the spatial matching method to re-generate comparable control groups for each treatment group, and repeat baseline regressions on different land usage type subsamples.

Table 7 shows that, when purchasing residential land parcels, only subsidiaries of politically connected firms can obtain a statically significant price discount of 18.5% to 25.1% (the sum of coefficients of *Connected* and *Connected* × *Subsidiary* in Wald tests), even though the price difference between their subsidiaries and headquarters is insignificant (the coefficients of *Connected* × Subsidiary are insignificant and are −0.072 and −0.025 for the 1,500-meter radius and 500-meter radius, respectively). The results for commercial land parcels are interesting. The opposite signs of the coefficients of *Connected* and *Connected* × *Subsidiary* imply that politically connected firms still pay lower prices when purchasing commercial land parcels through their subsidiaries but (insignificantly) higher prices through their headquarters. For industrial land, the coefficients of *Connected* × *Subsidiary* are negatively significant as in our main results. More importantly, for subsidiaries of connected firms, their price discount for industrial land is less than one third of the price discount for other land (the sum of coefficients of *Connected* and *Connected* × *Subsidiary* are −0.185, −0.056, and −0.189 for residential land, industrial land, and commercial land respectively for the 1,500-meter radius matched sample). Overall, the price discounts obtained by subsidiaries of politically connected firms are mostly driven by less subsidized residential land and commercial land (i.e., corruption hypothesis H3a), and not as incentives for local economic growth (i.e., government subsidy hypothesis H3b).

4.5 The anti-corruption campaign

Under the anti-corruption campaign initiated by President Xi Jinping in November 2012, the Central Commission for Discipline Inspection (CCDI) has regularly (twice or three times a

year) sent multiple central inspection teams to selected provinces, government agencies, SOEs, and universities since May 2013. Previous studies indicate that the anti-corruption campaign effectively curtails luxury expenditures of government officials (Lan and Li, 2018) and reduces their willingness to provide favorable treatments, such as court advantage (Zhang, 2023) and land price discount (Chen and Kung, 2019), to politically connected firms. We therefore use the anti-corruption campaign as a quasi-natural experiment to verify the corruption hypothesis H3b. We employ a dummy variable, *Post*-2013, to distinguish land transactions made on or after 2013. Moreover, because the anti-corruption campaign is expected to mitigate the impact of explicit and implicit political ties simultaneous, we could further use land parcels sold to the headquarters of politically connected firms (i.e., firms with explicit political ties) as an additional control group to relax the parallel trend assumption in a traditional difference in difference (DiD) model. Our triple-difference (DDD) model is as follows:

$$\begin{aligned} Price_{i,b,j,s,t} = {} & \beta_0 + \beta_1 Connected_{b,t} + \beta_2 Connected_{b,t} \times Subsidiary_{b,t} \\ & + \beta_3 Connected_{b,t} \times Post\text{-}2013 \\ & + \beta_4 Connected_{b,t} \times Subsidiary_{b,t} \times Post\text{-}2013 \\ & + \gamma X_{i,t} + \omega_{s,t} + \varphi_{j,t} + v_{i,b,j,s,t} \end{aligned} \quad (2)$$

where $Post\text{-}2013$ is the post-event identifier. Because the impact of the anti-corruption campaign on local economies can be absorbed by city-year fixed effects and usage-year fixed effects, we have not added *Post*-2013 in Equation (2). The other variables are the same as in Equation (1). The main parameter of interest, β_4, captures the average change in the price differences between subsidiaries and headquarters of politically connected firms after the anti-corruption campaign. Standard errors are clustered at the firm-level.

Columns 1 and 2 of Table 8 report the baseline results of the triple difference model. Coefficients of *Connected* × *Subsidiary* × *Post*-2013 are positively significant regardless of sample matching methods. This supports hypothesis H3b that the anti-corruption campaign has significantly reduced the difference between subsidiaries and headquarters of connected firms. In terms of economic significance, before the anti-corruption campaign, subsidiaries of politically connected firms pay 16.5% to 17.2% less than their headquarters (captured by the coefficients of *Connected* × *Subsidiary*). After the anti-corruption campaign, the price advantage of politically connected subsidiaries over headquarters has reduced by more than around two-thirds to 5.9% to 6.3% and become insignificant.

The results are clearer when we further repeat DDD regressions on different land usage type subsamples. The results for residential land (columns 3 and 4) are also consistent with the corruption hypothesis H3b that politically connected firm subsidiaries' relative price advantages from acquiring residential land parcels have been eliminated by the anti-corruption campaign (coefficients of *Connected* × *Subsidiary* are offset by *Connected* × *Subsidiary* × *Post*-2013, as they have a similar magnitude but opposite signs).

Similarly, the price discount for politically connected subsidiaries only exists before the anti-corruption campaign for commercial land (columns 7 and 8). Interestingly, politically connected headquarters even pay premiums to acquire commercial land before the campaign, but not afterward. This result indicates that connected firms tend to build a good reputation by acquiring commercial land at premium prices through their headquarters, while hide the real benefits by acquiring commercial land at discount through their subsidiaries. The anti-corruption campaign effectively stops both behaviors.

Finally, for industrial land (columns 5 and 6), the coefficients of *Connected* × *Subsidiary* × *Post*-2013 are negatively significant, and the coefficients of *Connected* × *Subsidiary* are insignificant. This means that discounts as government subsidy for local economic growth are available after the anti-corruption campaign but not before.

To further evaluate the impact of the anti-corruption campaign, we impose interaction of key independent variables in Equation (1) with a series of year dummies and re-estimate the annual price discount/premium obtained by subsidiaries and headquarters of politically connected firms. As Figure 2 shows, subsidiaries of politically connected firms purchase land parcels at a discount of around 18% before the anti-corruption campaign, and the price discount declines gradually until 2017. As a comparison, Panel B of Figure 2 shows that headquarters of politically connected firms purchase land parcels at an insignificant price premium in 8 out of 14 years. We cannot observe any significant trend after the anti-corruption campaign.[10]

The land price discounts move together with the strength of the anti-corruption campaign as shown in Figure 3. The strength of the campaign was strongest in 2017 when there were significant changes in top government officials.[11] The central authorities then diverted the focus to poverty alleviation campaign and moved the scope of work of the inspection teams from "anti-corruption" to "comprehensive supervision".[12] Discounts to subsidiaries appeared

[10] As shown in Table 2, politically connected headquarters have only purchased 343 land parcels (i.e., on average, 14 land parcels per year) in our sample. Thus, the dynamic estimates of price premium/ discount could be heavily influenced by outliers. Therefore, we refrain from interpreting the economic meaning of the price premium/ discount obtained by politically connected headquarters in Figure 2.

[11] For example, the former party secretary Sun Zhengcai was impeached for corruption. Another national-level leader, Yang Jing, was removed from the Central Committee at the 19th National Congress in October 2017.

[12] The central government initiated the poverty alleviation campaign through the Thirteenth Five-Year Plan in March 2016 and broadened the scope of the policy to common prosperity through the Fourteenth

once again, although of lesser magnitude. This again provides supportive evidence that the land price discounts are mostly driven by corruption (i.e., hypothesis H3b).

4.6 Reciprocal relationship or government subsidy

The political connection identifier, *Connected*, cannot capture the strength of political ties (Leuz and Oberholzer-Gee, 2006) and could neglect political connections built through other stakeholders (Chen and Kung, 2019), potentially leading to measurement errors. Since firms are motivated to make charitable donations to gain political influence (Bertrand et al., 2020), establish political connections (Lin et al., 2015) and secure political favors (Hao et al., 2020), we follow Hao et al. (2020) in using charitable donations (*Donations/Assets*) as an alternative political connection measure. Additionally, we also employ government subsidies (*Subsidies/Assets*) to capture direct government intervention in allocating resources (e.g., Kalouptsidi, 2018) and to verify our government subsidy hypothesis H3a. Key independent variables are lagged for one year to eliminate reverse causality. As we do not classify listed firms based on the political ties of top executives, we include all land transactions made by listed firms as the treatment group.

Columns 1 and 2 of Table 9 shows that larger charitable donation expenses before the anti-corruption campaign are subsequently associated by higher land prices for headquarters (the coefficients of *Donations/ Assets* are 1.638 and 1.967 for 1,500-meter radius and 500-meter

Five-Year Plan in March 2021. Meanwhile, it reduced the strength of anti-corruption campaign by expanding the scope of work of the inspection team on July 14, 2017, as shown in "*Announcement of regulations of inspection teams '3.0 version', profound messages behind five major revisions*" published by Xinhua News Agency, the state press agency. See http://www.gov.cn/xinwen/2017-07/14/content_5210580.htm (in Chinese) for more details.

radius matched samples, respectively) and lower land prices for subsidiaries (the sum of coefficients of *Donations/ Assets* and *Donations/ Assets* × *Subsidiaries* are −1.025 and −0.823, respectively) in the following year. This result implies that firms use donations to exchange for lower land purchase prices through their subsidiaries, while covering these political favors by increasing land purchase prices through their headquarters. However, this reciprocal relationship has been eliminated by the anti-corruption campaign, as evidenced by the opposite signs and similar magnitudes of *Donations/ Assets* (*Donations/ Assets* × *Subsidiaries*) and *Donations/ Assets* × *Post*-2013 (*Donations/ Assets* × *Subsidiaries* × *Post*-2013).

Columns 3 and 4 show that the amount of government subsidies is negatively associated with land prices for subsidiaries in the subsequent year, and the overall impact of government subsidiaries has more than doubled after the anti-corruption campaign (as shown in the Wald tests). This aligns with our findings in Section 4.5, suggesting that government-subsidized firms could reap even more political favors after the anti-corruption campaign and continue to use subsidiaries to hide their political favors.

4.7 Evidence Using Instrumental Variables

It is possible that a firm's decision of purchasing a land parcel through its subsidiary is due to the price of the land parcel, which can cause reverse causality in our tests. To address this, we take note that a firm may opt to purchase a land parcel through its local subsidiary if the land location is far from its headquarter, because its distant headquarter office has information disadvantage relative to local firms (Bae et al., 2008). Meanwhile, its subsidiary continues to compete with other local firms through the land auction process. As a result, the distance between the headquarter office and the land parcels is expected to affect only the

headquarter's willingness for direct land purchase, rather than the land price. We, therefore, use the geographical distance between corporate headquarters and purchased land parcels (*Distance to Land*) as the instrument for *Subsidiary*.[13] The regression results of two-stage least squares regressions (2SLS) are presented in Table 10.

The second-stage regression results in columns 2 and 4 are consistent with our baseline results. The coefficients of the fitted value of *Connected* × *Subsidiary* are all negatively significant, implying that politically connected firms spend less when purchasing land parcels through their subsidiaries than through their headquarters, regardless of location. The signs and significance of instrumental variables (*Connected* × *Distance to Land*) in columns 1 and 3 are also as expected in that firms with headquarters farther away from the land parcels are more likely to purchase the land parcels by their subsidiaries (the coefficients of *Connected* × *Distance to land* are positively significant for *Connected* × *Subsidiary*). The robust *F*-statistics of the first-stage regressions in columns 1 and 3 well above the threshold of 10 (Staiger and Stock, 1997) alleviate the concern of weak instruments. Hence, our 2SLS verifies that the price discount obtained by politically connected subsidiaries is not due to reverse causality.

4.8 Other robustness checks

Our main results show that politically connected firms acquire land at a discount when using their subsidiaries, raising the question of why these firms don't exclusively rely on subsidiary acquisitions. There are several factors that might influence a firm's decision to

[13] Ideally, that would mean the subsidiary is closer to the land than the headquarter. Unfortunately, because of data unavailability, we are not able to identify the locations of subsidiaries of listed firms. The question of how politically connected firms choose subsidiaries to acquire land is worth further discussion whenever data is available.

acquire land through its headquarters rather than a subsidiary. First, local officials possess significant authority in the land auction process, particularly in establishing preliminary qualification requirements for potential bidders. These requirements typically include minimal registration capital, a mandated developer qualification level (rated on a scale of one to five by the government's ranking system), and minimum employment size. Specifically, these requirements may effectively disqualify local subsidiaries from competing in large, high-profile land auctions. Second, for strategically important or high-profile acquisitions, the headquarters may prefer to signal its commitment and control by acting as the acquiring entity. Third, operational efficiency considerations might favor a headquarter-level acquisition if the subsidiary lacks the necessary resources or expertise to manage the process effectively. Fourth, financial constraints at the subsidiary level could require the parent company to step in and provide support. Fifth, the headquarters might choose to be the acquiring entity for reputational reasons, especially in socially significant or high-stakes acquisitions. Finally, the firm's corporate structure, internal policies, and decision-making processes could dictate whether acquisitions are handled at the subsidiary or headquarter level.

To examine these possibilities, we analyze the characteristics of land parcels acquired by headquarters and subsidiaries of politically connected firms. We find that headquarters tend to acquire larger parcels (average size of 84,338.6 sq. m. vs. 46,258.8 sq. m. for subsidiaries) and parcels located in more central or strategically important areas (5.71% and 22.56% of headquarter acquisitions are in first-tier cities and new first-tier cities, respectively, vs. 3.02%

and 14.50% for subsidiaries).[14] These differences suggest that strategic and operational factors do influence the choice between subsidiary and headquarter acquisitions. However, we also observe that subsidiaries are more likely to acquire land in regions with weaker legal institutions (as measured by the legal environment index from Wang et al., 2017), consistent with the notion that they are used to navigate more challenging institutional environments. Overall, while our results indicate that using subsidiaries is advantageous for politically connected firms in obtaining price discounts, a variety of factors still lead these firms to pursue some acquisitions at the headquarter level.

The preference for using subsidiaries rather than headquarters for land purchases likely stems from several factors. Subsidiaries offer a degree of separation that can shield the parent company from direct scrutiny (Dyreng et al., 2020; Lee and Bansal, 2024; Bilicka, 2019). As a result, they may also have more flexibility in local operations (Belenzon et al., 2019) and relationship-building. However, we observe that not all purchases are made through subsidiaries, possibly due to strategic considerations, regulatory requirements, or the need for direct involvement in high-profile or complex acquisitions. This mixed approach allows firms to balance the benefits of political connections with the need to maintain a positive public image.

Unlike private firms, SOEs are naturally connected to the government, and tend to receive disproportionally larger benefits from government stimulus than private firms (Cong et al., 2019). Huang et al. (2020) further show that local government debts due to fiscal stimulus

[14] The first-tier cities are Beijing, Shanghai, Zhenshen, and Guangzhou, and new first tier cities expand to include major regional economic centers, including Sichuang, Chongqing, Hangzhou, Xi'an, Wuhan, Suzhou, Zhengzhou, Nanjing, Tianjing, Changsha, Dongguan, Ningbo, Foshan, Hefei and Qingdao.

would crowd out the investment of private firms but not the investment of SOEs. To differentiate the impact of political connections from government ownership, we further examine whether State ownership could influence the price discount obtained by subsidiaries of politically connected firms, by splitting the treatment group based on state ownership (i.e. land parcels purchased by politically connected SOEs and by non-SOEs). Table 11 shows that subsidiaries of politically connected non-SOEs always purchase land parcels at 10.8-11.3% lower prices than their headquarters (coefficients of *Connected* × *Subsidiary* in columns 1 and 2). For SOEs, the coefficients of *Connected*×*Subsidiary* are at most marginally significant.[15] In the aggregate (the sum of coefficients of *Connected* and *Connected* × *Subsidiary*), subsidiaries of politically connected non-SOEs could enjoy a price discount of 10.6% to 13.0%. On the other hand, it looks like political connection does not matter for SOEs.

While our results strongly suggest that political connections drive the observed price discounts, we acknowledge alternative explanations. For instance, subsidiaries might have superior local knowledge or different risk preferences than headquarters, leading to more aggressive bidding. However, our robustness checks, including the analysis of geographic distance as shown in Table 10, mitigate these concerns. Furthermore, the differential impact of the anti-corruption campaign on connected versus unconnected subsidiaries, as demonstrated in Table 4, further supports our interpretation that political connections, rather than other subsidiary characteristics, drive the observed discounts.

We also consider that political connections may be susceptible to local conditions. In particular, corruption is expected to be less severe in areas with more legal protection (e.g.,

[15] We cannot obtain reliable estimates of *Connected* and *Connected* × *Subsidiary* because the headquarters of politically connected SOEs have only purchased 64 land parcels in our sample period.

Aidt, 2003; Johnson et al., 1998) and more developed private sectors (e.g., Nguyen and Van Dijk, 2012). We therefore include the province-level legal environment index and non-State sector development index from Wang et al. (2017, 2021) to examine whether and how local environmental factors affect the price discount obtained by subsidiaries of politically connected firms.[16] The results reported in Table 12 indeed show that the subsidiaries of politically connected firms enjoy larger land price discounts in regions with weaker legal protection and a lower level of non-state sector development.

All these robustness tests reaffirm our main result that politically connected firms are able to acquire land at a discount price mostly through the corruption channel.

4.9 Firm-level regressions

Despite the existence of implicit political benefits, firms do not necessarily intentionally exploit political benefits through implicit channels. We therefore further examine (i) whether politically connected firms would deliberately distort their investment strategies to exploit the benefits associated with the land price discount, and (ii) whether their investment distortion would disappear after the anti-corruption campaign. We aggregate transaction-level data to form firm-level annual data, and conduct two sets of firm-level regressions on the politically connected and unconnected listed firms.

In the first set of regressions, firms' preference for purchasing land parcels through their subsidiaries is regressed on the political connection identifier and control variables:

[16] As an alternative local condition index, City Momentum Index, developed by Jones Lane LaSalle, could capture cross-sectional regional development disparities, but it was launched in 2014 (after the anti-corruption campaign) and cannot capture time-series variations. We, therefore, have not included this index in our analysis.

$$Y_{i,t} = \beta_0 + \beta_1 Connected_{i,t-1} + \beta_2 Connected_{i,t-1} \times Post\text{-}2013 + \delta X_{i,t-1} + u_i + v_t + \varepsilon_{i,t} \quad (3)$$

where $Y_{i,t}$ is one of the two measures (% *Land expenses through subsidiaries* or % *Land size through subsidiaries*) that captures firm *i*'s preference for purchasing land parcels through its subsidiaries over its headquarters at year *t*. % *Land expenses through subsidiaries*$_{i,t}$ is the percentage of expenses on land acquisitions made by subsidiaries of the listed firm *i* at year *t*, and % *Land size through subsidiaries*$_{i,t}$ is the percentage of land size purchased by subsidiaries of the listed firm *i* at year *t*.

We include Tobin's Q and revenue growth as controls for investment opportunities, return on assets (ROA) for profitability, tangible assets to total assets ratio for asset tangibility, liabilities to total assets ratio for financial leverage, and log of total assets for firm size (as in Benmelech and Frydman, 2015; Firth et al., 2012). We also include the ownership of the largest shareholder, the board size, CEO duality dummy, and independent director ratio as corporate governance controls (See Appendix B for detailed definitions). All independent variables are lagged by one year to avoid endogeneity. We have also added industry and year fixed effects to absorb unobserved heterogeneity and adjust standard errors for firm-level clusters. The regression results are exhibited in Panel A of Table 13.

As expected, politically connected firms have a stronger preference to make land acquisitions through subsidiaries than unconnected firms (the coefficient of lagged *Connected* is 2.588 in column 2), but the anti-corruption campaign erased their stronger preference in 2013 and thereafter (the coefficient of lagged *Connected* × *Post*-2013 is –2.758). Even though the coefficients of lagged *Connected* and *Connected* × *Post*-2013 become insignificant when we

use the alternative preference measure in columns 3 and 4, their signs and magnitudes are similar to those in columns 1 and 2.

The "stronger preference" for purchasing land parcels through subsidiaries could result from a higher purchase amount by subsidiaries or a lower purchase amount by headquarters. Hence, we replace the dependent variables in Equation (3) with expenses on land acquisition (or purchased land size) and run tests on subsidiaries and headquarters separately. The regression results in Panel B suggest that the politically connected firms prefer to buy land by their subsidiaries (the coefficients of lagged *Connected* are 0.155 and 0.094 for subsidiaries in columns 2 and 4, respectively, and insignificant for headquarters in columns 1 and 3 respectively), possibly to exploit the discounts less obviously. Again, the anti-corruption campaign has erased the differences between politically connected and unconnected firms.

5. Conclusions

This paper provides new evidence on how political connections influence resource allocation. We document a novel channel through which connected firms in China obtain favors while avoiding scrutiny: using subsidiaries to acquire land at discounted prices.

We show that while politically connected listed firms pay comparable prices to other firms when purchasing land through their headquarters (explicit political ties), they receive a discount of 12.1% to 13.2% when purchasing through their subsidiaries (implicit political ties). This discount is more pronounced when: (1) land parcels are sold through opaque methods, such as negotiations and two-stage auctions; (2) the land is less subsidized, including residential and commercial land; and (3) the land is located in regions with weaker legal protections and less

developed private sectors. The anti-corruption campaign implemented in 2012 has effectively reduced the price discounts obtained by subsidiaries of politically connected firms.

Our findings suggest that the land price discounts are primarily driven by corruption. However, we also find evidence that firms receiving government subsidies use subsidiaries to conceal the political favors they receive. Interestingly, while the anti-corruption campaign has diminished land price discounts driven by corruption, it has amplified discounts resulting from government subsidies.

We contribute to the literature by showing that politically connected firms blur the existence of political favors by using headquarter-subsidiary relationships to hide their rent-seeking practices. Prior literature has primarily focused on the impact of direct political connections on firm performance and the benefit-sharing phenomenon within social networks. However, connected firms often face ex-post penalties for exploiting explicit political connections due to increased scrutiny, and the benefits of social networks may accrue more to top managers than to the firms themselves. By focusing on the political connections of listed firms and their intra-firm networks through headquarter-subsidiary relationships, we show that politically connected firms can maintain good public images by not engaging in rent-seeking behavior through their headquarters, while still exploiting benefits through their subsidiaries. We also confirm that the anti-corruption campaign has largely removed land price distortions due to corruption, while leaving price distortions related to government subsidies unchanged.

While our study provides robust evidence on the use of subsidiaries to obtain land price discounts, there are several promising avenues for future research, subject to data availability. First, examining the subsequent development and sales stages of land parcels acquired by politically connected firms could provide a more comprehensive understanding of how political

connections impact the entire real estate development process. This could include analyzing differences in development speed, permit acquisition, and final property sale prices between connected and unconnected firms. Second, future studies could explore the broader welfare implications of these political connections in land markets. This might involve investigating potential inefficiencies in land use, the crowding out of more efficient developers, and the long-term impacts on urban development and housing affordability. While such analyses would require extensive additional data that are currently unavailable, they represent important directions for furthering our understanding of the full economic consequences of political connections in land markets.

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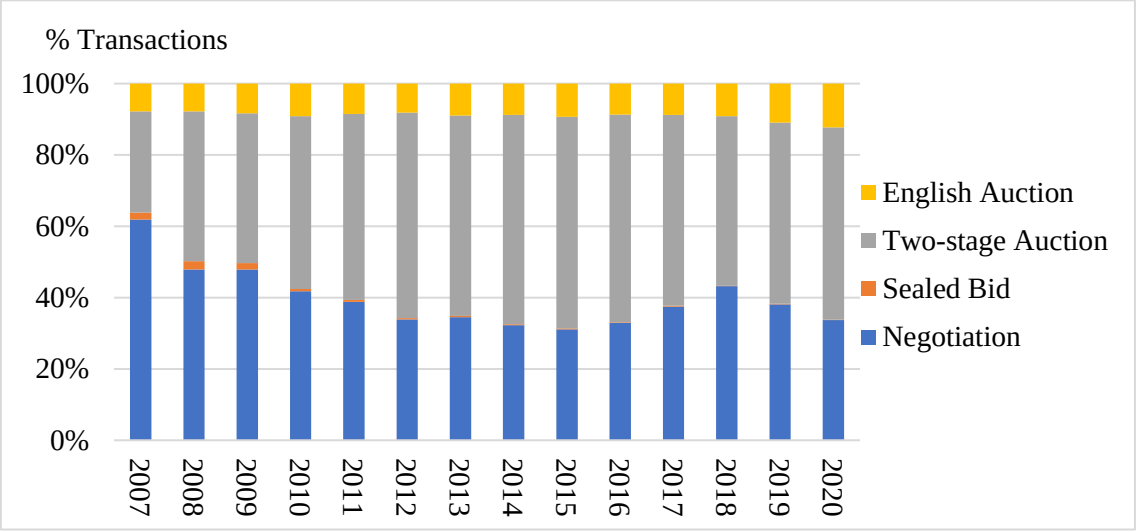
Figures and Tables

Panel A: Market share by number of land transactions



Panel B: Market share by land size

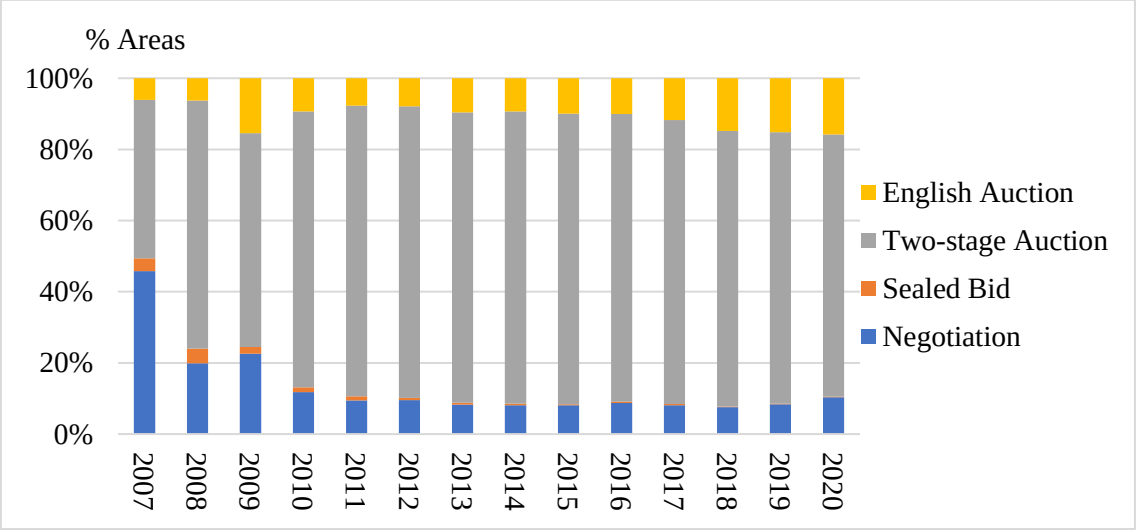
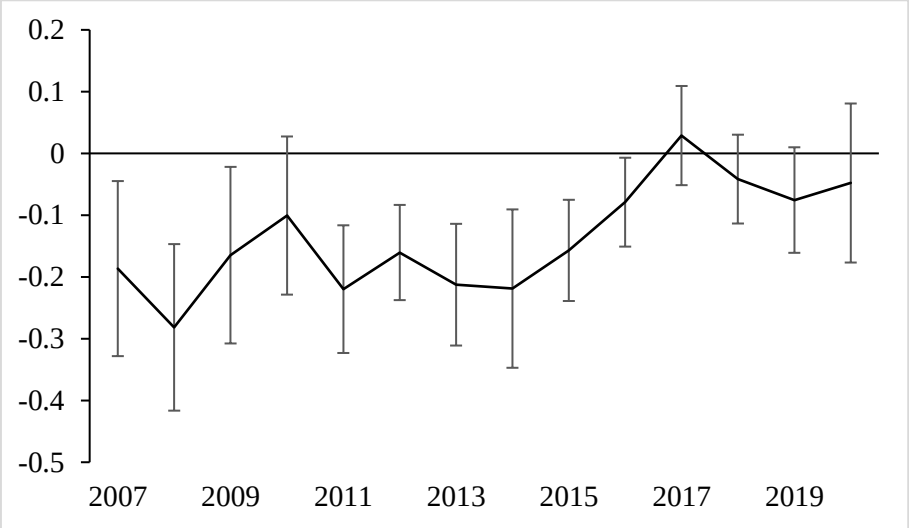


Figure 1 Share of land sold through different land sales methods

Source: http://www.landchina.com

Notes: % Transactions (% Areas) denotes the share of land sold through different land sales methods in terms of the number of transactions (the area of land sold).

Panel A: Price discount/ premium for subsidiaries of connected firms



Panel B: Price discount/ premium for headquarters of connected firms

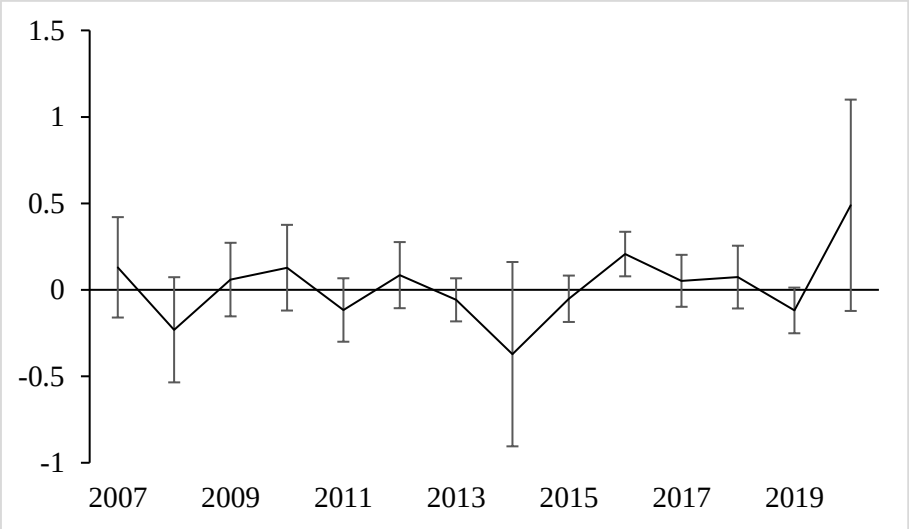


Figure 2 Price discount/ premium for politically connected firms

Notes: The price discount/ premium for connected subsidiaries (headquarters) denote the difference between land prices paid by subsidiaries (headquarters) of politically connected firms and land prices of nearby comparable land parcels (i.e., land transactions within a 1,500-meter radius and in the same year). We have also controlled the impact of a wide range of control variables and fixed effects specified in Equation (1).

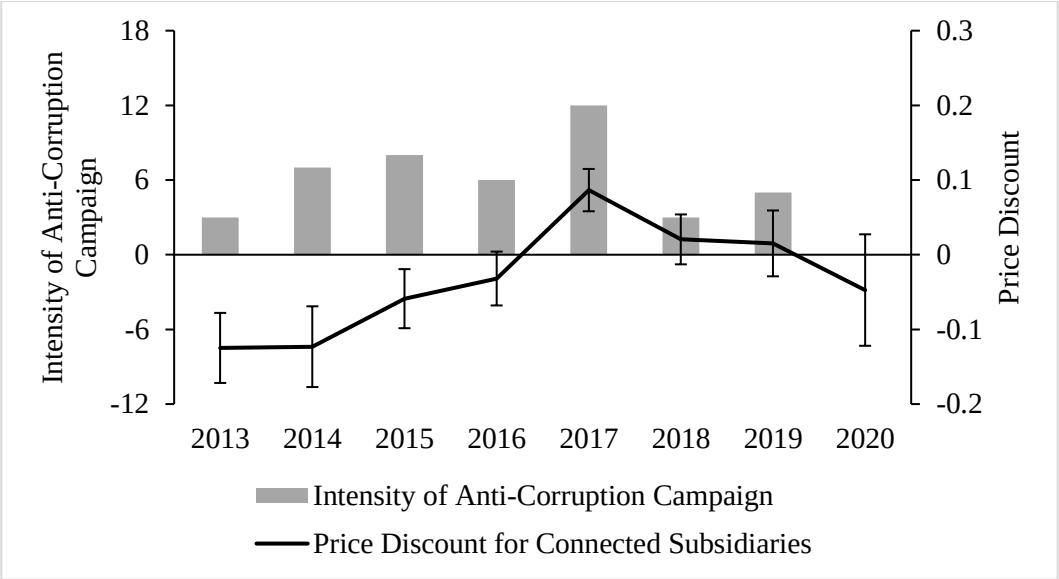


Figure 3 Intensity of anti-corruption campaign & land price discount

Notes: The intensity of anti-corruption campaign (right axis) is proxied by the number of top government officials (i.e., members or alternative members of the Central Committee) who have pleaded guilty to corruption charges. The data is manually collected from China Economic Net's Local Party and Government Leaders Database (www.ce.cn).

Table 1 Summary statistics of land transactions

This table reports summary statistics of land transactions in the full and matched samples. The sample period ranges from January 2007 to August 2020. In the matched sample (Panels B and C), we match each land parcel purchased by politically connected firms with land parcels purchased in the same year and within a 1,500-meter radius.

	Politically Connected Listed Firms		Other Firms	
	Mean	S. D.	Mean	S. D.
Panel A: Full Sample				
Land price (*yuan*/ sq. m)	2,605.464	9,845.661	2,044.499	512,688.927
Land size (sq. m)	48,856.851	147,582.885	34,238.875	478,747.556
Land quality	4.869	4.381	5.011	4.498
Listed	1.000	0.000	0.027	0.162
Subsidiary	0.931	0.254	0.025	0.156
Land usage type				
Residential	0.209	0.407	0.322	0.467
Industrial	0.342	0.474	0.442	0.497
Commercial	0.340	0.474	0.198	0.398
Other	0.109	0.312	0.039	0.192
Supply method				
Negotiation	0.202	0.402	0.136	0.343
Sealed bid	0.012	0.107	0.007	0.084
Two-stage auction	0.697	0.460	0.755	0.430
English auction	0.089	0.285	0.101	0.302
# of transactions		22,463		882,013
Panel B: ≤ 1,500 Meters				
Land price (*yuan*/ sq. m)	2,605.464	9,845.661	1,895.177	7,738.050
Land size (sq. m)	48,856.851	147,582.885	38,170.560	89,222.116
Land quality	4.869	4.381	5.019	4.442
Listed	1.000	0.000	0.033	0.179
Subsidiary	0.931	0.254	0.030	0.171
Land usage type				
Residential	0.209	0.407	0.310	0.463
Industrial	0.342	0.474	0.440	0.496
Commercial	0.340	0.474	0.211	0.408
Other	0.109	0.312	0.039	0.195
Supply method				
Negotiation	0.202	0.402	0.127	0.332
Sealed bid	0.012	0.107	0.007	0.086
Two-stage auction	0.697	0.460	0.777	0.416
English auction	0.089	0.285	0.089	0.285
# of transactions		22,463		72,585

Panel C: Average land price for different types of firms in the matched sample (*yuan*/ sq. m)

	Politically Connected Listed Firms		Unconnected Listed Firms		Unlisted Firms
	Headquarter	Subsidiary	Headquarter	Subsidiary	
Residential land	10,261.48	6,496.09	16,475.99	10,957.63	3,156.87
Industrial land	424.44	304.56	415.51	409.37	269.69
Commercial land	10,073.57	2,872.10	16,647.81	5,495.13	3,245.50
Other land	666.93	376.72	1,137.21	811.30	609.44

Table 2 Characteristics of land buyers

Panel A reports the distribution of land buyers in the full and matched samples (within a 1,500-meter radius). Panel B describes the sectoral distribution of firms in the matched sample.

Panel A: Distribution of land buyers

	All Sample		≤1,500 meters	
	# of Firms	% of Firms	# of Firms	% of Firms
Listed firms (Including subsidiaries)	22,423	4.16%	11,205	21.17%
Politically connected listed firms	9,863	1.83%	9,863	18.63%
Headquarters	343	0.06%	343	0.65%
Subsidiaries and Branches	9,520	1.77%	9,520	17.98%
Unconnected listed firms	12,560	2.33%	1,342	2.54%
Headquarters	606	0.11%	75	0.14%
Subsidiaries and Branches	11,954	2.22%	1,267	2.39%
Unlisted firms	515,961	95.84%	41,731	78.83%
Total firms	538,384		52,936	

Panel B: Sectoral distribution for the matched sample (≤1,500 meters)

	Listed firms				Unlisted firms	
	Politically Connected		Unconnected			
	# of Firms	% of Firms	# of Firms	% of Firms	# of Firms	% of Firms
Sector						
Accommodation and catering services	106	1.07%	11	0.82%	530	1.27%
Agriculture	116	1.18%	8	0.60%	510	1.22%
Construction	95	0.96%	19	1.42%	696	1.67%
Cultural, sports and entertainment services	58	0.59%	5	0.37%	186	0.45%
Education	35	0.35%	3	0.22%	111	0.27%
Electricity, gas, and water supply	350	3.55%	43	3.20%	554	1.33%
Environment and public facilities	106	1.07%	8	0.60%	262	0.63%
Financials	464	4.70%	39	2.91%	425	1.02%
Health and social services	45	0.46%	4	0.30%	103	0.25%
Leasing and business services	414	4.20%	35	2.61%	1,514	3.63%
Manufacturing	3,005	30.47%	503	37.48%	17,513	41.97%
Mining	145	1.47%	10	0.75%	265	0.64%
Other	714	7.24%	120	8.94%	3,462	8.30%
Other services	178	1.80%	12	0.89%	608	1.46%
Real estate	2,205	22.36%	363	27.05%	10,803	25.89%
Research and technical services	147	1.49%	26	1.94%	455	1.09%
Software and information technology services	436	4.42%	27	2.01%	511	1.22%
Transportation and storage	355	3.60%	60	4.47%	1,548	3.71%
Wholesale and retail trade	889	9.01%	46	3.43%	1,675	4.01%
Total	9,863		1,342		41,731	

Table 3 Political connections and land price

Table 3 presents the baseline regression results of Equation (1), which estimates the price differences between the land parcels purchased by the headquarter of politically connected firms, the subsidiaries of politically connected firms, and other firms. The dependent variable is measured as a log of land price (*yuan* per square meter). *Connected* is a dummy variable that equals 1 if a politically connected firm purchases the land parcel. The *Subsidiary* is a dummy variable that equals 1 if the land parcel is purchased by a subsidiary or branch of a listed firm. Control variables include land size, land sales method dummies, land quality dummies, firm ownership, firm listed status, firm size dummies, and firm industry dummies. The definitions of variables are specified in Appendix B. Robust *t*-statistics reported in parentheses are based on standard errors clustered by firm and province-level. The Wald tests examine the statistical significance of the sum of coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Constant terms are not reported, and detailed coefficients estimates are reported in Appendix C due to space limitations.

	Log of land price					
	Full	Full	≤ 1500M	≤ 500M	≤ 1500M	≤ 1500M
	(1)	(2)	(3)	(4)	(5)	(6)
Connected	-0.022	0.097**	-0.019	-0.014	0.009	0.033
	(-0.886)	(2.105)	(-0.332)	(-0.209)	(0.165)	(0.285)
Connected × Subsidiary		-0.128***	-0.113***	-0.107***	-0.141***	-0.258***
		(-2.910)	(-2.915)	(-2.778)	(-3.046)	(-4.371)
Wald tests: Coef. of *Connected* + Coef. of *Connected* × *Subsidiary*						
		-0.031	-0.132***	-0.121**	-0.132***	-0.225**
Control variables	Y	Y	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y	Y	Y
City fixed effects	-	-	-	-	Y	-
Usage fixed effects	-	-	-	-	Y	-
Year fixed effects	-	-	-	-	Y	-
City-year fixed effects	Y	Y	Y	Y	-	-
Usage-year fixed effects	Y	Y	Y	Y	-	-
Observations	904,353	904,353	95,085	73,566	95,085	95,200
Adjusted R-squared	0.619	0.619	0.695	0.709	0.650	0.427

Table 4 Politically connected vs unconnected subsidiaries

Table 4 shows results of the land prices paid by politically connected and unconnected subsidiaries. *Connected* (*Unconnected*) is a dummy variable that equals 1 if the land parcel is purchased by a politically connected (unconnected) firm. Control variables include land size, land sales method dummies, land quality dummies, firm ownership, firm listed status, firm size dummies, and firm industry dummies. The definitions of variables are specified in Appendix B. Robust *t*-statistics reported in parentheses are based on standard errors clustered by firm and province-level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Constant terms are not reported.

	Log of land price					
	≤ 1500M				≤ 500M	
	(1)	(2)	(3)	(4)	(5)	(6)
Subsidiary	-0.113		-0.115		-0.092	
	(-1.685)		(-1.408)		(-1.231)	
Connected × Subsidiary	-0.016	-0.129**	-0.055	-0.170***	-0.056	-0.148**
	(-0.785)	(-2.090)	(-1.301)	(-2.826)	(-1.455)	(-2.652)
Unconnected × Subsidiary		-0.113		-0.115		-0.092
		(-1.687)		(-1.409)		(-1.232)
Subsidiary × Post-2013			0.003		-0.018	
			(0.099)		(-0.486)	
Connected × Subsidiary × Post-2013			0.074*	0.077***	0.097**	0.079***
			(1.723)	(2.849)	(2.418)	(3.389)
Unconnected × Subsidiary × Post-2013				0.003		-0.018
				(0.099)		(-0.486)
Control variables	Y	Y	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y	Y	Y
City-year fixed effects	Y	Y	Y	Y	Y	Y
Usage-year fixed effects	Y	Y	Y	Y	Y	Y
Observations	148,241	148,241	148,241	148,241	106,634	106,634
Adjusted R-squared	0.700	0.700	0.700	0.700	0.723	0.723

Table 5 Robustness checks with two-way matching approach

In Table 5, we adopt several two-way matching approaches and repeat Equation (1) on each matched sample as robustness checks. In addition to the spatial matching criteria specified in Section 3, we further require each matched observation pair to have a similar land size (i.e., the difference in land size between matched land parcels purchased by politically connected firms and by other firms is less than one standard deviation away from zero) in columns 1 and 2. Similarly, we additionally require each matched observation pair to have an identical usage type in columns 3 and 4, and to be sold through the identical supply method in columns 5 and 6. Control variables include land size, land sales method dummies, land quality dummies, firm ownership, firm listed status, firm size dummies, and firm industry dummies. The definitions of variables are specified in Appendix B. Robust *t*-statistics reported in parentheses are based on standard errors clustered by firm and province-level. The Wald test examines the statistical significance of the sum of coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Constant terms are not reported.

	Log of land price					
	Spatial + Land Size		Spatial + Usage		Spatial + Supply	
	≤ 1500M	≤ 500M	≤ 1500M	≤ 500M	≤ 1500M	≤ 500M
	(1)	(2)	(3)	(4)	(5)	(6)
Connected	-0.053	-0.044	0.000	-0.014	0.005	0.007
	(-0.821)	(-0.568)	(0.005)	(-0.220)	(0.103)	(0.118)
Connected × Subsidiary	-0.102**	-0.104**	-0.101**	-0.099**	-0.113***	-0.109***
	(-2.585)	(-2.653)	(-2.593)	(-2.553)	(-2.872)	(-2.762)
Wald tests: Coef. of *Connected* + Coef. of *Connected* × *Subsidiary*						
	-0.155***	-0.148**	-0.101**	-0.113**	-0.108***	-0.102**
Control variables	Y	Y	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y	Y	Y
City-year fixed effects	Y	Y	Y	Y	Y	Y
Usage-year fixed effects	Y	Y	Y	Y	Y	Y
Observations	73,885	59,386	58,344	49,693	80,494	65,343
Adjusted R-squared	0.709	0.725	0.741	0.752	0.717	0.727

Table 6 Different land sales methods

Table 6 presents regression results on different land sales method subsamples. We re-construct treatment groups by grouping land parcels purchased by politically connected firms based on land sales methods and use spatial matching to generate control groups for each treatment group. Control variables include land size, land sales method dummies, land quality dummies, firm ownership, firm size dummies, listed status, and industry dummies. The definitions of variables are specified in Appendix B. Robust *t*-statistics reported in parentheses are based on standard errors clustered by firm. The Wald test examines the statistical significance of the sum of coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Constant terms are not reported.

	Log of land price							
	≤ 1500M				≤ 500M			
	Negotiation	Sealed Bid	Two-stage	English	Negotiation	Sealed Bid	Two-stage	English
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Connected	-0.136	0.968**	0.025	-0.039	-0.231	1.021*	0.047	-0.013
	(-0.574)	(2.154)	(0.550)	(-0.232)	(-0.844)	(1.885)	(1.038)	(-0.075)
Connected × Subsidiary	-0.142	-0.951**	-0.110***	0.002	-0.148	-0.867*	-0.109***	-0.005
	(-0.696)	(-2.286)	(-2.628)	(0.009)	(-0.661)	(-1.684)	(-2.655)	(-0.032)
Wald tests: Coef. of *Connected* + Coef. of *Connected* × *Subsidiary*								
	-0.278**	0.017	-0.085***	-0.037	-0.379**	0.154	-0.062**	-0.018
Control variables	Y	Y	Y	Y	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
City-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Usage-year fixed effects	Y	Y	Y	Y	Y	Y	Y	Y
Observations	18,735	1,264	73,188	9,327	13,764	1,057	57,990	7,072
Adjusted R-squared	0.571	0.866	0.743	0.782	0.548	0.890	0.762	0.799

Table 7 Different land usage types

Table 7 presents regression results on different land usage type subsamples. To compare like with like, we re-construct treatment groups by grouping land parcels purchased by politically connected firms based on their land usage types (i.e., residential land, industrial land, commercial land, and other land), and use spatial matching to generate comparable control groups for each treatment group. Control variables include land size, land sales method dummies, land quality dummies, firm ownership, firm listed status, firm size dummies, and firm industry dummies. The definitions of variables are specified in Appendix B. Robust *t*-statistics reported in parentheses are based on standard errors clustered by firm. The Wald test examines the statistical significance of the sum of coefficients.*, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Constant terms are not reported.

	Log of land price					
	Residential Land		Industrial Land		Commercial Land	
	≤1,500M	≤500M	≤1,500M	≤500M	≤1,500M	≤500M
	(1)	(2)	(3)	(4)	(5)	(6)
Connected	-0.113	-0.226	0.013	0.034	0.106	0.179
	(-0.610)	(-1.203)	(0.297)	(0.779)	(0.903)	(1.351)
Connected × Subsidiary	-0.072	-0.025	-0.069**	-0.087***	-0.295***	-0.344***
	(-0.426)	(-0.151)	(-1.988)	(-2.742)	(-2.609)	(-2.749)
Wald tests: Coef. of *Connected* + Coef. of *Connected* × *Subsidiary*						
	-0.185***	-0.251***	-0.056**	-0.053*	-0.189***	-0.165***
Control variables	Y	Y	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y	Y	Y
City-year fixed effects	Y	Y	Y	Y	Y	Y
Usage-year fixed effects	Y	Y	Y	Y	Y	Y
Observations	20,356	14,251	42,463	34,811	36,905	27,753
Adjusted R-squared	0.709	0.731	0.728	0.733	0.711	0.726

Table 8 The impact of anti-corruption campaign

Table 8 reports the regression results of the triple difference model (DDD) specified in Equation (2). The anti-corruption campaign is used as the external shock. *Post*-2013 equals 1 on and after 2013, and zero otherwise. *Post-Inspection Visits* equals 1 after the first visit of the central inspection team in each province and zero otherwise. All other variables are the same as in Equation (1). Control variables include land size, land sales method dummies, land quality dummies, firm ownership, firm listed status, firm size dummies, and firm industry dummies. The definitions of variables are specified in Appendix B. As in the main regressions, we have included city-year, usage-year and month fixed effects to absorb unobserved heterogeneity. Robust *t*-statistics reported in parentheses are based on standard errors clustered by firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Constant terms are not reported.

	Log of land price							
	Full Sample		Residential Land		Industrial Land		Commercial Land	
	≤ 1500M	≤ 500M	≤ 1500M	≤ 500M	≤ 1500M	≤ 500M	≤ 1500M	≤ 500M
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Connected	-0.021	-0.015	0.025	-0.119	-0.014	0.002	0.259**	0.344**
	(-0.551)	(-0.378)	(0.259)	(-1.141)	(-0.408)	(0.053)	(2.084)	(2.400)
Connected × Subsidiary	-0.172***	-0.165***	-0.283***	-0.211**	-0.022	-0.037	-0.534***	-0.581***
	(-5.045)	(-4.566)	(-3.148)	(-2.324)	(-0.753)	(-1.262)	(-4.437)	(-4.210)
Connected × Post-2013	-0.001	-0.009	-0.235	-0.176	0.048	0.056	-0.336**	-0.361*
	(-0.022)	(-0.167)	(-1.251)	(-0.959)	(1.213)	(1.397)	(-1.998)	(-1.947)
Connected × Subsidiary × Post-2013	0.109**	0.106**	0.367*	0.314*	-0.081*	-0.086**	0.530***	0.520***
	(2.061)	(1.972)	(1.950)	(1.699)	(-1.936)	(-2.078)	(3.135)	(2.796)
Wald tests: Coef. of *Connected* × *Subsidiary* + Coef. of *Connected* × *Subsidiary* × *Post*-2013								
	-0.063	-0.059	0.084	0.103	-0.103***	-0.123***	-0.004	-0.061
Control variables	Y	Y	Y	Y	Y	Y	Y	Y
Observations	94,932	73,417	20,356	14,251	42,463	34,811	36,905	27,753
Adjusted R-squared	0.695	0.709	0.709	0.732	0.728	0.733	0.711	0.726

Table 9 Alternative political connection measures

Table 9 presents regression results of alternative political connection measures. We include all the listed firms as the treatment group and use spatial matching to generate the control group for the treatment group. *Donations/ Assets* is calculated as the ratio of charitable donation expenses over total assets time 100, and *Subsidies/ Assets* is the ratio of government subsidies over total assets times 100. Control variables include land size, land sales method dummies, land quality dummies, firm ownership, firm listed status, firm size dummies, and firm industry dummies. The definitions of variables are specified in Appendix B. Robust *t*-statistics reported in parentheses are based on standard errors clustered by firm. The Wald tests examine the statistical significance of the sum of coefficients. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Constant terms are not reported.

	Log of land price			
	≤ 1500M	≤ 500M	≤ 1500M	≤ 500M
	(1)	(2)	(3)	(4)
Donations /Assets	1.638*	1.967*		
	(1.700)	(1.813)		
Donations/Assets × Subsidiary	-2.663**	-2.790**		
	(-2.685)	(-2.470)		
Donations /Assets × Post-2013	-1.488	-1.943		
	(-0.985)	(-1.128)		
Donations /Assets × Subsidiary × Post-2013	1.927	2.251		
	(1.197)	(1.243)		
Subsidies/Assets			0.021	0.023
			(0.657)	(0.771)
Subsidies/Assets × Subsidiary			-0.067*	-0.065*
			(-1.876)	(-1.897)
Subsidies/Assets × Post-2013			0.056	0.032
			(0.913)	(0.525)
Subsidies/Assets × Subsidiary × Post-2013			-0.088	-0.082
			(-1.557)	(-1.421)
Constant	6.342***	5.523***	6.309***	5.508***
	(32.088)	(19.767)	(30.879)	(19.676)

(To be continued…)

(Table 9 continued)

	Log of land price			
	≤ 1500M	≤ 500M	≤ 1500M	≤ 500M
	(1)	(2)	(3)	(4)
Wald Tests: Coef. of Donations/Assets + Coef. of Donations/ Assets × Subsidiary	-1.025**	-0.823**		
Coef. of Donations/Assets × Subsidiary + Coef. of Donations/Assets × Subsidiary × Post-2013	-0.736	-0.539		
Coef. of Subsidies/Assets + Coef. of Subsidies/Assets × Subsidiary			-0.046***	-0.042**
Coef. of Subsidies /Assets × Subsidiary + Coef. of Subsidies /Assets × Subsidiary × Post-2013			-0.155**	-0.147**
Control variables	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y
City-year fixed effects	Y	Y	Y	Y
Usage-year fixed effects	Y	Y	Y	Y
Observations	172,166	134,891	172,166	134,891
Adjusted R-squared	0.691	0.708	0.692	0.708

Table 10 Robustness checks with 2SLS

Table 10 exhibits the results of two-stage least squares (2SLS) regressions. We use the distance between corporate headquarters and purchased land parcels (*Distance to land*) as an instrument for the *Subsidiary*, to mitigate the endogeneity concern that the dependent variable (i.e., *log of land price*) may also affect key independent variables (i.e., *Subsidiary*). Control variables include land size, land sales method dummies, land quality dummies, firm ownership, firm listed status, firm size dummies, and firm industry dummies. The definitions of variables are specified in Appendix B. Robust *t*-statistics reported in parentheses are based on standard errors clustered by firm and province. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Constant terms are not reported.

	≤ 1500M		≤ 500M	
	1st stage	2nd stage	1st stage	2nd stage
	Connected ×Subsidiary	Log of price	Connected ×Subsidiary	Log of price
	(1)	(2)	(3)	(4)
Connected × Distance to land	0.118***		0.113***	
	(43.486)		(37.770)	
Connected		0.157		0.134
		(1.140)		(0.890)
Connected × Subsidiary		-0.304**		-0.268*
		(-2.093)		(-1.715)
Wald tests: Coef. of *Connected* + Coef. of *Connected* × *Subsidiary*				
		-0.147***		-0.134**
Control variables	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y
City-year fixed effects	Y	Y	Y	Y
Usage-year fixed effects	Y	Y	Y	Y
Observations	95,061	95,061	73,543	73,543
Adjusted R-squared	0.921	0.695	0.917	0.709
Robust F-statistic (instruments)	103.066		95.879	
F-statistic *p*-value	0.000		0.000	

Table 11 SOEs versus non-SOEs

Table 11 shows results of whether state ownership could affect the price discount obtained by subsidiaries of politically connected firms. We re-construct treatment groups based on state ownership (land parcels purchased by politically connected SOEs versus non-SOEs), and use spatial matching to generate control groups for each treatment group. Control variables include land size, land sales method dummies, land quality dummies, firm ownership, firm listed status, firm size dummies, and firm industry dummies. The definitions of variables are specified in Appendix B. Robust *t*-statistics reported in parentheses are based on standard errors clustered by firm and province. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Constant terms are not reported.

	Log of land price			
	Non-SOEs		SOEs	
	≤ 1500M	≤ 500M	≤ 1500M	≤ 500M
	(1)	(2)	(3)	(4)
Connected	-0.017	0.002	0.412	-0.148
	(-0.270)	(0.031)	(1.536)	(-0.436)
Connected × Subsidiary	-0.113***	-0.108**	-0.259*	0.018
	(-2.820)	(-2.585)	(-1.766)	(0.102)
Wald test: Coef. of *Connected* + Coef. of *Connected* × *Subsidiary*				
	-0.130**	-0.106*	0.153	-0.130
Control variables	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y
City-year fixed effects	Y	Y	Y	Y
Usage-year fixed effects	Y	Y	Y	Y
Observations	89,548	69,444	6,172	4,551
Adjusted R-squared	0.699	0.713	0.691	0.718

Table 12 Legal environment and private sector development

Table 12 exhibits whether the legal environment and private sector development could affect the price discount obtained by subsidiaries of politically connected firms. *Private sector score* and *Legal system score* capture the level of non-state sector development and legal environment (Wang et al. 2017, 2021), respectively. Control variables include land size, land sales method dummies, land quality dummies, firm ownership, firm listed status, firm size dummies, and firm industry dummies. The definitions of variables are specified in Appendix B. Robust *t*-statistics reported in parentheses are based on standard errors clustered by firm and province-level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Constant terms are not reported.

	Log of land price			
	≤ 1500M	≤ 500M	≤ 1500M	≤ 500M
	(1)	(2)	(3)	(4)
Connected	0.033	0.041	0.254	0.261
	(0.317)	(0.374)	(1.675)	(1.659)
Connected × Subsidiary	-0.255***	-0.257***	-0.524***	-0.498***
	(-3.235)	(-3.279)	(-3.990)	(-3.671)
Connected × Legal system score	-0.006	-0.006		
	(-0.746)	(-0.781)		
Connected × Subsidiary × Legal system score	0.015**	0.016**		
	(2.165)	(2.301)		
Connected × Private sector score			-0.030*	-0.031*
			(-1.772)	(-1.742)
Connected × Subsidiary × Private sector score			0.048***	0.045***
			(3.284)	(3.023)
Wald test: Coef. of *Connected* + Coef. of *Connected* × *Subsidiary*				
	-0.222***	-0.216***	-0.270***	-0.237***
Control variables	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y
City-year fixed effects	Y	Y	Y	Y
Usage-year fixed effects	Y	Y	Y	Y
Observations	95,061	73,543	95,061	73,543
Adjusted R-squared	0.695	0.709	0.695	0.709

Table 13 Firm-level regressions

In this table, we examine whether the price discount obtained by subsidiaries of politically connected firms could distort firm investment decisions. In Panel A, the dependent variables are firms' preference for purchasing land parcels through their subsidiaries over through their headquarters. In Panel B, the dependent variables are expenses on land acquisition (purchased land size) of firms' subsidiaries and headquarters. The political connection identifier, *Connected* equals 1 if a firm has a politically connected CEO or board chairperson. The anti-corruption identifier, *Post*-2013, equals 1 on or after 2013. The definitions of control variables are specified in Appendix B. Firm-clustered standard errors are presented in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Political connections on firm-level investment decisions

	% Land expenses through subsidiaries		% Land size through subsidiaries	
	(1)	(2)	(3)	(4)
Connected (*t*-1)	0.786	2.588**	0.698	2.067
	(0.893)	(2.083)	(0.780)	(1.633)
Connected (*t*-1) × Post-2013		-2.758**		-2.095
		(-2.122)		(-1.586)
Tobin Q (*t*-1)	0.002***	0.002**	0.002**	0.002**
	(2.626)	(2.517)	(2.493)	(2.410)
Log of assets (*t*-1)	6.307***	6.318***	6.567***	6.576***
	(9.446)	(9.449)	(9.821)	(9.822)
Tangible assets/Assets (*t*-1)	0.039	0.041	0.046	0.047
	(0.903)	(0.934)	(1.038)	(1.061)
Largest ownership (*t*-1)	0.085*	0.083*	0.083*	0.082*
	(1.861)	(1.825)	(1.810)	(1.782)
CEO duality (*t*-1)	-0.965	-0.994	-0.551	-0.573
	(-1.110)	(-1.144)	(-0.624)	(-0.649)
Board size (*t*-1)	0.846	0.880	1.163	1.189
	(0.319)	(0.331)	(0.437)	(0.446)
Ind director/Board (*t*-1)	-0.029	-0.030	0.029	0.028
	(-0.374)	(-0.385)	(0.370)	(0.362)
Revenue growth (*t*-1)	0.014**	0.014**	0.012*	0.012*
	(2.140)	(2.106)	(1.831)	(1.805)
ROA (*t*-1)	0.224***	0.223***	0.218***	0.217***
	(5.389)	(5.361)	(5.182)	(5.160)
Leverage (*t*-1)	-0.041	-0.039	-0.043	-0.042
	(-1.541)	(-1.472)	(-1.633)	(-1.580)
Constant	-126.349***	-127.285***	-134.210***	-134.921***
	(-7.365)	(-7.413)	(-7.832)	(-7.869)
Wald test: Coef. of *Connected* (*t*-1) + Coef. of *Connected* (*t*-1) × *Post*-2013		-0.170		-0.028

(To be continued…)

(Panel A Continued)

	% Land expenses through subsidiaries		% Land size through subsidiaries	
	(1)	(2)	(3)	(4)
Industry fixed effects	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y
Observations	26,183	26,183	26,183	26,183
No. of firms	2,886	2,886	2,886	2,886
Adjusted R-squared	0.040	0.040	0.039	0.039

Panel B: Acquiring land through subsidiaries versus through headquarters

	Land expenses/ Assets		Purchased land size	
	Headquarters	Subsidiaries	Headquarters	Subsidiaries
	(1)	(2)	(3)	(4)
Connected (*t*-1)	0.000	0.155**	0.011	0.094**
	(0.013)	(2.272)	(0.529)	(2.477)
Connected (*t*-1) × Post-2013	-0.016	-0.124	-0.021	-0.073*
	(-1.241)	(-1.621)	(-0.991)	(-1.898)
Tobin Q (*t*-1)	0.000***	-0.000	0.000***	0.000***
	(2.981)	(-0.254)	(3.574)	(3.837)
Log of assets (*t*-1)	-0.004	-0.103**	0.025***	0.206***
	(-0.715)	(-2.412)	(3.477)	(9.925)
Tangible assets/Assets (*t*-1)	0.001*	0.001	0.001	0.002**
	(1.910)	(0.423)	(1.556)	(2.116)
Largest ownership (*t*-1)	0.000	0.004*	0.000	0.003**
	(1.138)	(1.793)	(0.435)	(2.246)
CEO duality (*t*-1)	0.013*	-0.057	0.030***	0.019
	(1.889)	(-1.294)	(2.628)	(0.812)
Board size (*t*-1)	0.032	-0.214	0.056	0.111
	(1.333)	(-1.369)	(1.312)	(1.429)
Ind director/Board (*t*-1)	0.001	0.004	0.001	0.000
	(1.037)	(0.913)	(0.506)	(0.100)
Revenue growth (*t*-1)	0.000	0.001*	0.000	0.001***
	(0.718)	(1.804)	(1.133)	(2.861)
ROA (*t*-1)	0.001***	0.003	0.001***	0.005***
	(2.952)	(1.400)	(2.683)	(4.196)
Leverage (*t*-1)	-0.000	0.001	-0.001**	-0.001
	(-0.893)	(0.476)	(-2.010)	(-1.162)
Constant	-0.053	2.507**	-0.697***	-4.657***
	(-0.377)	(2.166)	(-3.128)	(-8.554)
Wald test: Coef. of *Connected* (*t*-1) + Coef. of *Connected* (*t*-1) × *Post*-2013				
	-0.016*	0.031	-0.010	0.021
Industry fixed effects	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y
Observations	26,183	26,183	26,183	26,183
No. of firms	2,886	2,886	2,886	2,886
Adjusted R-squared	0.013	0.019	0.013	0.047

Appendix:

Appendix A. Procedure for matching land transaction data to firm-level data

We collect firm and subsidiary names from the CSMAR database and land transaction data from the China Land Market website (www.landchina.com). The China Land Market website provides detailed information on each parcel of land transaction, including the transaction date, transaction price, land size, land quality, geographic location (e.g., the address and the geographic coordinates), supply method (e.g., negotiation, sealed bid, two-stage auction, or English auction), land usage type (e.g., residential land, industrial land, or commercial land), names of seller and buyer, industrial classification codes of buyers, etc. Because the Bureau of Land and Resources requires land buyers to report their unique registered names, we consider a land parcel is purchased by the headquarter of a listed firm if the firm's name in the CSMAR database could exactly match the land buyer's name in the land transaction database (see, Wang and Yang, 2021).

The data matching process for subsidiaries and branches of listed firms occurs as follows. We first standardize firm names and subsidiary names from different databases. As in Arora et al. (2021), we omit the legal entity endings and other general words, such as (*gongsi*), company limited (*youxian gongsi*), limited liability company (*youxian zeren gongsi*), corporation (*jituan gongsi* or *jituan youxian gongsi*), holding (*zong gongsi*), bank (*yinhang*), group (*jituan*). For example, the standardized name of *zhongguo shiyou huagong youxian gongsi* (i.e., China Petroleum and Chemical Company Limited) is *zhongguo shiyou huagong* (i.e., China Petroleum and Chemical). We also manually convert commonly used abbreviations to the standardized official name. For example, *zhongguo shi hua* and *zhong shi hua* are both

commonly used abbreviations for *zhongguo shiyou huagong youxian gongsi* (i.e., China Petroleum and Chemical Company Limited).

Second, we consider a land parcel is purchased by the subsidiary or branch of a listed firm if (i) the land buyer's name could exactly match the subsidiary's name, (ii) the land buyer's name contains the firm's name (e.g., China National Petroleum Corporation Jingzhou Petrochemical Complex, China National Petroleum Corporation Lanzhou Retail Company, China National Petroleum Corporation Changzhi Branch are all local branches of the China National Petroleum Corporation), or (iii) the land buyer's name contains the subsidiary's name.

Third, we manually check all pairs with more than one matched firm and pairs with short names (i.e., a firm's name with less than or equal to four Chinese characters) to ensure legitimate matches. We utilize related information, such as industrial classification code, address, and geographic coordinates, to verify whether a local branch (subsidiary) is indeed a match to a land buyer.

Appendix B. Variable definitions and data sources

Variable	Definitions
Dependent variable	
Land Price	Natural logarithm of land price (*yuan* per square meter)
Key independent variables	
Connected	Dummy variable, equals 1 if the land buyer's CEO or board chairperson has political connection, and 0 otherwise
Subsidiary	Dummy variable, equals 1 if the land buyer is a subsidiary or local branch of a listed firm, and 0 otherwise.
Control variables	
Land size	Natural logarithm of land size (square meters)
Listed	Dummy variable, equals 1 if the land buyer is a listed firm, and 0 otherwise.
SOE	Dummy variable, equals 1 if the land buyer (listed firm) is a state-owned enterprise, and 0 otherwise.
Supply	Categorial variable (1 to 4) based on land sales methods: 1 for land parcels sold through negotiations (*xieyi*), 2 for land parcels sold through sealed bid auctions (*zhaobiao*), 3 for land parcels sold through two-stage auctions (*guapai*), and 4 for land parcels sold through English auctions (*paimai*).
Usage	Categorial variable (1 to 6) based on land usage type (Ministry of Housing and Urban-Rural Development of China, 2011): 1 for residential land, 2 for industrial land, 3 for commercial land, 4 for infrastructure land, 5 for public services land, and 6 for other land
Quality	Categorial variable (1 to 18) based on land quality as evaluated by the officials in charge of selling the land. A land parcel with the land quality of 1 has the best location and is close to a city center.
Industry	Categorial variable (1 to 19) based on Industrial Classification for National Economic Activities (GB/T 4754--2017).
Firm size	Category variable (1 to 5) based on firms' revenue (Chen and Kung, 2019): 1 for large firms with annual revenue greater than 0.3 billion *yuan*, 2 for medium-sized firms with annual revenue between 0.3 billion and 30 million *yuan*, 3 for small banks with annual revenue between 30 million and 3 million *yuan*, 4 for micro firm with annual revenue less than 3 million *yuan*, and 5 for firms with missing data.
Instrumental variables	
Distance to Land	Natural logarithm of one plus the distance from a firm's headquarter to the purchased land parcel (km)
Anti-corruption campaign identifier	
Post-2013	Dummy variable, equals 1 on and after 2013, and 0 otherwise

(To be continued…)

(Appendix B continued)

Variable	Definitions
Other variables	
Donations/ Assets	Ratio of expenses on charitable donations over total assets times 100
Subsidies/ Assets	Ratio of government subsidies over total assets times 100
Private sector score	Province-level non-state sector development index from Wang et al. (2017, 2021). A higher score denotes a more developed private sector.
Legal system score	Province-level legal environment index from Wang et al. (2017, 2021). A higher score denotes higher level of law enforcement and social justice.
Variables for firm-level regressions	
% Land expenses through subsidiaries	Ratio of expenses on land acquisition paid by subsidiaries of a listed firm over total expenses on land acquisition by subsidiaries and headquarter of the firm times 100
% Land size through subsidiaries	Ratio of land size purchased by subsidiaries of a listed firm over total land size purchased by subsidiaries and headquarter of the firm times 100
Land expenses/ Assets	Ratio of expenses on land acquisition over total assets times 100
Purchased land size	Natural logarithm of one plus land size purchased (square meters)
Tobin Q	Ratio of book value of equity over market value of equity times 100
Log of assets	Natural logarithm of total assets
Tangible assets/ Assets	Ratio of tangible assets over total assets times 100
Largest ownership	Largest shareholder's ownership (%)
CEO duality	Equals 1 if the CEO and board chairperson are the same person, and 0 otherwise
Board size	Natural logarithm of total number of directors on a firm's board
Ind director/ Board	Ratio of the number of independent directors over total number of directors times 100
Revenue growth	Log changes in sales times 100
ROA	Ratio of earnings before income and tax (EBIT) over total assets times 100
Leverage	Ratio of total liabilities over total assets times 100

Appendix C. Detailed regression results of Table 3

	Log of land price					
	(1)	(2)	(3)	(4)	(5)	(6)
Connected	-0.022	0.097**	-0.019	-0.014	0.009	0.033
	(-0.886)	(2.105)	(-0.332)	(-0.209)	(0.165)	(0.285)
Connected × Subsidiary		-0.128***	-0.113***	-0.107***	-0.141***	-0.258***
		(-2.910)	(-2.915)	(-2.778)	(-3.046)	(-4.371)
Controls						
Land size	-0.026***	-0.026***	-0.046***	-0.043***	-0.031***	-0.018
	(-3.220)	(-3.229)	(-5.340)	(-4.666)	(-3.510)	(-1.169)
SOE	-0.071	-0.069	-0.081	-0.055	-0.059	-0.275***
	(-1.535)	(-1.492)	(-1.447)	(-1.061)	(-0.905)	(-4.040)
Listed	0.172	0.172	1.054***	1.220***	1.179**	0.836**
	(0.757)	(0.754)	(4.383)	(4.908)	(2.447)	(2.495)
Supply = 1, Negotiation	-	-	-	-	-	-
Supply = 2, Sealed bid	0.676***	0.677***	0.883***	0.868***	0.779***	1.044***
	(5.556)	(5.560)	(4.360)	(3.809)	(4.086)	(4.218)
Supply = 3, Two-stage auction	0.559***	0.559***	0.626***	0.623***	0.536***	0.503***
	(6.121)	(6.122)	(5.061)	(4.343)	(4.332)	(3.992)
Supply = 4, English auction	0.934***	0.934***	1.075***	1.077***	0.994***	1.110***
	(8.496)	(8.495)	(7.226)	(6.307)	(7.083)	(7.798)
Industry = 1, Accommodation and catering services	-	-	-	-	-	-
Industry = 2, Agriculture	-0.253***	-0.253***	-0.316***	-0.258***	-0.308***	-1.627***
	(-3.310)	(-3.311)	(-3.490)	(-2.747)	(-3.258)	(-15.104)
Industry = 3, Construction	0.133*	0.134*	-0.084	-0.071	-0.039	-0.895***
	(1.961)	(1.965)	(-1.078)	(-0.811)	(-0.482)	(-7.146)
Industry = 4, Cultural, sports and entertainment services	-0.073	-0.073	-0.265**	-0.289**	-0.230*	-0.289*
	(-1.340)	(-1.338)	(-2.693)	(-2.489)	(-1.977)	(-1.850)
Industry = 5, Education	0.024	0.024	-0.527**	-0.523*	-0.522***	-0.714**
	(0.338)	(0.344)	(-2.355)	(-1.925)	(-2.959)	(-2.705)
Industry = 6, Electricity, gas, and water supply	-0.078	-0.078	-0.152*	-0.094	-0.123	-0.946***
	(-1.268)	(-1.265)	(-2.025)	(-0.985)	(-1.513)	(-10.296)
Industry = 7, Environment and public facilities	0.028	0.028	-0.152	-0.119	-0.102	-0.879***
	(0.470)	(0.477)	(-1.657)	(-1.075)	(-0.960)	(-6.941)
Industry = 8, Financials	0.505***	0.505***	0.480***	0.573***	0.548***	0.602***
	(6.090)	(6.095)	(5.105)	(4.630)	(5.393)	(5.138)
Industry = 9, Health and social services	0.461***	0.461***	0.398***	0.432***	0.471***	-0.091
	(7.456)	(7.468)	(3.822)	(3.506)	(3.615)	(-0.615)
Industry = 10, Leasing and business services	0.318***	0.318***	0.221**	0.245**	0.258**	0.216
	(3.662)	(3.665)	(2.341)	(2.092)	(2.616)	(1.469)
Industry = 11, Manufacturing	-0.119*	-0.119*	-0.241***	-0.197**	-0.198***	-1.380***
	(-2.021)	(-2.023)	(-3.932)	(-2.564)	(-2.866)	(-17.773)
Industry = 12, Mining	-0.105	-0.105	-0.156	-0.123	-0.164	-1.595***
	(-1.268)	(-1.271)	(-1.302)	(-0.894)	(-1.392)	(-8.993)

(To be continued…)

(Appendix C continued)

	Log of land price					
	(1)	(2)	(3)	(4)	(5)	(6)
Industry = 13, Other services	0.028	0.028	-0.070	-0.040	-0.045	-0.512***
	(0.504)	(0.506)	(-1.032)	(-0.466)	(-0.629)	(-4.743)
Industry = 14, Real estate	0.550***	0.550***	0.388***	0.421***	0.465***	0.565***
	(7.903)	(7.907)	(5.248)	(5.064)	(6.419)	(7.036)
Industry = 15, Research and technical services	0.070	0.070	-0.066	0.053	0.013	-0.456***
	(0.995)	(0.999)	(-0.522)	(0.330)	(0.094)	(-2.973)
Industry = 16, Software and information technology services	-0.020	-0.019	-0.060	-0.006	0.004	-1.349***
	(-0.259)	(-0.248)	(-0.536)	(-0.044)	(0.028)	(-8.932)
Industry = 17, Transportation and storage	-0.550***	-0.551***	-0.771***	-0.725***	-0.714***	-1.096***
	(-9.722)	(-9.735)	(-14.638)	(-10.005)	(-12.678)	(-12.936)
Industry = 18, Wholesale and retail trade	0.229***	0.230***	0.097	0.145	0.155*	-0.003
	(3.127)	(3.136)	(1.239)	(1.678)	(1.915)	(-0.040)
Industry = 19, Other	-0.133**	-0.133**	-0.270***	-0.226***	-0.235***	-1.364***
	(-2.115)	(-2.118)	(-4.191)	(-2.982)	(-3.289)	(-18.395)
Firm size =1, Large	-	-	-	-	-	-
Firm size = 2, Medium	-0.244	-0.249	-0.689	-0.749	-0.576	-0.866
	(-1.582)	(-1.615)	(-1.538)	(-1.611)	(-1.644)	(-1.670)
Firm size = 3, Micro	0.209	0.091	-0.037	-0.001	-0.018	-0.946***
	(0.836)	(0.358)	(-0.217)	(-0.008)	(-0.124)	(-5.910)
Firm size = 4, Small	-0.265	-0.265	0.421***	-1.672***	0.631***	1.382***
	(-0.791)	(-0.792)	(3.940)	(-16.983)	(6.214)	(6.433)
Firm size = 5, Unknown	-0.036	-0.037	0.852***	1.001***	0.985**	0.356
	(-0.159)	(-0.161)	(3.736)	(4.339)	(2.043)	(1.232)
Constant	4.690***	4.691***	6.032***	5.668***	3.272***	5.450***
	(14.733)	(14.712)	(21.246)	(19.158)	(5.975)	(11.379)
Sample Matching Method	-	-	≤ 1500M	≤ 500M	≤ 1500M	≤ 1500M
Quality fixed effects	Y	Y	Y	Y	Y	Y
Month fixed effects	Y	Y	Y	Y	Y	Y
City fixed effects	Y	Y	Y	Y	Y	-
Usage fixed effects	Y	Y	Y	Y	Y	-
Year fixed effects	Y	Y	Y	Y	Y	-
City-year fixed effects	Y	Y	Y	Y	-	-
Usage-year fixed effects	Y	Y	Y	Y	-	-
Two-way clustering by firm and province	Y	Y	Y	Y	Y	Y
Observations	904,353	904,353	95,085	73,566	95,085	95,200
Adjusted R-squared	0.619	0.619	0.695	0.709	0.650	0.427