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TRADING FAVOURS THROUGH THE REVOLVING DOOR: EVIDENCE FROM CHINA'S PRIMARY LAND MARKET*

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By matching data on land transactions in China's primary land market with detailed curricula vitae of board directors in publicly listed firms, we identify a pattern of 'revolving-door' exchanges between local officials and firms. The officials discounted the price of land that they sold to the said firms, and were subsequently rewarded with board appointments upon retirement. Specifically, these 'client officials' are three times as likely to be recruited by the 'patron firms' as board directors and enjoy a salary that is 23% higher, and 81% more company shares by comparison with directors who did not help firms to secure cheap land deals. All of these, however, are conditional on patron firms being able to receive a price discount, which averaged 19.4% when they purchased them in normal times. However, when client officials were constrained from providing a price discount during a surprise audit, the likelihood of client officials recruited as board directors was halved, with the price discount and extra compensation received by the patrons and clients, respectively, vanishing altogether. By providing evidence of the reciprocal benefits received by both parties, we demonstrate that the revolving door is used as a 'payment' rather than a 'connection' device in the Chinese context.

Do politicians yield to prospective corporate employers for their mutual benefit? Do publicly listed firms seek favours from politicians in exchange for lucrative employment that promises, not only salaried compensation, but also lucrative shareholding? These questions often arise as politicians the world over amass enormous wealth through the politics-business revolving door (see, e.g., Eggers and Hainmueller, 2009; Fisman *et al.*, 2014; Amore *et al.*, 2015; Fafchamps and Labonne, 2017; Folke *et al.*, 2017; Gagliarducci and Manacorda, 2020). However, existing evidence only shows the one-sided gains that politicians obtain from their lucrative employment; there is no evidence to link these lucrative rewards directly to the benefits that firms may have received from their clients.[1] Moreover, existing studies of the revolving door mainly focus on its role as a 'connection device', i.e., firms hiring former politicians primarily to help them approach those in power (e.g., Vidal *et al.*, 2012; Bertrand *et al.*, 2014; Luechinger and Moser, 2014; Cornaggia *et al.*, 2016), but not as a 'payment device' in the specific form of *deferred*

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[1] Consider, for example, the public discussion surrounding Dick Cheney's relationship with Brown and Root Services (BRS). As Bush Sr.'s Secretary of Defence, Cheney helped to initiate the government's deal with a private military contractor within BRS, whose parent company Halliburton later hired him after he left the federal position. Similarly, the former chief of FDA who approved the addictive drug Oxycontin, was subsequently hired by Purdue Pharma, the producer of Oxycontin. While both examples may well be a practice of favour exchange through the revolving door, evidence fell short of proving that it was indeed the case.

reward to reciprocate business favours from politicians with authority to provide them while in office. Using the primary land market in China—a market in which local government is the sole seller[2]—as our case study, we bring systematic evidence to bear on the claim that 'patron firms' that benefited from discounted government land sales provided by their 'client officials' eventually employed them after they retired from office.

The revolving-door phenomenon has existed in China for some time now. The number of board directors in publicly listed firms who were formerly officials has increased markedly since 2003,[3] ostensibly since the Independent Board Director System (IBDS) policy—a policy designed to provide checks and balances for the majority shareholders—came into effect.[4] While the revolving door is certainly not unique to China, the fact that local governments in China are empowered to sell land-use rights and retain the revenue from such sales, provides a unique institutional context that enables us to identify the trading of favours through the revolving door (Han and Kung, 2015; Chen and Kung, 2016; 2019). Specifically, by selecting a preferred buyer (a patron), local government officials can provide their patron with a price discount (Section 1). Indeed, the right to sell land to selected buyers provides strong incentives for both parties to seek rents, as long as the patron firms can reciprocate by offering board appointments to the officials concerned as a 'deferred payment'. This mechanism has been widely practised in China precisely because it is difficult to prove that the revolving door is corruption, which substantially reduced the risk of apprehension.

To undertake an empirical analysis of China's revolving door, we match the data on land transactions for the period 2000–12 with the detailed curricula vitae of the board directors of publicly listed firms to construct a unique data set (Section 2). Doing so serves two primary purposes. First, it enables us to establish evidence of (1), whether involvement in a land transaction by an official before retirement is linked to the official's subsequent board directorship and corresponding compensation, in terms of both salary and company shareholding; and (2) whether the prices of land transactions underpinned by this 'patron-client' relationship are discounted. Second, and crucially, the detailed curricula vitae of board directors allows us to identify with greater confidence those officials who were previously involved in land transactions—either as provincial/prefectural leaders or as heads of functional departments related to land transactions—when they were still serving in the government.

Having prepared this unique dataset, we begin our analysis with the research question of whether patron firms are more likely to *recruit* their client officials as board directors as a result of the price discount the latter previously provided, and if so, whether they are remunerated differently (Section 3). Our analysis finds that, by comparison with prefectures in which firms had not purchased land, firms are three times as likely to recruit client officials from prefectures where they purchased land onto the board as directors. Conditional upon recruitment, client officials earned approximately 23% more in annual salary and were given 81% more in company shares compared with other officials turned directors who were not involved in land transactions, as well as directors who were not former officials. These results remain the same even after we

[2] Since 1998, local governments in China have become the de facto monopolist sellers of land usufruct rights to private individuals for up to 70 years (see Section 1 for further details). Coupled with the rapidity of China's urbanisation since then, house prices in tier-1 Chinese cities had risen enormously, reinforcing the 'land sale craze' (Fang *et al.*, 2016).

[3] In particular, the real estate sector is one where disproportionally more former officials have been employed as board directors—a sector identified by Xi Jinping as the 'hotbed' for breeding corruption (Chen and Kung, 2019).

[4] For example, *Southern Weekly*, a widely circulated newspaper in China, reported that, as of 2013, 32% of the 2,532 firms listed on various stock exchanges had at least one former government official who served as a board director, with many having more than one.

control for future land purchases—a proxy for firms' intentions to maintain or develop political connections with incumbent officials through the client officials' connections, ruling out the possibility that firms reward their client officials purely as a connection device.

We rely on the 'surprise audit' conducted by the central government to identify whether the relationship between the larger premium enjoyed by client officials, and their involvement in land transactions is merely a correlation or is causal. As these audits were unannounced, they effectively served as a quasi-random natural experiment. Indeed, we do find that the prospect of client officials being recruited as board directors is significantly reduced, with the premium in both salary and company shareholding vanishing altogether, even in the event of appointment—presumably because client officials could not offer the same price discount while under strict surveillance. Moreover, additional evidence finds that the effect of 'patronage'—specifically, appointment to a directorship resulting from past land purchase—is especially prevalent in regions where local governments and firms of lesser probity are apparently more corrupt, not just in the primary land market, but also in other respects, lending credence to the existence of corrupt behaviour in both firms and government.[5]

Next, we examine price discount—the other side of the revolving-door exchange—in Section 4. Controlling for other possible confounding factors that may bear upon land price, most notably the quality of the land involved and method of land transaction, we find that patron firms enjoyed an average price discount of 19.4% in normal times, but this, like their client officials' income and shareholding premium, similarly vanished during the audit. Moreover, evidence shows that price discount was not the only favour client officials extended to their patrons. By using a less transparent method when selling land, these officials were able to practise price discrimination with fewer restrictions; this resulted in selling, not only more land to their patrons, but also land designated for more profitable uses such as commercial and residential construction. To prove that the relationship between price discount and board appointment is causal, once again we employed the surprise audit as identification. Moreover, we imposed the further condition that the effect of the surprise audit must be time bound—in that its effectiveness is confined to the auditing period alone and not either before or after. We did find that to be the case; price discounts existed before the surprise audit, vanished altogether during the audit and returned soon after the campaign was over.

In addition to identification, by controlling for firm-by-year fixed effects as we do in some specifications, we can rule out the concern that our estimates might be driven by unobserved time-varying firm characteristics. To ensure that our results are not driven by firms' unobserved market advantages in certain localities, we employ the secondary land market—a market in which the sellers are those who originally purchased the land-use rights from the local government—as a placebo test. In this market, we find no relationship between the price of land purchased by firms and the appointment to the board of officials from the locality where the land was purchased, reassuring us that the result in the primary market is driven by a reciprocal exchange between firms and officials instead of unobserved firm- and locality-specific confounding factors.

What conclusions can we draw from this empirical exercise regarding the revolving door? Can we draw any net societal effect from it? To shed some light on these questions, we provide a back-of-the-envelope calculation. In our sample, 8,041 land parcels altogether were conveyed via the revolving door, yielding a total discount of at least 85.80 billion *yuan* or 13.77 billion USD in 2012 distributed over 1,539 firm years. A 'representative' patron firm obtained an average of

[5] The limitations of surprise audits were probably why, starting from 2013, the central government wanted to discourage former officials from taking board directorship, but a policy has still not been enacted.

55.75 million *yuan* (85.80 billion/1,539) or 8.95 million USD of 'windfall profits' in a given year, approximately 12% of the average annualised profits made by a listed firm between 2000 and 2012.

Equally important is the monetary equivalent of the value of a board appointment. The 22.9% higher salary received by the client official over two terms of six years implies that the client official enjoyed a premium of 219,249.18 *yuan* (= 22.9% × 159,570 × 6 years) or 35,191.92 USD in 2012 in salary over the client official's peers who served in the same capacity as directors, but did not provide firms with a price discount. But it is company shareholding that accounts for the lion's share of the client officials' premium income. Specifically, 81% more shares translate into 5.58 million yuan. The two premiums combined yielded an additional income of approximately 4.74 million yuan or 0.76 million USD for the client official—an amount comparable to the annual compensation of a CEO in a publicly listed firm in China in 2012, and more than 20 times the annual salary and bonus of a prefectural mayor in office.[6] Although the 342 client officials who served as board directors for six years incurred an additional payment of 3.86 billion *yuan* or 0.62 billion USD for the patron firms, this was a mere 4.5% of their saving from the discounted prices provided by their clients.

There are three bodies of literature to which we contribute. Foremost is the literature on the politics-business revolving door (e.g., Vidal *et al.*, 2012; Bertrand *et al.*, 2014; Luechinger and Moser, 2014; Cornaggia *et al.*, 2016). While this literature has spun many interesting narratives, it still falls short of demonstrating the reciprocal gains made by both parties to the revolving-door exchange. To our knowledge, ours is the first to show the gains of both the patrons (the firms) and the clients (the officials) in the form of price discounts and lucrative post-retirement employment, respectively.

The biggest contribution that we wish to claim, however, is the discovery of an entirely novel mechanism underlying the revolving door that functions primarily as a payment rather than a connection device, whose prevalence can be attributed to the difficulty of proving that board appointment involves corruption. Moreover, while Chen and Kung (2019) also made use of China's primary land market to reveal corruption, they linked it to the 'one-level-up' promotion policy to account for the exchange between the 'princelings' firms and local officials, ours is linked to a more general setting, whereby even non-princeling firms can reward local officials through the revolving door.

Second, our study also contributes to a growing literature that examines the effect of pay structure on the career and financial incentives of public officials and politicians (e.g., Kotakorpi and Poutvaara, 2011; Dal Bó *et al.*, 2013; Gagliarducci and Nannicini, 2013; Finan *et al.*, 2017; Enikolopov, 2018; Khan, *et al.*, 2019; Bertrand *et al.*, 2020), as well as one that focuses on the abnormal financial gains accruing to politicians and/or their family members (e.g., Eggers and Hainmueller, 2009; Fisman *et al.*, 2014; Amore *et al.*, 2015; Fafchamps and Labonne, 2017; Folke *et al.*, 2017; Chen and Kung, 2019; Gagliarducci and Manacorda, 2020). Last, but certainly not least, our work also joins the voluminous literature on corruption in general (Banerjee *et al.*, 2012; Olken and Pande, 2012 for an overview), and political connections in particular (Khwaja and Mian, 2005; Li *et al.*, 2008; Cingano and Pinotti, 2013; Coulomb and Sangnier, 2014; Fisman and Wang, 2015, Fang *et al.*, 2019).

[6] This is based on a guesstimate that a prefectural mayor in 2010 earned a monthly salary between 5,000 and 10,000 *yuan*, and a bonus that could be several times higher, depending on a prefecture's fiscal situation. In addition, prefectural mayors are also entitled to a number of non-pecuniary benefits, most notably discounted housing, free medical and health care provision, educational allowances for their children, etc.

1. Institutional Background

1.1. *The Revolving Door of China's Listed Firms*

With the intent of providing checks and balances for the majority shareholders, in 2001 the China Securities Regulatory Commission (CSRC) stipulated that within two years a publicly listed firm was required to fill at least a third of its board with independent directors (*guidance regarding the establishment of the independent directors system in listed companies*). However, in reality, a substantial majority of the independent directors were recruited by the majority shareholders. Granted, to prevent the abuse of power, the *guidance* explicitly prohibits officials from joining firms whose businesses are directly related to the officials' authority. To circumvent this regulation, firms delay recruiting them until they have officially retired from the public sector. These corporate job offers, which come with attractive compensation and generous stock options, are appealing to retired officials whose pension income is only half of their pre-retirement salary.

1.2. *China's Primary Land Market*

The passing of a statutory bill at the 15th National Party Congress in 1998 assigned exclusive statutory rights to local governments in China to collect and retain revenue from leasehold sales to eligible parties for up to 70 years.[7] In turn, those who obtain the usufruct are authorised by law to resell it in the so-called 'secondary' land market to a third party before its expiry. Thus, the land market in China consists of two spheres: the primary market where the local government is the sole seller, and the secondary market—a market where the local government is not involved at all. Our analytical focus is on the primary land market.

In order to practise price discrimination, the monopolist local government chooses the method of land transactions that allows them the greatest flexibility in choosing buyers and offering them the best prices. In principle, transactions can be carried out in one of three ways—'invited bidding' (*guapai*), 'listed bidding' (*zhaobiao*) and 'English auction' (*paimai*), the choice of which can significantly affect the discount that local government can extend to potential buyers.[8] While all three methods are in principle open auctions, the English auction is considered the most transparent and least prone to corruption or price manipulation, and hence results in the highest land prices on average (Chen and Kung, 2019). But this method accounted for less than 10% (8.32%) of all land transactions in the primary land market between 2000 and 2012. Furthermore, among the listed firms the corresponding magnitude is a minuscule 6.21%. This exceptionally low incidence suggests that local officials were selling land in a far from transparent manner, especially when their buyers were listed firms. Indeed, close to half of the land conveyed in the primary land market, 42.62%, was sold through listed bidding—a method that begins with at least two bidders, but often ends up with just one and essentially becomes a de facto 'bilateral agreement'. Indeed, a slightly larger proportion of land parcels, 46.67%, was sold this way, despite being officially prohibited since 2002. In our sample of publicly listed firms, nearly all the land they purchased was bought either via listed bidding (59.39%) or bilateral agreement

[7] Entitled *The Revised Law of Land Management*, the bill explicitly grants local governments de jure ownership over land in their geographic jurisdictions (Lin and Ho, 2005; Kung et al., 2009; Han and Kung, 2015; Chen and Kung, 2016).

[8] The 'bilateral agreement' (*xieyi*), which essentially represents negotiations between a single buyer and seller behind closed doors, has been banned since 2002 by the Ministry of Land and Resources on land designated for commercial and residential uses (*Regulation on the Transaction Method of Leasehold Sale of Land by Local Government*), before it was also extended to industrial land in 2007. But many local governments continued to do that with the excuse that only a single buyer can fulfil the stated requirements (more on this below).

(32.11%). It is easy for local government to convert a listed bidding into a bilateral agreement, simply because they have full discretion in setting the requirements for the qualifications and characteristics of the bidders; this gives them ample room to choose the preferred buyer and manipulate the price. For example, in one reported corruption case, the few potential bidders were disqualified by the officials, as they were unable to resettle the affected households within the short notice given to them, while the preferred buyer was informed well in advance and could negotiate with the households ahead of time. In the end, only one buyer met the requirement and won the bid (Gong and Wu, 2012). This anecdote is consistent with many similar studies, all of which invariably show that officials can manipulate the requirements so that only their preferred bidder is qualified to win the bid without violating the law (Cai *et al.*, 2013; Lian *et al.*, 2019).

Land policy is no exception to the general rule that officials can circumvent the regulations imposed by the central government, like many policies in China. Indeed, after auditing land sales in 11 prefectures, the National Audit Office of China came to the following reluctant conclusion:

> The Chinese government efforts to clean up land sales, a major source of official corruption ..., face a rethink ... according to an investigation published by the National Audit Office (NAO) last week .... Some prefectures have given a flexible interpretation to the rules and the auction system has often existed in name only, resulting in a lack of competition among developers and the winning developer being able to secure the land at below its true market value.[9]
>
> Cai et al. (2013), p.489

1.3. *Efforts to Curb Corruption in the Primary Land Market*

While the Disciplinary Committee of the Chinese Communist Party (DCCCP) is tasked with overseeing the behaviour of party officials, inspecting land transactions is not a part of their mandate. Moreover, given that the local government has full discretion over land sales, officials in charge of them will not be bothered, as long as they obey the regulations with respect to the annual sales quota and methods of transaction. Hence, to curb corruption in the primary land market, the central government launched a series of 'surprise audits' beginning in 2005. Altogether, four rounds of such inspections were conducted in a total of 585 counties and/or prefectures (in 2005, 2007, 2009 and 2011). As the audits were intended to take the targeted provinces, prefectures and counties by surprise, they were not announced in advance. Moreover, except for major municipalities such as Beijing, Tianjin, Shanghai and Chongqing, only 76 prefectures—a small fraction out of 585 (13%)—were audited more than once. Typically, the inspection teams would be dispatched to the targeted prefectures and counties for a duration of between ten and 18 months to audit land transaction records and related financial documents. It is difficult to prove corruption merely on account of the seemingly lower prices of land sold by client officials to their patron firms, for there was no evidence as yet that these officials had received any tangible benefits. But the same cannot be said for *ongoing* transactions; for example, the presence of the inspection team strongly deterred local officials from selling land using bilateral agreements, restraining them from manipulating prices. Upon completing the inspection, the team returned and submitted reports to the central government.

[9] *Asian Times* (June 2008). The English translation is from Cai *et al.* (2013).

2. Variables and Data Sources

To conduct an empirical analysis of the politics-business revolving door in China's primary land market, we construct a dataset by merging together the data on (1) various characteristics of publicly listed firms, including the particulars of board directors, and (2) land transactions. Our data are drawn from the following sources.

2.1. *Listed Firms*

The first data source is annual reports published by firms—their subsidiaries included—listed on the Shenzhen and Shanghai stock exchanges from 2000 to 2012; there were altogether 2,665 of these firms during that period. Containing detailed information on firms' characteristics and performance measures, the bulk of these reports were acquired from three major data vendors in China: Wind Information, China Stock Market and Accounting Research (CSMAR), and RESSET.

2.2. *Land Transactions*

Made available by the Ministry of Land and Resources (via the website of the Land Transaction Monitoring System, http://www.landchina.com/), the second data source provides detailed information on land transactions for the same period (i.e., between 2000 and 2012). As required by the *law of land management*, prefectural governments are required to report detailed information for each land transaction in their jurisdictions, including size and location (e.g., area code and precise address) of the land parcel, total payment, transaction date, name of the buyer, method of transaction (e.g., English auction, bilateral agreement, and so on), a three-digit industry code indicating land use (e.g., industrial versus commercial), the quality of each land parcel as rated by the particular official in charge of the transaction on a 20-point scale, the legal floor area ratio, etc. In total, more than a million (specifically 1,126,269) land parcels were sold in the primary land market during the 2000–12 period.

We then match the firm data with the land transaction data based on a firm's full name, including its subsidiaries. Of the 2,665 publicly listed firms in China, nearly two-thirds (1,673 or 62.78%) purchased land in the primary land market between 2000 and 2012. The 30,871 land parcels purchased by these 1,673 listed firms amounted to a total payment of 1,536 billion *yuan* or 217 billion USD at the 2020 price,[10] accounting for 12.31% of the overall land revenue in that period.

2.3. *Board Directorship*

Our third data source comes from CSMAR, which provides detailed information on annual salary and company shareholding of the board directors who served in our sample of listed firms between 2000 and 2012. In addition, three other data vendors provided detailed curricula vitae of the board directors. This information is especially valuable as it reveals the career trajectories of all officials turned directors, in particular those who served in the government.[11] The distribution of board

[10] One *yuan* was equal to approximately 0.14 USD in the first quarter of 2020.

[11] Firms' directors are not only made up of former officials. Firms also recruit talent that can help them develop businesses; examples include those well connected to the financial sector. Some have even recruited university professors to serve on the board.

directors in terms of their former governmental positions and functions is provided in Table A1 in the Online Appendix. Of the 3,610 officials turned directors, there were few provincial party secretaries and governors, accounting for less than 1% (0.91% [= 0.25% of party secretaries + 0.66% of governors] or 33). At this highest level, a substantially larger proportion, nearly 20%, belonged to what may be categorised as 'technocrats' serving in such departments as Planning and Construction (7.2%), Commerce (2.99%), and Finance and Taxation (2.69%). At the lower, prefecture level, party secretaries and mayors combined accounted for more than a fifth of the board directors—21.19% (5.26% of party secretaries + 15.93% of mayors or 765). Nearly half of the officials turned directors, 47.01%, were technocrats who served in functional departments at the prefectural level, with the more prominent ones being Planning and Construction (14.46%), Finance and Taxation (8.89%), Land and Natural Resources (6.45%), and so forth. Officials from Planning and Construction are definitely involved in land sales, as the department has the mandate of drafting the annual land sales plan. Similarly, Finance and Taxation officials are also responsible for collecting the land conveyance fee and related taxes. Hence, the directors' curricula vitae serve the important purpose of identifying who among the directors were more likely to have been involved in land transactions.

Table 1 reports summary statistics for board directors in our sample of listed firms. Column (1) reports the characteristics of all directors, while column (2) reports the subsample of those who are *not* formerly officials. Column (2) shows that an overwhelming proportion of board directors, 90.93%, are non-officials. In other words, only about 10% of directors were formerly officials. Columns (3)–(4) further divide these officials turned directors into those who were working in prefectures where firms purchased land (column (3)), and those in prefectures where firms had not (column (4)). In column (4) we can see that the client officials accounted for a mere 3% (3.28%), while those officials turned directors who were uninvolved in land transactions accounted for the great majority, 9.92% (column (3)).

The directors' compensation is compared using two metrics—annual salary and company shareholding. Salary is lowest amongst the 'non-client officials' (116,000 *yuan*), followed by non-officials (154,000 *yuan*), and sharply higher for client officials (465,000 *yuan*). Consistent with this pecking order, client officials also received a greater number of shares (5,533,410) than directors who came from the private sector (1,020,030) and more than ten times the amount of their 'non-client' counterparts (393,070). Thus, the question to be addressed is: what enabled the client officials to be compensated so much more generously than the other two categories of director?

In terms of demographics, the average age of officials turned directors is 58, about four years older than the non-officials.[12] To measure political connections, we follow Li *et al.* (2008) by using indicators such as delegate of the Chinese People's Political Consultative Conference (CPPCC) or National Party Congress (NPC), and membership of the Chinese Communist Party (CCP). Unsurprisingly, a substantial majority of directors are represented in one or more of these organisations. The directors are also more likely to have cultivated political connections with banks, which is defined as 1 if at least one director had worked in the banking sector prior to joining the firm, and 0 otherwise.

[12] Where age is missing for some directors, the data vendors provided an estimate based on the directors' work experiences as detailed in their curricula vitae. However, doing so may result in measurement error. To ensure that our estimate will not be contaminated by measurement error of this nature, we conduct a robustness check that excludes age as a control variable, and find strikingly similar results (Table A2 in the Online Appendix).

Table 1. *Summary Statistics of Directors' Characteristics, 2000–12.*

	All		Former official = 0		Former official = 1 Past land purchase × former local official			
					= 0		= 1	
	(1)		(2)		(3)		(4)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Annual salary	1,59,570	4,28,346	1,53,997	4,05,040	1,16,423	4,06,971	4,65,152	8,92,513
Company shareholding	1,067.80	16,731.65	1,020.03	12,818.64	393.07	8,097.25	5,533.41	78,273.86
Years of education	17.53	2.44	17.53	2.45	17.46	2.35	17.53	2.23
Age	54.33	7.17	53.99	7.20	57.69	5.84	58.10	5.49
Male	88.87%	31.46%	88.58%	31.81%	91.45%	27.97%	92.84%	25.79%
CPPCC member	3.04%	17.17%	2.79%	16.48%	5.20%	22.20%	6.77%	25.12%
NPC deputy	2.30%	14.99%	2.08%	14.27%	4.31%	20.30%	5.22%	22.25%
Bank connections	6.05%	23.85%	6.03%	23.80%	6.42%	24.51%	5.91%	23.58%
Party member	23.28%	42.26%	22.37%	41.67%	31.50%	46.45%	35.44%	47.84%
Number/share of observations	2,28,212	100%	2,07,502	90.93%	22,645	9.92%	7,488	3.28%

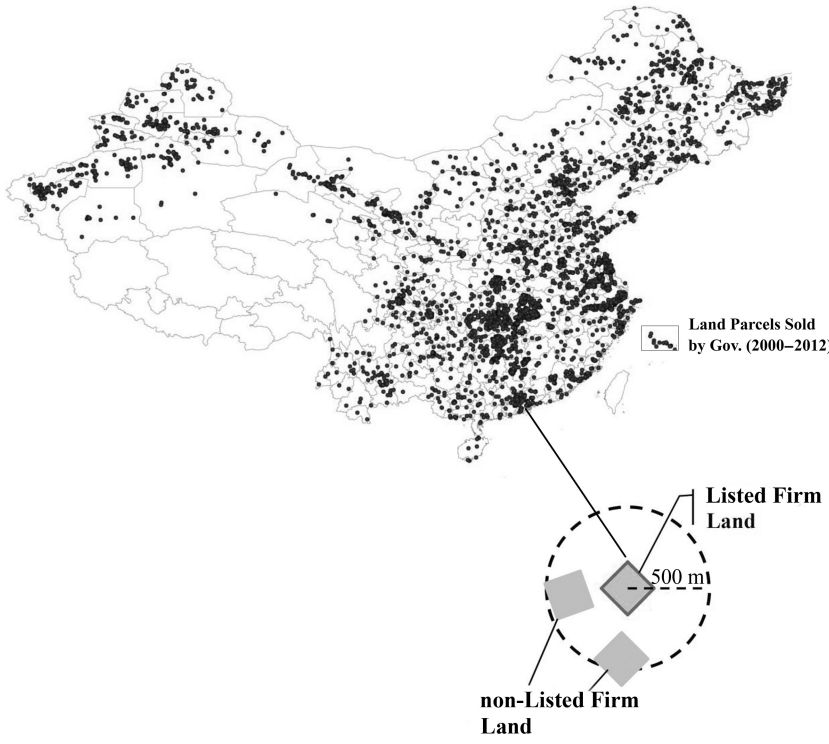

Fig. 1. *Geographic Distribution of Land Parcels Sold in Shanghai in 2010—An Example of How to Construct the Market Value Measures.*

2.4. *Measuring Land Quality*

Land price can vary enormously because of location (quality) and its attendant facilities, among other factors. Officials from the Land and Natural Resources department at the prefectural level are tasked with the responsibility of evaluating the quality of each land parcel they sell, by assigning each a score on a scale of 1–20. However, this measure is subjective and probably biased, because an official intending to provide a price discount to a patron has a strong incentive to underrate its quality. In this light, we construct a more accurate (at least unbiased) measure of land quality by comparing land parcels purchased by the listed firms with those purchased by the non-listed firms in the same neighbourhood (e.g., within a 500-m radius) and in the same year. This requires us to match land transactions on a parcel-by-parcel basis between the two types of firms within a well-defined radius, for example, a 5-km, a 1-km or a 500-m radius, as illustrated in Figure 1, and in the same year (see, e.g., Chen and Kung, 2019).

Table 2A presents summary statistics for the land transactions data, while Table 2B presents data on firms that purchased land in our sampling period (2000–12) and those that did not.

3. Land Purchased by Patron Firms and Benefits Received by Client Officials

In this section we examine the effect on the benefits to client officials of land purchased by patron firms, measured in terms of recruitment to board directorship (Subsection 3.1), followed by

Table 2A. *Summary Statistics of Land Transactions' Characteristics, 2000–12.*

	Mean	SD
Land price (*yuan/square meter*)	1,097.80	2,219.65
Size of payment (in 10,000 *yuan*)	5,502.43	18,778.01
Size of area (*hectare*)	6.62	22.34
Commercial-residential use	0.50	0.50
Quality	13.94	5.88
Average district land price	987.45	1,081.75
Local firm (registration or headquarter location)	14.74%	35.45%
Transaction methods:		
– English auction	6.21%	
– Bilateral agreement	32.11%	
– Listing auction	59.39%	
– Invited bidding	2.30%	
Average price $\leq$ 5-km radius	978.83	1,172.08
Average price $\leq$ 1-km radius	975.10	1,566.45
Average price $\leq$ 500-m radius	908.33	1,536.81
N	30,871	

Table 2B. *Summary Statistics of Firms' Characteristics, 2000–12.*

	Ever purchased land		Never purchased land	
	Mean	SD	Mean	SD
Total assets (logged)	21.65	1.38	20.96	1.17
Number of employees (logged)	7.55	1.43	6.91	1.32
Net profits (+1, logged)	16.41	5.78	15.17	6.31
State share	0.23	0.26	0.18	0.24
Foreign share	0.01	0.06	0.02	0.08
N	14,453		6,359	

compensation (Subsection 3.3). To rule out the possibility that recruitment might be confounded by discounted future land purchases, 'home bias', the differential effect of the first versus repeated audits, and so forth, we conduct a number of robustness checks in Subsection 3.2. Finally, to shed light on the magnitude and importance of the compensation package received by client officials, we provide a back-of-the-envelope calculation of the *difference* in overall compensation between directors who are client officials and those who are not (Subsection 4.4).

3.1. *Recruitment of Board Directors*

Our primary goal here is to establish whether past land sales provided by client officials led to there being a greater prospect of patron firms recruiting them onto the board as directors. Second, by using the surprise audit as identification, we examine whether these correlated 'stylised facts' are in fact causal; the underlying assumption here is that, when they are under strict surveillance, client officials refrain from practising price discrimination for fear that they might get caught. Based on the method developed by Bayer *et al.* (2008), we construct a sample in which firms and prefectures are paired for the 2000–12 period. Covering 2,665 firms and 341 prefectures, this exercise yields a total of 7,772,413 firm-by-prefecture pairs of observations.[13] The regression is

[13] This number is smaller than the expected 11,813,945 (= 2,665 × 341 × 13) because, while some firms were newly listed in the sample period, others were delisted.

specified as

$$RecruitLocalOfficial_{jct} = \beta_0 + \sum_{l=1}^{3} \beta_l PastLandPurchase_{cj,t-l} + \sum_{l=1}^{3} \gamma_l PastLandPurchase_{cj,t-l} \times Audit_{cj,t-l} + \tau_{cj} + \varphi_{jt} + \omega_{ct} + \mu_{cjt}, \quad (1)$$

where $RecruitLocalOfficial_{jct}$ is set to 1 if firm j in year t appointed a former official who served in prefecture c, and 0 otherwise; $PastLandPurchase_{cj,t-l}$ is set to 1 if firm j purchased land from prefecture c in year $t-l$, and 0 otherwise; $Audit_{cj,t-l}$ is set to 1 if the land purchased by firm j from prefecture c in year $t-l$ coincided with the auditing period, and 0 otherwise; and $l = 1, 2, 3$. To eliminate possible confounding effects associated with prefectures, firms and years, we control for the prefecture-by-firm, firm-by-year and prefecture-by-year fixed effects; abbreviated as τ_{cj}, φ_{jt} and ω_{ct}, respectively. We include only three lags of land purchase in the specification because a single board directorship term is limited to three years. Moreover, few transactions occurred more than three years before a director's appointment. All standard errors are clustered at the prefecture-by-firm level.

In specification (1), β_l ($l = 1, 2, 3$) is a measure indicating how land purchased by firm j in prefecture c increases the likelihood of a client official from prefecture c becoming a director of firm j. As identification, $gamma_l$ ($l = 1, 2, 3$) indicates that the patron-client relationship is *conditioned* on the purchase being transacted in the non-auditing period, when patron firms can benefit from the price discount; γ_l would be negative if firms are unable to reap any benefits during the auditing period.

Table 3 presents the results of estimating (1). First, column (1) shows that the likelihood of a client official earning board appointment on account of a land transaction in the previous year is 2.8 percentage points higher than that of a non-client official (against 0.018, the mean of the dependent variable). The same effect occurs for land purchased two to three years ago, albeit with a smaller magnitude. To what extent does this relationship represent a 'deferred payment'? To find out, we use surprise audits as a quasi-random natural experiment to identify the effect of corruption, by interacting the indicator variable of land purchase in the previous three years with whether a transaction occurred during the auditing period ($PastLandPurchase_{cj,t-l} \times Audit_{cj,t-l}$, $l = 1, 2, 3$). Column (2) of Table 3 shows that the coefficient of interaction term is negative. As the magnitude wipes out more than half of the positive gains from previous land purchase, this result squarely confirms that firms only reward their client officials with board appointments after obtaining cheap land deals. We then replace the three separate indicators of land purchase with a single indicator (column (3)), and interact it with an audit indicator (column (4)) to check robustness. The results show, while average land purchase in the past three years increases the likelihood of recruiting a client official by approximately 5.1 percentage points (the benchmark for comparison is prefectures without such transactions), the corresponding magnitude during the auditing period is nearly halved—3.0 percentage points (0.051–0.021). Against the mean of the outcome variable in this specification (1.5%), our estimated coefficient (of 5.1 percentage points) suggests that a firm buying land in a prefecture facilitated by a client official in normal times is approximately three times as likely to recruit the client official onto the board as director.

Table 3. *Effect of Past Land Purchases on Recruitment of Former Local Officials, 2000–12—All Officials Turned Directors.*

	Prefecture-firm-year level Recruitment of former local officials = 1							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Past land purchases$_{t-1}$	0.028***	0.034***						
	(0.003)	(0.004)						
Past land purchases$_{t-2}$	0.026***	0.030***						
	(0.004)	(0.004)						
Past land purchases$_{t-3}$	0.027***	0.030***						
	(0.004)	(0.005)						
Past land purchases$_{t-1}$ × Audit$_{t-1}$		−0.020**						
		(0.007)						
Past land purchases$_{t-2}$ × Audit$_{t-2}$		−0.014+						
		(0.008)						
Past land purchases$_{t-3}$ × Audit$_{t-3}$		−0.012						
		(0.011)						
Past land purchases$_{t-3,t-1}$			0.045***	0.051***	0.105***	0.142***	0.051***	0.051***
			(0.004)	(0.004)	(0.008)	(0.010)	(0.005)	(0.005)
Past land purchases$_{t-3,t-1}$ × Audit$_{t-3,t-1}$				−0.021**	−0.009	−0.010	−0.016*	−0.017*
				(0.008)	(0.018)	(0.018)	(0.007)	(0.007)
Future land purchases$_{t,t+3}$					0.077***	0.084***		
					(0.005)	(0.005)		
Past land purchases$_{t-3,t-1}$ × Future land purchases$_{t,t+3}$						−0.064***		
						(0.013)		
Prefecture-firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	49,78,941	49,78,941	49,78,941	49,78,941	33,30,547	33,30,547	49,65,214	49,63,123
Adjusted R^2	0.641	0.641	0.641	0.641	0.572	0.572	0.627	0.626

Notes: Column (7) excludes those prefecture-firm pairs associated with a firm's registration; column (8) excludes those prefecture-firm pairs associated with either a firm's registration or headquarter location. Standard errors in parentheses are clustered at the firm-prefecture level; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; constant terms are not reported.

3.2. *Robustness Checks*

Although we have identified the relationship between past land purchase and board appointment as causal using the surprise land audit as a quasi-natural experiment, there are a number of remaining concerns that require further examination. We begin with the possible alternative channel of future land purchase.

3.2.1. *Effect of future land purchase*

First, it may be contended that, to the extent that firms wish to benefit from price discounts in the future, they need to cultivate connections with incumbent officials; an easy way to do so would be to rely on retired officials. To shut down this channel, we control for the three-year leads of land purchase in (1) and reported the result in column (5) of Table 3. While future land purchase also increases the likelihood of board appointment, the effect of past purchase remains significant and its magnitude has become even larger,[14] suggesting that our earlier finding is not driven solely by the omission of future land purchase.

A related issue concerns the likelihood of a firm with pre-established connections in a prefecture wanting to maintain and extend such connections in the future. To ensure that our result is not driven by this 'feedback loop' between previous and future land purchases, we further control for the interaction between the indicator variables of land purchase in the past and future three years, respectively.[15] As reported in column (6) of Table 3, the result shows that the pertinent interaction term is negative, but the effect of past land purchase remains significant. Together, the results of columns (5) and (6) suggest that the revolving door in our context goes way beyond a connection device, but functions instead as a deferred payment device—a mechanism that allows firms to reward their clients for their past effort.

3.2.2. *'Home bias'*

Another concern pertains to 'home bias', i.e., that there might be a tendency for firms to both purchase land and recruit directors in cities where their headquarters are located and/or registered. In contrast to this concern, however, evidence shows that most land transactions, 85%, actually occurred outside firms' prefectures of registration or headquarters. To ascertain this pattern more rigorously, we re-estimate our regressions based on the specification in column (4) of Table 3 by first dropping those observations that pair firms and their registered prefectures from our sample, followed by dropping those that pair firms with both their headquartered and registered prefectures (in the event the two are separate). Columns (7) and (8) of Table 3 report these re-estimations. In both cases, the likelihood of firms recruiting client officials continues to be significant, but its magnitude is halved if the land purchase occurred during the auditing period, which once again testifies to the underlying causal nature of the observed relationship. In any case, these findings reassure us that our results are clearly not driven by 'home bias'.

[14] Given that columns (5) and (6) are respectively estimated using a one-year and two-year lead, this resulted in reducing the number of observations from 4,978,941 to 3,330,547. The coefficients thus estimated are therefore not directly comparable with that in column (4), which employs the full sample. To make the two comparable, we re-estimated the specification in column (4) using the same subsample employed in columns (5) and (6), and find that the coefficient of 'past land purchase' is now 0.078—similar to those in columns (5) and (6). The result is available upon request.

[15] We thank an anonymous referee for the suggestion.

3.2.3. *Officials involved in land transactions*

There may also be a concern that not all officials turned directors were involved in land transactions, as some departments may have little if anything to do with it. To ensure that our estimates are not biased by the inclusion of *all* officials at the prefectural level and above, we conduct a robustness check by including only those officials whom we judge are most likely to be involved in land transactions based on the administrative functions of the departments in which they served. For example, in addition to the departments most likely to be involved in land transactions, such as Planning and Construction, Finance and Taxation, and Land and Natural Resources, the Department of Transportation and prefectural State-owned Assets Administration Commission are also likely candidates, as they are charged with the respective responsibilities to develop the infrastructure surrounding the land parcels put up for sale, and to reclaim land parcels from bankrupt state-owned enterprises. On the whole, we supposed that nearly 80% (79.89%) of the client officials at the two levels combined (province and prefecture)—including both those who are the general leaders (such as the party secretaries or governors/mayors) or who worked in a functional department—have played a specialised role in land transactions while in office. We thus conduct a robustness check by including only these officials in the regression analysis and confirm its significance (Tables A3–A4 in the Online Appendix, corresponding to Tables 3 and 5).

3.2.4. *Difference between initial and subsequent audits*

While the surprise audit provides us with a solid identification, one potential concern is that officials and firms may form expectations after the first audit and became more alert to future audits (in anticipation of their recurrences). Should that be the case, the rent-seeking firms might *time* their purchase strategically in different cities in accordance with their expectations about the likelihood and sequence of future audits. Based on the fact that only a minority of prefectures have been subjected to repeated audits (13% or 76/585 prefectures and counties), the strategic behaviour in question is probably unlikely. But a case could be made that the dearth of repeated audits is only revealed ex post; hence, ex ante, even officials in prefectures not being raided repeatedly after the initial audit might become more cautious and act more strategically. To find out if the first and subsequent audits have different effects on recruitment, we expand the regressions based on columns (4) through (10) of Table 3. Reported in Table A5 in the Online Appendix, the results show that there is no difference between the first and subsequent audits with respect to the positive association between past land purchase and board appointment of client officials.

3.2.5. *Scope of rent seeking*

One approach to strengthening the claim that the observed relationship between land purchase and board appointment is causal is to strengthen its external validity. For example, might firms and prefectures more prone to revolving-door practices also have greater proclivities to engage in other rent-seeking activities (e.g., Fisman *et al.*, 2014)? To answer this question, we make use of several prefecture-level measures related to corruption and firm-level measures related to probity.

The three regional-level measures are: (1) the ratio between private and public sector wages,[16] (2) the annual provincial index of marketisation and (3) the annual number of prosecuted corruption cases in each province.[17] Measure (1) is selected because the sectoral wage gap—with

[16] The ratios were computed based on the 2005 mini-population census, which sampled 1% of the population.

[17] The data are obtained from *The Procuratorial Yearbook of China* for the period 2001–13.

the public-sector wage being the lower of the two—is taken as a proxy for the official's opportunity cost for engaging in corrupt behaviour; presumably, the larger the ratio, the smaller the opportunity cost. Measure (2) is a composite index constructed to measure the degree of market development in the private sector, the product market, the factor market, the intermediate market and legal institutions, and government-market relations (Fan *et al.*, 2003). Previous studies found that the higher the index, the lower the incidence (and presumably the smaller the scope) of rent-seeking activities (e.g. Li *et al.*, 2008). Measure (3) is the most direct measure of regional corruption, but, like (2), it is enumerated at the provincial level.

Regarding the three measures of a firm's probity, they include whether a firm has ever been charged by the China Securities Regulatory Commission (CSRC) for (1) irregularities or misconduct of any kind and (2) having committed particular fraud(s). In addition, we also check a firm's probity using an annual survey conducted by the *Shenzhen Stock Exchange* on its degree of accounting opacity.[18]

Reported in Table 4, we find that the relationship between past land purchase and board appointment is stronger in cities with larger wage gaps between the private and public sectors (column (1)), with more corruption cases (column (3)), and among firms apprehended by the CSRC for having committed irregularities, particularly fraud, and with less transparency in accounting practices (columns (4)–(6)). However, perhaps the provincial index of marketisation is too noisy a measure; its interaction with past land purchase is not significant (column (2)).[19] Overall, the results provide robust external checks on the validity of our finding regarding the practices of the politics-business revolving door between publicly listed firms and government officials.

3.3. *Past Land Purchase and Compensation of Client Officials*

Following board appointment, we now examine the effect of past land purchase on client officials' compensation. Specifically, we examine the effect of past land purchase on the officials turned directors' annual salaries and company shareholding using the baseline regression

$$\begin{aligned} Log(Compensation)_{ijt} = {} & \rho_0 + \rho_1 PastLandPurchase_{i,j,t-3,t-1} \\ & + \rho_2 PastLandPurchase_{i,j,t-3,t-1} \times FormerLocalOfficial_i \\ & + \rho_3 PastLandPurchase_{i,j,t-3,t-1} \times FormerLocalOfficial_i \\ & \quad \times Audit_{i,j,t-3,t-1} \\ & + Y_i\sigma^1 + Z_{jt}\sigma^2 + \phi_j + \mu_t + \xi_{ijt}, \end{aligned} \tag{2}$$

where $Log(Compensation)_{ijt}$ denotes either the logged annual salary or company shareholding held by director i of firm j in year t; $PastLandPurchase_{ij}$ is a variable indicating that firm j purchased land up to three years before director i joined firm j, and $FormerLocalOfficial_i$ is a variable indicating that director i was previously an official in charge of land transactions, i.e., client officials. The interaction term $PastLandPurchase_{ij} \times FormerLocalOfficial_i$ is a variable that takes the value of 1, if director i was a local official in the prefecture where firm j purchased land before i joined the firm. For identification, we use the triple interaction term $PastLandPurchase_{ij} \times FormerLocalOfficial_i \times Audit_{ij}$, which is a variable indicating whether firm j purchased land in the prefecture where client official i worked during the surprise audit.

[18] The data are from the CSMAR database.

[19] Its coefficient is negative, however, which is consistent with our expectations.

Table 4. *Effect of Past Land Purchases on Recruitment of Former Local Officials—Heterogeneity Tests.*

	Prefecture-firm-year level Recruitment of former local officials = 1					
	(1)	(2)	(3)	(4)	(5)	(6)
Past land purchases$_{t-3,t-1}$ (PLP)	−0.026	0.062***	−0.053	0.041***	0.040***	0.069**
	(0.028)	(0.015)	(0.033)	(0.004)	(0.004)	(0.026)
PLP × private-public sector wage ratio	0.089**					
	(0.035)					
PLP × marketisation		−0.003				
		(0.002)				
PLP × # of corruption cases			0.014**			
			(0.005)			
PLP × firm punished for irregularities				0.019*		
				(0.008)		
PLP × firm punished for fraud					0.072***	
					(0.015)	
PLP × firm's accounting quality						−0.010
						(0.007)
Prefecture-firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	49,64,340	49,78,941	49,78,941	49,78,941	49,78,941	20,49,410
Adjusted R^2	0.641	0.641	0.641	0.641	0.641	0.659

Notes: Standard errors in parentheses are clustered at the firm-prefecture level; + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; constant terms are not reported.

To capture the possible rewards accruing to other types of (unobserved) favour provided by the officials turned directors, we control for whether the director was a former official in the regression. In addition, we control for a vector of other director- and firm-related characteristics, such as age, gender, years of schooling, CPPCC membership, NPC deputyship, CCP membership, connections with banks, proportions of the firm's shares owned by the state, foreign parties and board members, the firm's annual profit, the size of employment, etc. We also control for firm- and year-fixed effects, and cluster the standard errors at the firm level.

Columns (1) and (5) of Table 5 report the estimates of past land purchase (ρ_1) and its interaction with local officials (ρ_2) on annual salary and company shareholding, respectively. First, ρ_1 is insignificant, suggesting that a director's salary is not conditioned on a firm's purchase of land in the past three years alone. But ρ_2 is significant and positive in both columns, suggesting that only a client official can enjoy an additional premium of 9.1% in annual salary, and hold 52% more shares than officials who had not helped firms to secure the price discount. To verify whether this premium reflects a reward to the client official for providing price discounts in previous land transactions to their clients, we examine the triple interaction term $PastLandPurchase_{ij} \times FormerLocalOfficial_i \times Audit_{ij}$ (ρ_3) for identification. As reported in columns (2) and (6) of Table 5, while assisting the patron firm to obtain cheap land deals increases the client official's salary by 22.9% and company shareholding by 81%, they are more than offset by the losses incurred during the auditing period; the sums of the coefficients, viz., $0.229 + (-0.230) = -0.001$ and $0.811 + (-0.635) = 0.176$, are not statistically significantly different from zero. To eliminate the potential confounding effects, we include the firm-by-year fixed effects in columns (3) and (7) and the results are similar.

Table 5. *Effect of Past Land Purchases on Directors' Annual Salaries and Company Shareholding, 2000–12.*

	Individual-year level							
	Log of annual salary				Log of company shareholding (year end)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Past land purchases$_{t-3,t-1}$ (PLP)	0.000	−0.001			−0.001	−0.003		
	(0.003)	(0.002)			(0.018)	(0.018)		
PLP × former local official	0.127***	0.229***	0.226***	0.512***	0.528***	0.811***	0.880***	1.918***
	(0.012)	(0.016)	(0.017)	(0.025)	(0.081)	(0.120)	(0.127)	(0.235)
PLP × former local official × Audit$_{t-3,t-1}$		−0.230***	−0.221***	−0.414***		−0.635***	−0.637***	−1.253***
		(0.018)	(0.020)	(0.030)		(0.127)	(0.139)	(0.261)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	No	No	Yes	Yes	No	No
Year fixed effects	Yes	Yes	No	No	Yes	Yes	No	No
Firm-year fixed effects	No	No	Yes	Yes	No	No	Yes	Yes
Number of observations	1,57,817	1,57,817	1,57,817	1,46,274	1,98,476	1,98,476	1,98,476	1,84,412
Adjusted R^2	0.298	0.306	0.295	0.317	0.301	0.301	0.278	0.283

Notes: Control variables include former official (= 1), age, years of education, gender, CPPCC member, NPC deputy, bank connections, party membership, concurrent as senior or high executive (= 1), firm's annual profit (log), state share, foreign share, board share and firm size. Columns (4) and (8) exclude those officials turned directors that firms recruited from either their registered or headquartered prefecture. Standard errors in parentheses are clustered at the firm level; + $p < 0.10$, *** $p < 0.001$; constant terms are not reported.

Table 6. *Effect of Future Land Purchases on Directors' Annual Salaries and Company Shareholding, 2000–12.*

	Individual-year level					
	Log of annual salary			Log of company shareholding (year end)		
	(1)	(2)	(3)	(4)	(5)	(6)
Past land purchases$_{t-3,t-1}$ (PLP)	−0.006*	−0.006*		−0.020	−0.021	
	(0.003)	(0.003)		(0.019)	(0.019)	
PLP × former local official	0.141***	0.241***	0.236***	0.582***	0.861***	0.927***
	(0.011)	(0.016)	(0.016)	(0.083)	(0.122)	(0.129)
PLP × former local official × Audit$_{t-3,t-1}$		−0.227***	−0.218***		−0.628***	−0.624***
		(0.017)	(0.019)		(0.125)	(0.137)
Future land purchases *t, t*+3 (FLP)	0.008***	0.008***		0.021*	0.020*	
	(0.001)	(0.001)		(0.010)	(0.010)	
FLP × former local official	−0.031***	−0.030***	−0.030***	−0.096***	−0.094***	−0.100***
	(0.004)	(0.003)	(0.003)	(0.025)	(0.025)	(0.027)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	No	Yes	Yes	No
Year fixed effects	Yes	Yes	No	Yes	Yes	No
Firm-year fixed effects	No	No	Yes	No	No	Yes
Number of observations	1,57,817	1,57,817	1,57,817	1,98,476	1,98,476	1,98,476
Adjusted R^2	0.301	0.308	0.298	0.301	0.301	0.278

Notes: Control variables include former official, year of education, age, male, CPPCC member, NPC deputy, bank connections, party membership, concurrent as senior or high executive (= 1), firm's annual profit (log), state share, foreign share, board share and firm size. Standard errors in parentheses are clustered at the firm level; + $p < 0.10$, * $p < 0.05$, *** $p < 0.001$; constant terms are not reported.

Once again, to eliminate the concern that our results may be driven by 'home bias', i.e., firms might pay directors based in their headquarters or registered prefectures more generously for reasons we fail to observe, we exclude those client officials that firms recruited from their headquartered office or prefecture of registration and re-estimate (2) again, and find similar results (columns (4) and (8)).[20]

To deal with the concern that client officials were recruited to facilitate future land purchases, we add to (2) the leads of land purchase in prefectures where the client officials once worked, and presumably still maintain connections with incumbent officials. As reported in Table 6, while inclusion of the leads of land purchase reduces the sample size, the estimated premiums obtained by client officials—be it in salary or in company shares—remain robustly significant and with an even larger magnitude than before. Most importantly, future land purchases are negatively associated with the premiums obtained by the client officials.

3.4. *The Client Official's Premium*

An important question arising from Subsection 3.3 concerns the size of the premium enjoyed by client officials.[21] How large is it in reality? To shed light on its importance, we provide some back-of-the-envelope calculations. Given that the average annual compensation of a director was approximately 159,570 *yuan*, and that directors typically served two terms of six years, a client official earned a premium of 219,249.18 *yuan* (= 22.9% × 159,570 × 6 years) or 35,191.92 USD as of 2012 in salaried compensation over a non-client director of six years (two terms)—a

[20] While the effect on annual salary becomes less significant (10%, column (4)), the coefficient of the triple interaction term remains negative.

[21] We thank two anonymous referees for suggesting that we perform this exercise.

magnitude similar to that of the annual compensation of a typical prefectural mayor (salary and stipend included).

But salary only forms a small part of the client officials' overall income. More substantially, they are given 81% more company shares than other directors. Assuming that the client officials liquidate their shares upon leaving the firm, and further assuming that the shares are valued at 5.58 million *yuan* (based on the last month of the year when they served as director), a client official could earn up to 4.52 million *yuan* (= 5.58 × 81%) more in value than a non-client official. Taken together and using the last year of our sample for illustration (i.e., 2012), the salary and equity income yielded a total premium of approximately 4.74 million *yuan* or 0.76 million USD. How attractive is this increase in post-retirement income over the other directors? It is comparable to the annual compensation of a CEO in a publicly listed firm in China in 2012, which is approximately 20 times the annual compensation of a prefectural mayor in office, and 40 times the annual pension of a retired prefectural mayor who is not connected to the revolving door. And if we were to count the overall income of a client official (salary plus shareholding), the two sources combined would amount to 11.28 million *yuan* or 1.81 million USD. Altogether, the 342 client officials in our sample have collectively earned a colossal 3.86 billion *yuan* or 0.62 billion USD during the six years in which they served as board directors in their patron firms.

Given these lucrative returns, we attempt to find out whether client officials might be tempted to serve beyond six years. As reported in Table A6 in the Online Appendix, we do not find any significant difference in duration of tenure between different kinds of directors, suggesting that the term limits are strictly adhered to.

4. Price Discounts Received by Patron Firms

After estimating the size of the premium enjoyed by client officials, we now examine whether these officials did provide price discounts to their patrons when they oversaw land transactions while in office, by examining the prices, method(s) and quantity of land transactions that these officials handled.

4.1. *Price Discounts When Directors Were Client Officials*

To verify whether client officials provided price discounts to their patrons in land transactions while in office, we compare the price of land transactions they handled with those handled by others. To identify corruption, we compare transactions that occurred in normal times with those that occurred during the auditing period. Our main specification is

$$\begin{aligned} Log(Price)_{ijct} = {} & \delta_0 + \delta_1 RecruitLocalOfficial_{i,j,c,t+1,t+3} \\ & + \delta_2 RecruitLocalNonofficial_{i,j,c,t+1,t+3} \\ & + \delta_3 RecruitNonlocalOfficial_{i,j,c,t+1,t+3} + \delta_4 Audit_{ijct} \\ & + \delta_5 RecruitLocalOfficial_{i,j,c,t+1,t+3} \times Audit_{ijct} \\ & + \delta_6 RecruitLocalNonofficial_{i,j,c,t+1,t+3} \times Audit_{ijct} \\ & + \delta_7 RecruitNonlocalOfficial_{i,j,c,t+1,t+3} \times Audit_{ijct} \\ & + \phi_1 LPC_{jct} + \phi_2 LE_{jct} + \phi_3 GPC_{jt} + X\gamma + \lambda_t + \rho_j + \theta_c + \mu_{ijct}, \quad (3) \end{aligned}$$

where the dependent variable $log(Price)_{ijct}$ is the logged unit price of land parcel i purchased by firm j in prefecture c in year t. Our key independent variable is $RecruitLocalOfficial_{i,j,c,t+1,t+3}$, which is a binary variable indicating that a former official from prefecture c joined firm j's board in the period $t+1$ to $t+3$. To verify the price discount, we further construct two variables for comparison: $RecruitNonlocalOfficial_{i,j,c,t+1,t+3}$, which measures if firm j recruited a non-official director from prefecture c in the period of $t+1$ to $t+3$, where he/she used to work,[22] and $RecruitNonlocalOfficial_{i,j,c,t+1,t+3}$, which equals 1 if firm j recruited an official turned director who originated from a prefecture other than c. Here $Audit_{ijct}$ is a dummy variable, indicating that firm j's purchase of land i from prefecture c in year t occurred during the audit. Of special interest are the interactions between $RecruitLocalOfficial_{i,j,c,t+1,t+3} \times Audit_{ijct}$, which measures the expected effect on land price of an official turned director who came from prefecture c where land i was conveyed during the audit period, and the respective effects of local non-officials $RecruitLocalNonofficial_{i,j,c,t+1,t+3} \times Audit_{ijct}$ and non-local officials $RecruitNonlocalOfficial_{i,j,c,t+1,t+3} \times Audit_{ijct}$.

The vector of control variables, X, includes the characteristics of land parcels, firms and prefectures. Throughout the regressions, the fixed effects of firms, prefectures and years are all included, with standard errors clustered at the prefecture-by-year level. In some regressions, we also control for the higher dimension of firm-by-year fixed effects. In distinguishing the beneficial effect conferred by client officials on land price, it is necessary that we control for nuanced differences in the nature of political connections based on the board directors' characteristics. Broadly speaking, political connections can be (1) specific to a local government or (2) general to a local government. In addition, there might be specific connections to or knowledge of a locality instead of the government. For instance, locality-specific political connections (LPC_{jct}) are connections derived from the experience of a director of firm j in year t who worked in the government of prefecture c before joining the firm, whereas general political connections (GPC_{jt}) refer to the experience of a board director who worked in a local government in general, i.e., one other than prefecture c. Finally, general local experience, LE_{jct}, is a variable indicating that a director of firm j in year t previously worked in locality c.

Table 7 presents the results of the estimation. Column (1), which estimates (3) before including the various interaction terms, shows that a land parcel sold by a client official fetches a price 12% lower than other parcels purchased by the same firm, but without such a relationship. This estimate is significant at the 1% level, suggesting that the significantly higher compensation paid to client officials is indeed preceded by a favour in the form of a price discount. Furthermore, locality-specific political connections (LPC_{jct}) yield an additional discount of 8.2% (column (2))—a finding consistent with that identified in other contexts (refer to the literature on political connections detailed in the introduction). A novel finding in this context is that the 'patronage effect' is independently significant of the 'connections effect'.

To identify corruption, once again we examine whether the price discount may be weakened if not altogether eliminated during the auditing period, by adding the interaction term between $RecruitLocalOfficial_{ijct}$ and $Audit_{ijct}$—δ_5 in (3). As reported in column (2) of Table 7, the estimate of δ_5 shows that land transactions that took place within a year before a client official was appointed to the board, enjoyed a discount of 13.8% greater than land parcels without similar connections. However, the same firm that enjoyed the price discount in normal times paid 32.6%

[22] This variable is constructed using the non-official director's detailed curriculum vitae that we obtained from the same sources as those of the official directors. We define local non-official directors as those who were not formerly officials, but who had worked in the same prefectures where the patron firms purchased land.

Table 7. *Effect of Recruitment of Former Officials and Surprise Audit on Land Price, 2000–12.*

	Transaction level							
	Log of land price (*yuan/square meter*)							
	All firms						Exclude local firms	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Recruit local official$_{t+1,t+3}$	−0.122**	−0.138**	−0.194***	−0.194***	−0.158**	−0.159**	−0.160***	−0.210***
	(0.042)	(0.042)	(0.052)	(0.051)	(0.054)	(0.057)	(0.047)	(0.053)
Recruit local non-official$_{t+1,t+3}$	0.003	0.029	0.023	0.021	0.016	0.019	−0.024	−0.028
	(0.040)	(0.042)	(0.056)	(0.059)	(0.063)	(0.068)	(0.052)	(0.061)
Recruit non-local official$_{t+1,t+3}$	−0.112**	−0.132**	−0.183*	−0.182*	−0.175*	−0.151+	−0.106*	−0.139
	(0.040)	(0.042)	(0.073)	(0.074)	(0.076)	(0.082)	(0.047)	(0.086)
Audit		0.062	0.078	0.065	0.115+	0.102	0.094+	0.079
		(0.051)	(0.055)	(0.058)	(0.060)	(0.064)	(0.056)	(0.057)
Recruit local official$_{t+1,t+3}$ × audit		0.326***	0.306*	0.351*	0.403**	0.400**	0.231+	0.183
		(0.096)	(0.144)	(0.137)	(0.142)	(0.155)	(0.135)	(0.176)
Recruit local non-official$_{t+1,t+3}$ × audit		−0.183+	−0.260+	−0.211	−0.213	−0.110	−0.176	−0.160
		(0.106)	(0.154)	(0.152)	(0.158)	(0.175)	(0.142)	(0.198)
Recruit non-local official$_{t+1,t+3}$ × audit		0.171*	0.096	0.078	0.041	−0.034	0.103	0.048
		(0.077)	(0.079)	(0.088)	(0.098)	(0.108)	(0.079)	(0.082)
General political connections	−0.064	−0.057					−0.043	
	(0.039)	(0.039)					(0.044)	
Local experience	0.015	0.008	−0.005	−0.014	0.054	0.067	0.027	0.013
	(0.040)	(0.039)	(0.049)	(0.054)	(0.060)	(0.062)	(0.043)	(0.051)
Locality-specific political connections	−0.060	−0.082+	−0.111*	−0.075	−0.175**	−0.226**	−0.098+	−0.114+
	(0.044)	(0.045)	(0.055)	(0.061)	(0.068)	(0.072)	(0.053)	(0.066)
Average land price within 5-km radius				0.340***				
				(0.015)				
Average land price within 1-km radius					0.309***			
					(0.016)			
Average land price within 500-m radius						0.312***		
						(0.019)		
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Land-use fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture fixed effects	Yes	Yes	No	No	No	No	Yes	No
Firm fixed effects	Yes	Yes	No	No	No	No	Yes	No
Year fixed effects	Yes	Yes	No	No	No	No	Yes	No
Firm-year fixed effects	No	No	Yes	Yes	Yes	Yes	No	Yes
Number of observations	29,403	29,403	29,403	25,163	20,062	18,069	24,982	24,982
Adjusted R^2	0.663	0.664	0.693	0.691	0.701	0.707	0.669	0.694

Notes: Control variables include dummy of registration or headquarter prefecture, area of land (log), transaction method, land quality, average land price within the district, firm total asset (log), logged firm net profit, number of employees (log), state share and foreign share. Columns (7) and (8) exclude those land transactions that firms purchased from prefectures where they either registered or were based as headquarters. Standard errors in parentheses are clustered at the prefecture-year level. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; constant terms are not reported.

more for land parcels it purchased during the audit. To control for a possible selection bias arising from the unobserved time-varying firm characteristics such as managerial ability (i.e., firms may have to pay more for reasons other than the fear of getting caught), we control for the firm-by-year fixed effects (column (3)) and the result remains unchanged. Doing so yields the finding that land purchased outside the auditing period is 19.4% cheaper than those sold without price discounts. However, the positive and significant coefficient of δ_5 suggests that, by comparison with transactions conducted outside the auditing period, those within the auditing period fetched higher prices. Overall, for transactions that occurred during the audit, the monetary benefit of price discount is wiped out completely.

One concern for our estimates of price discount is that the reduced price may reflect lower land quality due, for example, to location. To test this, we control for the average neighbourhood prices within a 5-km radius, a 1-km radius and a 500-m radius (columns (4)–(6), respectively), and find that the price discount remains significant, and with a magnitude ranging from 16% to 19%. Another check is to construct a direct measure for price discount using the logarithm of the ratio of the price of a land parcel in our sample to the average price within the 5-km, 1-km, and 500-m radii as outcome variables and to re-estimate (3).[23] The result, reported in Table A7 in the Online Appendix, confirms the finding in Table 7, reassuring us that our estimates of price discounts are not driven by the difference in land quality.

To alleviate the concern that the discounted prices may be a consequence of firms purchasing land in their home prefectures, we exclude those transactions in the firms' registered or head-quarter prefectures. Reported in columns (7) and (8), price discount remains significant and with an even larger magnitude of 16%–21%.

Finally, we examine whether the size of price discount depends on the rank of officials turned directors upon their retirement. As Online Appendix Table A1 shows, only about 20% of the officials turned directors retired as provincial officials, the remaining 80% retired at the prefectural level. We thus replace $RecruitLocalOfficial_{ijct}$ in (3) with this dummy variable measure to gauge the effect if any of rank on price discount. The result, reported in Online Appendix Table A8, shows that the price discount provided by provincial officials is on average twice as large of that provided by the prefectural officials.

4.2. *Robustness Checks*

4.2.1. *Whether auditing is time bound?*

Given that our identification arises from the exogenous treatment of a surprise audit, the effect of the audit on price discounts has to be time bound. To verify this, we replace the single dummy variable of $Audit_{ijct}$ in (3) by 11 quarterly dummy variables—specifically four quarters before an audit campaign commences, three during the audit period and four after it ends. We then interact these dummy variables with the same key independent variable ($RecruitLocalOfficial_{ijct}$) in (3) to examine how the price discount obtained by patron firms varies over time, with reference to transactions that occurred in a period that started more than four quarters before the audit took place.

Plotted in Figure 2, the coefficients estimated from these 11 interaction terms show that, while price discounts did indeed exist before the surprise audit started, they were insignificantly different from those in the reference period. However, prices became significantly higher and

[23] We thank an anonymous referee for suggesting this specification.

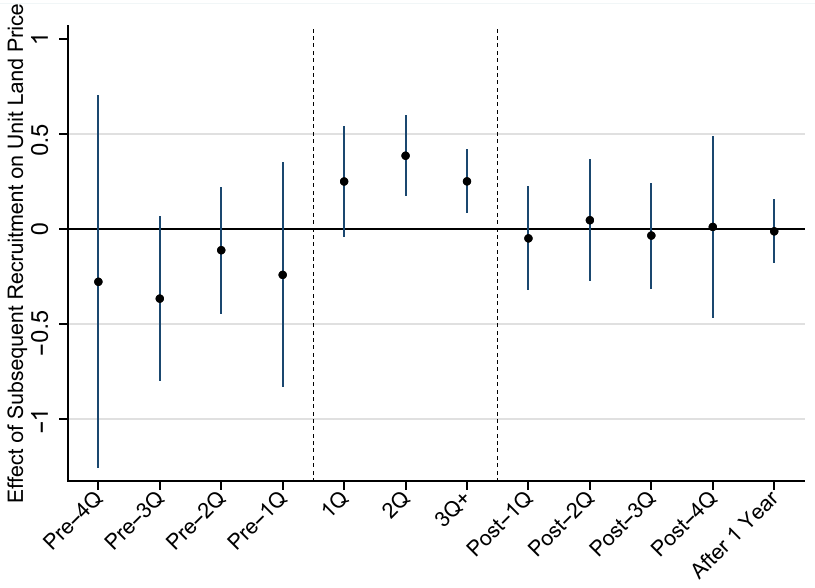

Fig. 2. *Interacted Effects of Subsequent Recruitment of Client Officials on Unit Land Price (Logged) by Different Periods.*

positive during the audit period, suggesting that local officials refrained from providing price discounts to their patrons while under audit, for fear that doing so under close surveillance would invite trouble. But this increase in price was short lived. It vanished as soon as the audit ended; the pertinent coefficients returned to the previous negative levels and with magnitudes similar to those in the pre-audit period. All of this squarely suggests that the effect of surprise audits on price discounts is time bound.

4.2.2. *Transactions in the secondary land market*

Although the foregoing evidence provides proof that the relationship underlying the revolving door is probably causal, there may still be concerns that our results could be confounded by time-varying, firm-specific and locality-specific factors that cannot be observed. For instance, a firm might enjoy unobservable advantages in a certain locality at a certain point in time, which, if so, both facilitates land transactions and leads to higher compensation for its directors. Given that sellers in the secondary land market are not the government, we use it as a placebo test. As reported in Table A9 in the Online Appendix, the results confirm that there are no price discounts in the secondary land market. To verify this result further, we also examine the effect of land transactions in this market on board appointment and compensations, and confirm that the results are not significant (Tables A10–A11 in the Online Appendix).

4.2.3. *Additional benefits: transaction transparency, land use and quantity*

An inevitable question that arises is whether firms engaging in revolving-door practices received benefits other than land price discounts. Would they, for instance, be offered proportionately more land designated for commercial and residential use, given their higher property values, or would they simply be sold more land? To find out, we examine the method of land transactions, land

use and the overall size of the land parcels associated with the land purchased by these firms, by estimating a model similar to (3), but with the outcome variable being an indicator of the English auction—the most transparent method of land transaction. Indeed, columns (1) and (2) of Table 8 show that the English auction is 1.7%–2.0% less likely to be used in transactions characterised by a patron-client relationship. The result is robust even after we control for the higher-dimensional firm-by-year fixed effects. However, client officials refrained from controlling the mode of sale during the auditing period, presumably out of the fear of getting caught.

As with the method of land transaction, the land sold by client officials is 3.2%–4.8% more likely to be designated for commercial and residential uses—our dependent variable in columns (3) and (4), irrespective of whether we control for firm-by-year fixed effects or not.

Our last test pertains to whether client officials would simply sell more land to their patrons, in a context in which property prices are expected to rise. To test this hypothesis, we first examine whether client officials sell larger land parcels to their clients, with the logged size of each parcel transacted as the outcome variable. Columns (5) and (6) of Table 8 report the estimates at the transaction level first without and then with the firm-by-year fixed effects. Overall, land parcels sold by client officials to their patrons are only marginally larger than those not underpinned by this relationship. Moreover, there is also no significant difference in the size of land parcels conveyed between the auditing and non-auditing periods. But the insignificant differences stop there. Though not necessarily selling larger land parcels to their patrons, client officials did sell more land parcels to their patrons, in regressions where the dependent variable is total land area purchased by firms in each prefecture in a panel of firm-prefecture pairs (columns (7) and (8)). Specifically, and for each given year, the total land area purchased by a patron firm is 3.3% more in prefectures, with many firms engaging in revolving-door activities than in those not characterised by this relationship. Once again, the result holds even after controlling for the firm-by-year fixed effects (column (8)).

4.2.4. *Monetary benefits of price discount*

Perhaps the biggest question is how much can firms save by appointing client officials to their board? Against the average payment of 55.0 million *yuan* or 8.83 million USD in 2012 per land transaction in our sample, the estimated price discount of 19.4% (column (3) of Table 7) suggests that firms with a client official saved 10.67 million *yuan* or 1.71 million USD from each land transaction than those without one. With as many as 8,041 land transactions conducted in normal times, the patron firms saved a massive 85.80 billion *yuan* or 13.77 billion USD in price discounts in total, out of which only 4.5% (3.86/85.80 billion dollars) were spent as rewards to client officials. To put these 'savings' in perspective, a 'representative' patron firm obtains an average of 55.75 million *yuan* (85.80 billion/1,539) or 8.95 million USD of 'above-normal' profits in a given year, which is equivalent to approximately 12% of the annual profits (estimated at 470 million *yuan*) a listed firm made between 2000 and 2012.[24]

5. Conclusion

In this paper, we use China's primary land market to reveal what essentially is a patron-client relationship between listed firms and officials engaged in land transactions before they retired

[24] The benefits that listed firms may derive from other sources such as government subsidies, for instance, paled in comparison with price discounts. To illustrate, in 2007 the listed firms obtained 6.8 million *yuan* of government subsidies in total, which accounted for just 18% of the price discount in the same year.

Table 8. *Effect of Recruitment of Former Officials and Surprise Audit on the Method of Land Transaction, Land Use, and Quantity of Land Transactions, 2000–12.*

	Transaction level						Firm-prefecture panel level	
	English auction (= 1)		Commercial-residential use (= 1)		Land area (*hectare*, log)		Total land area	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Recruit local official$_{t+1,t+3}$	−0.017*	−0.020*	0.048***	0.032*	−0.018	−0.082	0.033***	0.033***
	(0.007)	(0.008)	(0.013)	(0.015)	(0.052)	(0.052)	(0.003)	(0.003)
Recruit local non-official$_{t+1,t+3}$	−0.009	−0.001	0.017	0.005	−0.047	−0.016	−0.000	−0.000
	(0.009)	(0.013)	(0.015)	(0.019)	(0.059)	(0.067)	(0.001)	(0.001)
Recruit non-local official$_{t+1,t+3}$	−0.012	−0.008	−0.067***	−0.153***	−0.139**	−0.562***	−0.002	−0.003
	(0.007)	(0.011)	(0.013)	(0.021)	(0.051)	(0.075)	(0.003)	(0.004)
Audit	−0.010	−0.021	−0.046**	−0.050**	−0.257***	−0.225**	−0.001*	0.000
	(0.011)	(0.013)	(0.015)	(0.017)	(0.070)	(0.071)	(0.000)	(.)
Recruit local official$_{t+1,t+3}$ × audit	0.013	0.060*	0.123***	0.110**	0.153	0.015	−0.076***	−0.077***
	(0.020)	(0.025)	(0.026)	(0.035)	(0.117)	(0.133)	(0.005)	(0.005)
Recruit local non-official$_{t+1,t+3}$ × audit	0.008	−0.013	−0.060*	−0.089*	−0.051	−0.283+	−0.001	−0.001
	(0.024)	(0.031)	(0.029)	(0.041)	(0.143)	(0.166)	(0.003)	(0.003)
Recruit non-local official$_{t+1,t+3}$ × audit	−0.002	0.009	0.061*	0.074**	0.130	0.135	0.001+	0.001
	(0.019)	(0.021)	(0.026)	(0.029)	(0.099)	(0.107)	(0.000)	(0.000)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Land-use fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Prefecture fixed effects	Yes	No	Yes	No	Yes	No	No	No
Firm fixed effect	Yes	No	Yes	No	Yes	No	No	No
Firm-year fixed effects	No	Yes	No	Yes	No	Yes	Yes	Yes
Firm-prefecture fixed effects	No	No	No	No	No	No	Yes	Yes
Prefecture-year fixed effects	No	No	No	No	No	No	No	Yes
Number of observations	29,997	29,997	30,093	30,093	29,997	29,997	45,82,094	45,82,094
Adjusted R^2	0.181	0.248	0.468	0.520	0.680	0.724	0.461	0.461

Notes: In columns (1) to (6), the control variables include general political connections, local experience, locality-specific political connections, dummy of registration or headquarter city, area of land (log), transaction method, land quality, average land price within the district, firm total asset (log), logged firm net profit, number of employees (log), state share and foreign share; standard errors in parentheses are clustered at the prefecture-year level. In columns (7) and (8), the control variables include general political connections, local experience and locality-specific political connections; standard errors are clustered at the firm-prefecture level. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; constant terms are not reported.

from office. In particular, we examine how publicly listed firms take advantage of public officials in charge of land sales to provide them with price discounts, in exchange for board directorships upon their retirement. Specifically, our analysis finds that a patron firm can enjoy an average discount of up to 19.4% in normal times, while the client official is reciprocated with a compensation that is 23% higher in salary and 81% more in company shares, than other directors who had not provided firms with discounted land sales. Using surprise audits as a quasi-random natural experiment, we prove that the above exchange is indeed corruption, as both price discount and compensation premium vanished altogether during an audit, even though the client official might still be rewarded with board appointment (with diminished prospects). Listed firms are keen to exploit gains from the revolving door because the benefits to be gained are by no means trivial, while the costs of doing so only constitute a tiny fraction. The client officials are similarly keen to play the revolving-door game, because it provides them with a post-retirement income many times higher than their pension income, but at negligible risk.

Our study has implications that are both generalisable and context specific. Regarding the former, we provide solid evidence of the benefits that both parties in the revolving-door exchange received; more importantly, the compensation received by the client is contingent on the benefits that the client was able to provide the patron in the first place. By making use of the unique Chinese context, one in which the local government is the monopoly seller in the primary land market, we prove that the revolving door can be used profitably as a payment rather than a connection device as is typically the case elsewhere.

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Additional Supporting Information may be found in the online version of this article:

Online Appendix
Replication Package

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