Move to Success? Headquarters Relocation, Political Favoritism, and Corporate Performance*

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Abstract: This paper documents an unexplored corporate rent-seeking phenomenon in non-representative regimes—relocating headquarters (HQ) to the political center. Focusing on China, we find that relocating HQ to Beijing helps firms acquire more political favoritism but relocating HQ to Shanghai or Shenzhen (the two economic centers) does not. Although both types of relocations would improve firms' accounting performance, only relocations to Shanghai or Shenzhen would increase firms' stock performance. We attribute these differences to the detrimental effects of political favoritism on firms' efficiency and innovation.

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I. Introduction

Corporate headquarters (HQ) are the center of organizational management for modern firms (Goold and Campbell 1987; Chandler 1991; Foss 1997; Collis *et al.* 2007; Menz *et al.* 2013, 2015). HQ serve not only as the supervisory body for firms' internal functioning, but also as the main channel through which firms acquire market information. Therefore, the choice of HQ location (and relocation) has become a strategic decision for firms. HQ relocations take place quite often (Baaij *et al.* 2004; Birkinshaw *et al.* 2006; Strauss-Kahn and Vives 2009; Voget 2011; Laamanen *et al.* 2012). According to Strauss-Kahn and Vives (2009), more than 1,500 (around 5%) U.S. firms moved their HQ during 1996–2001.[1]

Many studies have sought to identify the push and pull factors affecting HQ relocations by primarily focusing on operational efficiency or operational cost considerations. Regarding the former, there is considerable evidence that HQ relocations can increase the supply of market information as well as outsourcing opportunities (Ono 2003; Lovely *et al.* 2005; Aarland *et al.* 2007; Henderson and Ono 2008; Davis and Henderson 2008; Strauss-Kahn and Vives 2009). Cost reductions can be achieved by moving HQ to destinations with a lower tax rate, which is usually observed among multinational corporations (Voget 2011; Laamanen *et al.* 2012). While focusing on different factors, these studies share a common feature: their reasoning stems from a pure

[1] Another study on the United States (Klier 2006) shows that around 13% of American firms moved their HQ in the 1990s. The figures for multinational relocations in Europe are lower: Voget (2011) finds that 6% of multinationals relocated their HQ during 1997–2007.

market framework within which they investigate the impact of some market factors on firms' HQ relocation decision, with an implicit assumption that HQ relocations can improve corporate performance.

Recent studies, however, start to exhibit a growing interest in the impact of political factors on corporate performance (Piotroski and Zhang 2014; Acemoglu *et al.* 2016; Liu *et al.* 2017;). The spatial location of HQ undoubtedly affects the potential political favors available to firms: those that base or move their HQ to the political center would find it more convenient to lobby or establish personal connections with politicians (Faccio and Parsley 2009; Kim *et al*. 2012). Although different from market-oriented relocations, the politically motivated relocations could also improve corporate performance. Yet few studies have systematically investigated the impacts of HQ relocations of either kind. The present study aims to fill this gap.

This paper examines China's listed companies to identify the effects of HQ relocations featured by two distinct motivations. In contrast to many countries, where the economic center is also the political center, China has an advantage to serve as the research context as its economic and political centers are geographically separate.[2] Shanghai has always been the largest city and regarded as the economic center of mainland China (Ma *et al.* 2013). We treat Shenzhen as the other economic center in light of the fact that it is the first Special Economic Zone and exemplifies the spectacular economic growth of China in the past four decades. Its economic output rose from the

[2] In some countries such as the United Kingdom, France and Russia, the political centers coincide with the economic centers, and there are no other comparable cities in terms of the size of the economy (see Appendix A), which makes it difficult for scholars to distinguish the impact of HQ relocations featured by different motivations.

bottom to the 3rd by the end of 2017, only behind Shanghai (1st) and Beijing (2nd). Consequently, HQ relocations to Shanghai or Shenzhen are classified as market-oriented. By contrast, we assume that HQ relocations to Beijing are more likely to be politically driven.[3] This assumption is validated by the following evidence. First, unlike a federalist government, the centralized Chinese government has a monopoly over making industrial policies, establishing regulatory and market entry policies, as well as issuing licenses. Moving the corporate HQ to Beijing would almost certainly increase its chances of obtaining political favoritism. Second, given the lack of *de facto* representative institutions (e.g., lobbying), gaining political favors through specialized lobbying groups located in the capital is not an option for Chinese firms. Under such political structures, physically relocating HQ to the capital is a much more realistic (and perhaps the only viable) option for Chinese firms to win favoritism from the utmost power. Figure 1 compares the spatial distributions of corporate HQ in China vs. the United States, and clearly illustrates a strong preference of Chinese firms to set up their HQ in the capital. By the end of 2015, 261 of the 2,780 (9.4%) A-share listed companies in China had their HQ in Beijing,[4] while only 16 of the 3,938 (0.41%) companies listed on NASDAQ or New York stock exchanges had their HQ in Washington, D.C.[5]

[Figure 1 about here]

[3] We acknowledge that Beijing possesses certain economic advantages and will discuss this issue in Section 4.4.

[4] This notable pattern does not exclusively pertain to state-owned enterprises: the proportion reaches 8.2% for only non-SOEs.

[5] The United States does not seem to have any specific regulations restricting firms from establishing their HQ in Washington, D.C.

This study empirically examines the impact of HQ relocations to different destinations on both firms' obtaining political favors and corporate performance. Our sample consists of all listed companies in China's A-share main-board market up to 2015. Firms that moved their HQ to Beijing or Shanghai/Shenzhen during the period are taken as the treatment group, and non-relocated firms are considered as the control group. After correcting imbalance between the treatment and control groups, the paper first provides evidence substantiating our conjecture that firms relocate their HQ to Beijing to acquire political favors. Specifically, we find that after firms moved their HQ to Beijing, the number of politically connected directors on their boards increased significantly, and the likelihood of entering government-regulated sectors increased. The amount of received bank loans increased, while the interest rates declined. Government subsidies received by these firms also increased, though not statistically significant. In contrast, there is no evidence suggesting that relocating HQ to Shanghai/Shenzhen would help firms acquire any political favors. We then examine the impact of HQ relocations on corporate performance. We find that HQ relocations, of either kind, boost firms' accounting performance as measured by the return on equity (ROE), return on total assets (ROA) and return on sales (ROS), respectively. But stock performance, measured by Tobin's Q, only improves for those that moved their HQ to Shanghai/Shenzhen. Additional tests show that the difference between accounting and stock performance can be attributed to the damage that political favoritism can have on firms' sustainability. In particular, moving HQ to Beijing drags down a firm's TFP, lowers its R&D expenditures, and reduces the number of patent applications. Firms with HQ relocated to Shanghai/Shenzhen, however,

achieve higher levels of sustainable growth. The findings show that political favoritism plays a role similar to a 'resource curse': it brings some extra returns to favored firms, yet it undermines their efficiency and innovation.

Finally, further analysis suggests that HQ relocations to Beijing seem to exert negative externalities at both the firm and industry level. The market shares of non-relocated rival firms would shrink if any firm from the same sector relocated its HQ to Beijing. For the industry as a whole, the more firms within a particular industry that move their HQ to Beijing, the higher the monopoly level (measured by the Herfindahl index) of that industry. Thus HQ relocations motivated by gaining political favoritism would distort the allocation of resources and lead to a loss of economic efficiency.

This paper contributes to three different strands of literature. First, to the best of our knowledge, this paper is the first to systematically examine the long-term impact of HQ relocations on corporate performance. Current studies mostly focus on the impact of HQ relocations on short-term stock price (Alli *et al.* 1991; Ghosh *et al.* 1995; Cox and Schultz 2008) and overlook the longer-term effects.[6] Discussions of issues such as efficiency (TFP) and innovation (R&D and patents) become possible only when the long-term impacts of HQ relocations are taken into consideration.

Second, this study advances our understanding of economic geography from a political economy perspective. The new economic geography seeks to explain the geographic agglomeration of economic activities from a market perspective (Krugman

[6] The only two exceptions are Chan *et al.* (1995) and Gregory *et al.* (2005). They carried out a statistical comparison, instead of a regression analysis, of the accounting indices between relocated and non-relocated firms and found no impact of relocations on corporate performance.

1991; Fujita *et al.* 2001).[7] Recent research, however, has gradually revealed the significant role played by political factors in shaping the spatial distribution of economic activities (Ades and Glaeser 1995; Davis and Henderson 2003; Galiani and Kim 2008; Hodler and Raschky 2014; Pan and Xia 2014). In contrast to most previous studies, which take administrative regions as the object of investigation, this paper approaches this topic at the firm level. It, therefore, provides a more micro-level perspective, and thus enhances our understanding of the spatial distribution and evolution of economic activities, especially in non-representative regimes.

Third, our findings are closely linked to the rapidly growing literature on political connections. Though numerous studies suggest that political connections can improve corporate performance in developing (Fisman 2001; Johnson and Mitton 2003; Khwaja and Mian 2005; Faccio 2006; Faccio *et al.* 2006; Li *et al.* 2008; Claessens *et al.* 2008; Calomiris *et al.* 2010; Chen *et al.* 2017; Lehrer 2017) and developed societies alike (Jayachandran 2006; Ferguson and Voth 2008; Goldman *et al.* 2008; Cooper *et al.* 2010; Amore and Bennedsen, 2013; Hill *et al.* 2013; Borisov *et al.* 2015; Akey 2015; Acemoglu *et al.* 2016; Brown and Huang 2017), much less is known about how firms build political connections especially in non-representative regimes (Fang *et al.* 2018). Our paper contributes to this strand of literature by documenting one significant phenomenon which is not explored yet. In addition, we make marginal contribution by exploring the detrimental effects of political connections on efficiency and innovation, which only very recently scholars attend closely to (Akcigit *et al.* 2018; Fisman *et al.* 2018). Our findings

[7] Studies find that, specifically in China, efficiency considerations affect the spatial distribution of ownerships of state-owned enterprises (Huang *et al.* 2017).

also echo those of the few studies that also focus on the negative impact of political connections on firm dynamics (Fan *et al.* 2007; Boubakri *et al.* 2008; Wu *et al.* 2012; Barwick *et al.* 2017).

The rest of the paper is organized as follows: Section II introduces the data; Section III discusses the empirical strategy; Section IV reports the impact of HQ relocations on political favoritism, corporate performance, and sustainable growth; Section V further explores the externality of HQ relocations and Section VI concludes.

II. Data

Our sample covers 2,211 companies listed on China's A-share main-board stock market from 2000 to 2015, resulting in a total of 24,027 observations.[8] This section presents the HQ relocation sample and discusses the measures of political favoritism, corporate performance, sustainable growth, as well as other control variables.

2.1 HQ Relocations

The information on the HQ locations of the listed companies since 2003 comes from the China Securities Market and Accounting Research (CSMAR) database; information before 2003 was manually appended from firms' annual reports. We define a HQ relocation as a change of the HQ address (at the prefecture level) in a given year

[8] We drop 2,106 observations whose net asset value is negative or production site changes ever.

compared to the previous year. During the sample period, 156 firms relocated their HQ. Figure 2 shows the annual frequency of HQ relocations: during 2005–2014, the figure stabilized at around 10 per year, and surged to 31 in 2015.[9]

[Figure 2 about here]

Figure 3 illustrates the spatial movements of HQ of these 156 firms. While the 99 cities that HQ moved out of are geographically evenly distributed, almost all of the 48 cities that HQ moved into, not surprisingly, are located in the economically advanced eastern region. Amongst these destination cities, Beijing, Shanghai, and Shenzhen were the most popular cities and attracted 42, 20, and 9 listed companies, respectively, accounting for 46% of all relocations.[10]

[Figure 3 about here]

[9] We consider this phenomenon to be linked with the concept of 'Headquarter Economics' promoted by local governments at that time. Beijing, Shanghai and Shenzhen all introduced many preferential policies to incentivize HQ to move to their jurisdictions. We tested for the sensitivity of our results to this concern by eliminating the year 2015 from the sample and found similar results.

[10] Among the rest, other centrally-administered municipalities and provincial capitals attracted 41 relocated firms; prefecture-level cities attracted 43 relocated firms; and county-level cities attracted 1 relocated firm. Figure 3 also reveals another interesting phenomenon: 12 companies moved their HQ to cities within 200 km of Shanghai/Shenzhen, but only two moved their HQ to cities within 200 km of Beijing, suggesting that Beijing is not a traditional economic center with strong economic spillover effects.

This paper focuses on firms relocating their HQ to Beijing or Shanghai/Shenzhen. Most importantly, HQ relocations to Beijing are viewed as firms' investments in building political connections. This practice has some clear advantages over investigating other connection-building means (e.g., direct bribing). Most of the alternative means are hardly observable and can only help firms build up connections cumulatively, which makes it difficult to disentangle the effects of political favoritism. By contrast, relocating HQ to Beijing can be easily observed and also implies that a firm's political connection changes stepwise. Thus, HQ relocations provide much convenience for researchers to employ the difference-in-differences method to identify the long-term effects of political favoritism. This approach certainly also has its own disadvantages. We are fully aware of the endogeneity of relocations and subsequent sample selection biases, and will investigate this concern and propose our solutions in Section 3.

2.2 Political Favoritism

No single index can perfectly capture political favoritism since it has various manifestations. Hence, we adopt an exploratory approach by employing five indicators mostly used in existing studies. The first is the number of politically connected directors on the board, *Politically Connected Directors*. Several studies on different countries have shown that having a board of directors with political backgrounds can improve corporate performance. It can, for instance, bring more government procurement contracts to a firm (Goldman *et al.* 2008), supply insider information about the public policy process, and even influence political decisions (Hillman 2005). We define a board member as

"politically connected" if he or she has been a government employee, a People's Congress deputy, a Party Congress representative, or a member of the National Committee of the Chinese People's Political Consultative Conference at the prefecture or above level. There are, on average, 9 directors on a board, 2 of whom have a political background. The second indicator is whether the focal firm has access to government-regulated sectors, *Regulated Sectors*. In China, it is a strong sign of political favoritism if a firm's main business involves public utilities, public transport or finance.[11] The dummy *Regulated Sectors* takes a value of 1 if a firm's business covers any of the regulated sectors, and 0 otherwise. The third and fourth indicators are related to firms' financial constraints: bank loans and interest rates. Various studies reveal that Chinese enterprises suffer from severe financing constraints, and bank loans are their major source of financing (Allen *et al.* 2005; Qian *et al.* 2015). Recent research further suggests that political connections have a vital impact on a firm's ability to obtain bank loans in emerging markets (Claessens *et al.* 2008; Cull *et al.* 2015; Haveman *et al.* 2017). We, therefore, believe that bank loans and interest rates reliably capture the political favors enjoyed by firms.[12] The bank loan figures are standardized by firms' total revenues, and the interest rate is calculated by dividing the interest payment by the total amount of the loans. The fifth indicator is the amount of government subsidies.[13] Chinese government

[11] Public utilities include electricity, gas, water production and water supply; public transport includes road, water, rail, aviation, and pipeline transportation; and the finance sector includes banking and insurance. All these industries are recognized as government-regulated sectors.

[12] We discuss the possibility that these two variables instead capture local capital market structure in Section 4.1.

[13] Government subsidies refer to the monetary or non-monetary assets obtained for free by an enterprise from the government. Common government subsidies include value-added tax (VAT) returns, rewards for technological

subsidies to listed companies are enormous in terms of both coverage and amount: in 2015, 97% of listed companies obtained government subsidies, which total 161.2 billion RMB (around 26 billion USD). Studies often attribute the ability to attract subsidies to firms' political connections (Wu *et al.* 2012). The government subsidy figures are also standardized by firms' total revenues.

Data on these indicators comes from the CSMAR database and Wind database. The figure on the number of politically connected directors is available from 2008; the information on government subsidies is available from 2007; the data of other variables covers the whole sample period. To increase confidence in the effectiveness of those indicators, Figure 4 illustrates the time trends of these five indicators for firms with HQ located in Beijing or Shanghai/Shenzhen, respectively. It is clear from the charts that for most of the time, firms with HQ located in Beijing enjoy higher political favoritism compared with those in Shanghai/Shenzhen.[14]

[Figure 4 about here]

2.3 Corporate Performance: Accounting Performance versus Stock Performance

Numerous studies have revealed that firms' political connections are positively related to

innovations as well as rewards for energy conservation.

[14] Due to data limitation, the five measures we developed here do not differentiate between political favoritism from the central government and that from local governments. Given the fact that the Chinese political structure features a high degree of integration and centralization, firms can leverage their political connections with the central government to elicit more favoritism from the local government.

their corporate performance (Faccio 2006; Li *et al.* 2008; Akey 2015; Acemoglu *et al.* 2016). Accounting performance and stock performance are two typical types commonly used in the literature to measure corporate performance. The former focuses on a firm's internal operational performance, while the latter reflects the market expectations on the firm's future stock returns. Accounting performance, in turn, is measured by three indicators: return on equity (*ROE*), return on total assets (*ROA*), and return on sales (*ROS*). *ROE* is the ratio of the net profit (after tax) to owners' equity; *ROA* is the ratio of the net profit (after tax) to total assets; and *ROS* is the ratio of the net profit (before interest and taxes) to operating incomes. Stock performance is measured by Tobin's Q, which is defined as the ratio between a firm's market value and its replacement costs. The market value is the sum of the total stock value and book value of total liabilities, and the replacement costs are measured as the book value of total assets (Chung and Pruitt 1994). Appendix Figure B-1 presents the trends of annual averages of the three accounting performance indicators, which present similar patterns: the correlation coefficients among the three ratios are between 0.63 and 0.84. Figure B-2 presents the trend of annual average of Tobin's Q.[15]

2.4 Sustainability

An underlying cause of differences in corporate performance may come from their

[15] Although the two types of performance measures show similar trends at the aggregate level, they have virtually no correlation at the firm level (the correlation coefficient is only 0.028). Existing findings are also mixed about the relationship between them (Gentry and Shen 2010). It is therefore necessary to examine the impact of HQ relocations on the two types of performance measures separately.

different abilities to keep sustainable growth (Schoar 2002). Therefore, we pay particular attention to the impact of HQ relocations on firms' sustainability which consists of two aspects: efficiency and innovation.

Efficiency Total factor productivity (TFP) is the most important indicator for measuring sustainability. It is commonly understood as the 'residual' portion of output that cannot be explained by the amount of inputs used in production; this residual reflects how efficiently inputs are utilized in production (Comin 2010). This paper calculates TFP using Schoar's (2002) method which is the most commonly used approach in the literature. We first estimate a log-linear Cobb–Douglas production function for each industry-year pair, and the estimated residual from the regression is taken as the TFP for each individual firm. In other words, our TFP estimates indicate the deviation of the individual firm from the average factor productivity within the industry it belongs to in a given year. Appendix C documents detailed calculations and plots the annual average TFP as well as the standard deviation. The mean of TFP in each year is zero as theoretically indicated.[16] The standard deviation, however, increases from 0.244 in 2000 to 0.289 in 2015, reflecting an enlarging gap among firms' production efficiency.

Innovation Endogenous growth theory holds that improvements in production efficiency mainly come from innovation, and the capacity to innovate, in turn, is determined mainly by investments in research and development (R&D) (Romer 1986). We use the number of patent applications (*Patent*) to measure a firm's capacity to innovate. On average, each firm applies for eight patents per year.[17] The R&D intensity

[16] The annual average TFP is not precisely equal to zero due to the elimination of some observations.

[17] As this value can be zero for some observations, we first add 1 to the variable before taking the logarithm in the

(*R&D*) is measured as the share of R&D expenditures as a proportion of total revenues and it shows a significant increase over the years, rising from 0.24% in 2007 to 2.5% in 2015.

2.5 Control Variables

In the regressions, we also control for firm-related and market-related factors that previous studies have found would affect corporate performance (Jiang *et al.* 2015; Giannetti *et al.* 2015). Firm-related factors include: firm size, capital structure, agency costs, as well as the firm's age. The firm size (*Size*) is measured as the logarithm of total assets; the capital structure is measured by total liabilities divided by total assets (*Leverage*); agency costs are proxied by two measures, the fraction of shares by the largest shareholder (*Block*) and the free cash flow (*FCF*) scaled by total assets; the firm's age refers to the number of years since foundation (*Age*). The market-related factors include the listing year dummy (*IPO*) and stock price volatility (*Volatility*). Stock volatility is calculated as the standard deviation of the firm's daily stock returns within one calendar year. In addition, we noticed that HQ relocations are often accompanied by major asset restructuring. We, therefore, generate a dummy *MAR* (equals 1 when a major asset restructuring takes place, and 0 otherwise) to control for the effect of major asset restructuring. Furthermore, we construct a dummy *Second* (equals 1 if the firm has a second relocation in a given year and all subsequent years, and 0 otherwise) to capture

regression analysis.

the impact of repeated HQ relocations.[18] Table 1 reports the summary statistics of all the variables as well as the data source.

[Table 1 about here]

III. Empirical Strategy

The HQ relocations in the sample took place during different time periods, enabling us to apply DID analysis to empirically examine the impact of HQ relocations on corporate performance based on the following specification:

$$y_{i,t} = \alpha_0 + \beta Move_{i,t} + \gamma X'_{i,t} + \varphi_i + \delta_t + \varepsilon_{i,t} \quad (1)$$

where *i* indexes the firm, *t* indexes the year, and $y_{i,t}$ represents a series of outcome variables, including political favoritism, corporate performance, and sustainability. The key explanatory variable is the dummy $Move_{i,t}$, which equals 1 when a firm relocated its HQ in year *t* and remains 1 for all subsequent years, and 0 otherwise. The parameter of interest is β, which measures the average effects of HQ relocations. $X'_{i,t}$ is the series of firm-level control variables that are time variant. φ_i is the firm fixed effect, which

[18] In particular, two firms relocated to Shenzhen ended up relocating to Beijing in subsequent years. One firm relocated to Beijing ended up relocating to Shanghai in subsequent years. To eliminate the impacts of those repeated movers, we also try dropping observations with more than one relocation, and the regression results remain the same.

captures all time-invariant firm characteristics. δ_t is the time fixed effect, which captures economic shocks that affected all firms in a given year. Standard errors are clustered at the firm level to allow for arbitrary correlations of the error term, $\varepsilon_{i,t}$, over time within each firm.

An underlying assumption of this specification is that in the absence of HQ relocations, the outcome of relocated firms would have a parallel trend with that of non-relocated firms. This assumption may be implausible if pre-treatment characteristics that are thought to be associated with the dynamics of the outcome variable are unbalanced between the treated and untreated groups (Heckman *et al.* 1998; Abadie 2005). Many factors can affect the deliberation of HQ relocations and thus lead to unbalanced samples. For instance, staying closely with local government may also allow for political connections to yield substantial benefits (e.g. more local resources, less bureaucratic delays). Moving HQ not only entails substantial costs at the firm level, but also poses potential damage to local economies which would prompt local politicians to hinder firms from moving HQ. Therefore, those firms which successfully moved their HQ might be systematically different from non-relocated firms.

We test this concern by comparing the pre-relocation characteristics between relocated and non-relocated firms. These characteristics include all the continuous control variables, as well as time-invariant factors such as 'whether HQ was originally located in the less developed central or western regions of China' (*West, Central*), 'whether the firm is a state-owned enterprise' (*SOE*), 'the number of headquarters in the same city' (*HQ count1*), and 'the number of headquarters in the same city and in the same industry' (*HQ count2*). Besides, we also compared the pre-relocation performance indicators to inspect

potential reverse causality problems. Columns (1) and (2) of Table 2 show the mean differences of those variables between firms that relocated to Beijing and non-relocated firms, and between firms that relocated to Shanghai/Shenzhen and non-relocated firms, respectively. We find differences, albeit small, between relocated and non-relocated firms in terms of size, free cash flow, age, original HQ locations, SOE status, and HQ agglomerations. Those relocated firms also had poorer accounting performance but better stock performance.

[Table 2 about here]

This imbalance between relocated and non-relocated firms, however, needs to be addressed. We use the propensity score weighting method proposed by Hirano and Imbens (2001) and Hirano *et al.* (2003) for this purpose. First, a logit model is applied to estimate the HQ relocation probability of each firm in the two subsamples (Beijing, and Shanghai/Shenzhen). We then restrict the sample to firms in the common support of the covariate distribution. Finally, the balance could be obtained by re-weighting the control group observations by a function of their estimated propensity to relocate HQ (please refer to Appendix D for details). Columns (3) and (4) present the comparisons after this weighting adjustment: almost all the mean differences of characteristics are no longer significant, and the imbalance problem to the parallel assumption is therefore effectively mitigated. In addition, there are nearly no differences between the performance of relocated and non-relocated firms, suggesting that the reverse causality problem is also alleviated.

IV. Firm-level Impact of HQ Relocations

This section first investigates the impact of the two types of relocations on firms' received political favors. It then examines the effect of different types of relocations on accounting and stock performance. It finally compares the impact of different relocations on corporate performance from a sustainable growth perspective.

4.1 HQ Relocations and Political Favoritism

Table 3 examines the impact of HQ relocations to Beijing (the first five columns) or Shanghai/Shenzhen (the last five columns) on five political favoritism indicators. The control groups for both subsamples are non-relocated firms. We control for the impact of repeated HQ relocations and firm and year fixed effects across all models. All regressions are weighted by the function of the propensity scores. We find that relocating HQ to Beijing significantly increases the political favors enjoyed by firms. After moving to Beijing, the number of politically connected directors on the board increased by 17.5%, and the possibility of entering government-regulated sectors increased by 8.8%. The financial restrictions faced by firms are, to some extent, also eased: the ratio of bank loans to total revenues increased by 9.3%, and the interest rate decreased by 4.8%;[19] the

[19] There might be concerns that the increase in bank loans and decrease in interest rates may instead capture the market structures of local capital market in Beijing which is dominated by bank lending. In this case, the estimates only reflect

ratio of government subsidies to total revenues, though not statistically significant, also increased by 0.8%.[20] These results contrast sharply with those of firms that relocated to Shanghai/Shenzhen: the five estimates in Columns (6)–(10) are much smaller than those in Columns (1)–(5), and none of them is significant.[21]

[Table 3 about here]

4.2 HQ Relocations and Corporate Performance

Table 4 examine the impact of both types of HQ relocations on accounting and stock performance. The dependent variable in Columns (1)–(3) and Columns (5)–(7) is accounting performance measured by ROE, ROA, and ROS, respectively. The dependent variable in Column (4) and (8) is stock performance measured by Tobin's Q. We notice that both two types of HQ relocations could improve firms' accounting performance. But improvements in the stock performance occur only to firms that moved to Shanghai/Shenzhen: the estimate in Column (8) is 0.880 and is significant at 1% level. In contrast, the coefficient in Column (4) is much smaller and not significant.

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the catching-up effect of relocated firms compared with those already in Beijing. Our evidence, however, can alleviate such concern: compared with firms originally located in Beijing, relocated firms receive 41% more bank loans at the interest rates which on average are 27% lower.

[20] Some literature also find that political connections can reduce firms' legal risks (Firth *et al.* 2011). We discovered that HQ relocations to Beijing indeed reduce firms' probability of being involved in litigation or arbitration each year, though this finding is not statistically significant; relocations to Shanghai/Shenzhen do not have such an effect. This result is available upon request from the authors.

[21] Appendix E tests the 'parallel trend' hypothesis of these regressions.

[Table 4 about here]

The validity of these regression results depends on whether the outcomes of relocated firms, before HQ relocations, have similar time trends as non-relocated firms. To verify this assumption, we replace $Move_{i,t}$ in Equation (1) with a set of dummy variables $Move_{i,t,k}$ that indicates the k_{th} year before or after HQ relocations. Testing for pre-treatment trends is equivalent to a test that the coefficients β_k of $Move_{i,t,k}$ are equal to 0 for $k < 0$. The results are plotted in Figure 5, in which the horizontal axis measures the number of years from HQ relocations, and the vertical axis measures the estimated $\widehat{\beta_k}$ in regressions with ROE, ROA, ROS, and Tobin's Q as the dependent variables, respectively. The charts on the left and right correspond to the first and the last four columns of Table 4, respectively: the charts on the left illustrate the dynamic impact of HQ relocations to Beijing, and charts on the right show the impact of HQ relocations to Shanghai/Shenzhen. We find that the two types of performance indicators share similar trends for relocated and non-relocated firms before relocations: the estimated coefficients $\widehat{\beta_k}(k < 0)$ are close to zero and insignificant, confirming that the estimates in Table 4 are not affected by unobserved omitted variables.

[Figure 5 about here]

Reassured of the validity of regression results, we can now go back to Table 4 and interpret these estimates. The absence of significant improvements in stock performance

after relocations to Beijing, at first glance, contradicts with previous findings that abrupt gains (losses) of political connections are associated with subsequent rises (falls) of stock price (e.g., Fisman *et al.* 2012). This apparent inconsistence can be attributed to some neutralizing factors after relocations. One possibility is that the agency problem might be intensified after HQ relocations. For instance, managers may receive less effective monitoring under shields of connected politicians and squander more resources on consumption of non-pecuniary private benefits. Such agency costs would offset the positive effects of political connections on stock performance. However, we find no supporting evidence from regressions with the two proxies of agency costs as dependent variables. The other possible explanation is that stock prices track firm productivity (Schoar 2002). Following this explanation, we expect to observe a deterioration in sustainability for relocated firms. This view is resonated with the time profile of those firms' accounting performance: it improved for a short while before showing a gradual declining tendency. In the following section, we provide direct evidence on the deterioration of sustainability.

4.3 HQ Relocations and Sustainable Growth

We seek to identify whether there is a long-term performance difference between the two types of relocations due to different capabilities of maintaining a sustainable growth. Column (1) and (4) of Table 5 report the impact of the two types of HQ relocations on TFP. The point estimate of the impact of HQ relocations in Column (1) is -0.100, and is significant at the 10% level, implying that relocating HQ to Beijing drags a firm with a median TFP down to the 28th percentile. In Column (4), on the contrary, the point

estimate of the impact of HQ relocations is 0.226 and is significant at the 1% level, showing that relocating HQ to Shanghai/Shenzhen brings a firm with a median TFP up to the 86th percentile. These results suggest that HQ relocations motivated by seeking for political favoritism, despite improving accounting performance to a certain extent, would impede firms' productivity.[22] As improvements in innovation are the main driver of TFP growth, we further test the impact of the two types of HQ relocations on R&D intensity and the number of patent applications in Columns (2)–(3) and (5)–(6), respectively. The estimates show that after relocating HQ to Beijing, the R&D intensity dropped by 0.9% and the number of patent applications decreased by 22.9%. Both estimates are significant at the 1% level.[23] By contrast, neither R&D intensity nor the number of patent applications experienced significant changes after relocations to Shanghai/Shenzhen.[24]

[22] Some people might argue that the efficiency decline might instead come from the increased distance between the HQ and the production sites resulting from HQ relocations. Henderson and Ono (2008) show that such a change makes communication and monitoring more difficult, and thus impedes efficiency. In our study, the average relocation distance for firms that relocated to Beijing is 1,040 km, which is slightly higher than the average relocation distance of 993 km, for firms that relocated to Shanghai/Shenzhen. But the difference between the two means is insignificant (p-value=0.768). In order to more rigorously consider the impact of distance, we introduced in the regression an interaction of the HQ relocation variable *Move* with the demeaned relocation distance: $y_{i,t} = \alpha_0 + \beta_1 Move_{i,t} + \beta_2 Move_{i,t} * (Distance_i - \overline{Distance}) + \gamma X'_{i,t} + \varphi_i + \delta_t + \varepsilon_{i,t}$. Appendix F reports the regression results. We find that the estimates of the coefficient β_2 in both the Beijing and Shanghai/Shenzhen subsamples are negative, as predicted, but insignificant. This indicates that the relocation distance does not contribute to the efficiency decline.

[23] As we add 1 to the number of patents before taking the logarithm, the coefficient of the HQ relocations measures the rate of change in the number of patents after relocations.

[24] It suggests that the TFP increase following HQ relocations to Shanghai/Shenzhen may be achieved by other means. For instance, relocating HQ to Shanghai or Shenzhen helps firms outsource innovative activities or acquire market information at a lower cost. A comprehensive investigation of this phenomenon is beyond the scope of this paper and

[Table 5 about here]

We also test whether the 'parallel trend' assumption in the regressions that use TFP, R&D, and number of patent applications as explanatory variables. The structure of Figure 6 is similar to that of Figure 5. First, the assumption still holds: there is no significant pre-relocation difference between relocated and non-relocated firms for these three indicators. After relocations, however, firms that relocated to Beijing experienced significant downward trends in all three indicators. For firms that relocated to Shanghai/Shenzhen, the TFP leaped to a higher level during the first year after relocations and then remained stable over the long term.

[Figure 6 about here]

4.4 Is Beijing also an Economic Center?

A possible objection of classifying Beijing as the political center is that this practice overlooks the fact that the capital is also an economic center to certain extent. Based on this argument, at least some of HQ relocations to Beijing were motivated by seeking for not political favors but certain economic advantages that Beijing possesses, such as a considerable talent pool given the large number of elite universities and research

thus left for future research.

institutes in Beijing.[25] Two implications might follow this line of reasoning. First, the negative impacts of political connections on firms' sustainability can be underestimated. Supposing a counterfactual "Beijing" with the same economic structures as the actual Beijing but deprived of its status as the political center, the previous estimate in Column (4) of Table 5 indicate that HQ relocations to this "Beijing" would promote efficiency. Yet, the net effect of HQ relocations to the actual Beijing in Column (1) of Table 5 is negative, suggesting that the detrimental impact of the status as the political center is even larger. Second, the same logic also indicates that the positive impact of political connections on firms' accounting performance might be overestimated: at least part of the positive net effects of HQ relocations to the actual Beijing comes from its economic advantages of the counterfactual "Beijing".

To attenuate this overestimation concern, we adopt the following subsample method. We first divide the industries of the relocated firms into two groups: the high political favoritism industries and the low political favoritism industries.[26] Compared with firms in low political favoritism industries, those in high political favoritism industries tend to make HQ relocation decisions that are more politically motivated. We then restrict the sample to the high political favoritism industries and reexamine the impact of HQ relocations to Beijing. If the estimated results based on this subsample are similar to

[25]There might be other cases of HQ relocations that have nothing to do with firms' rent-seeking behaviors. For instance, the Chinese central government might tighten its grip over the Internet by requiring tech firms to relocate to Beijing. We scrutinized our sample and found only one tech firm out of the 42 firms that relocated their HQ to Beijing. We dropped that firm and obtained similar results.

[26] See Appendix G for the details of the industry classification.

previous results, it will reaffirm that the dummy variable of relocating to Beijing indeed captures the effect of political favoritism. Table 6 repeats the regressions of the Beijing subsample in Tables 4 and 5. We find that the new estimates are very close to the previous estimates in terms of both the magnitude and the significance level, reaffirming that the previous findings are not affected by Beijing's economic advantages in certain industries.

[Table 6 about here]

V. The Externality of HQ Relocations

Given that political favoritism is a limited resource, the finding that relocating to Beijing would win the firms more political favors means that non-relocated firms might suffer comparatively. To test the hypothesis, we first investigate whether HQ relocations to Beijing lead to a market share decline for rival firms.[27] Rival firms are defined as the two firms in the same industry as the focal relocated firm, with the closest level of revenue in the year before the relocation.[28] Figure 7 uses the density curves estimated by a kernel function to more intuitively depict the market share changes of rival firms, before and after a HQ relocation to Beijing or Shanghai/Shenzhen, respectively. A relatively flat

[27] The market share is measured as the ratio of a firm's annual revenue to the total revenues of all firms in that same sector.

[28] Rival firms are chosen with no placements. In this way, 78 rival firms are matched with 42 firms that relocated to Beijing, and another 52 rival firms are matched with 29 firms that relocated to Shanghai/Shenzhen.

distribution indicates a scattered distribution of the market shares across firms, and a more skewed distribution means that the market shares of most firms are concentrated in a narrow interval. Figure 7A shows that before a HQ relocation to Beijing took place, the market shares of the non-relocated rival firms were concentrated mostly in the interval between 0–0.02 (solid blue line). After a HQ relocation to Beijing occured, the distribution shifted to the left, and the market shares centered around the interval between 0–0.01 (dotted red line). Meanwhile, the average market share of rival firms also fell from 6.1% to 1.7%, reflecting a crowd-out effect of HQ relocations to Beijing on their rival firms in terms of the market share. Figure 7B shows that the market shares of the non-relocated rival firms almost experienced no changes (the average market share changed from 4.4% to 4.2%), implying that HQ relocations to Shanghai/Shenzhen did not have a similar crowd-out effect on non-relocated firms as relocations to Beijing did.

[Figure 7 about here]

Given the presence of negative externalities of relocations to Beijing on rival firms, we also examine the externalities of the two types of HQ relocations on the industry level. We suppose that a HQ relocation to Beijing will lead to an increase in the monopoly level within the industry to which the relocated firm belongs. The monopoly level, measured by the Herfindahl Index, takes value between 0 and 1. The larger the value, the higher the monopoly level. Table 7 presents the estimated impact of HQ relocations to Beijing or Shanghai/Shenzhen within an industry on the Herfindahl index. The unit of observation is industry-year. The number of firms (in hundreds) in each

industry is controlled across all specifications in order to eliminate the impact of new entries or exits. The first two columns examine the impact of relocations to Beijing, and the last two columns investigate the impact of relocations to Shanghai/Shenzhen. We find that HQ relocations to Beijing increased the degree of monopoly within the related industries, while relocations to Shanghai/Shenzhen had no such impact: the point estimates are close to zero and insignificant. According to the estimate in Column (2), for instance, an additional HQ relocation to Beijing corresponds to an increase in the industry's monopoly index of 0.015, which is significant at the 10% level. Considering that an average of 3 firms relocated to Beijing in each of 14 industries (no relocations in the remaining 8 industries), our estimate implies that HQ relocations to the capital bring about a 29% increase in related industries' monopoly levels. This finding points to a significant negative externality brought by political favoritism to the whole industry, providing a fresh contribution to our understanding of political favoritism.

[Table 7 about here]

IV. Conclusion

This paper examines the long-term impact of HQ relocations on corporate performance by focusing on China's listed companies. We are particularly interested in the general equilibrium effects of HQ relocations motivated by seeking for political favoritism. The analysis reveals three main findings. First, we find that HQ relocations to Beijing

increase firms' chances of obtaining political favors, while relocations to Shanghai/Shenzhen have no such impact. Second, HQ relocations to both Beijing and Shanghai/Shenzhen would help improve firms' accounting performance, but only HQ relocations to Shanghai/Shenzhen would improve firms' stock performance. The difference of stock market reactions to the two types of HQ relocations is attributed to the different capabilities of maintaining a sustainable growth. In contrast to firms that relocated to Shanghai/Shenzhen, those that relocated to Beijing experienced a downturn in productivity, R&D intensity, and the number of patent applications. Finally, the empirical evidence also suggests negative externalities of HQ relocations to Beijing: a relocation of this kind not only reduces the market shares of rival firms, but also increases the monopoly level of the related industry.

These findings demonstrate that political factors play a significant role in shaping the geographic distribution of economic activity, especially in a non-representative regime where the political power is highly concentrated. Political favoritism attracts economic activities to the political center, but this concentration is accompanied by a decline in economic actors' efficiency and innovation. This indicates that political favoritism distorts the effective allocation of resources and thus functions as a "resource curse".

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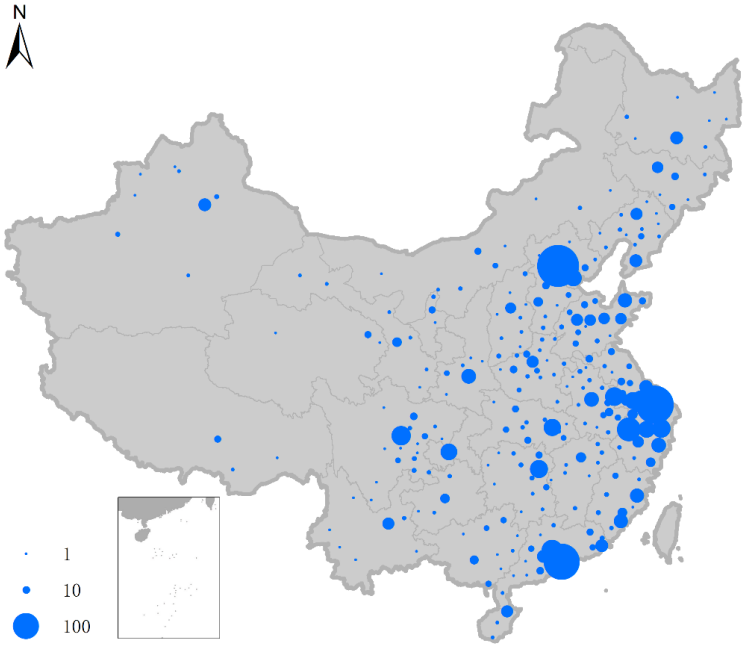
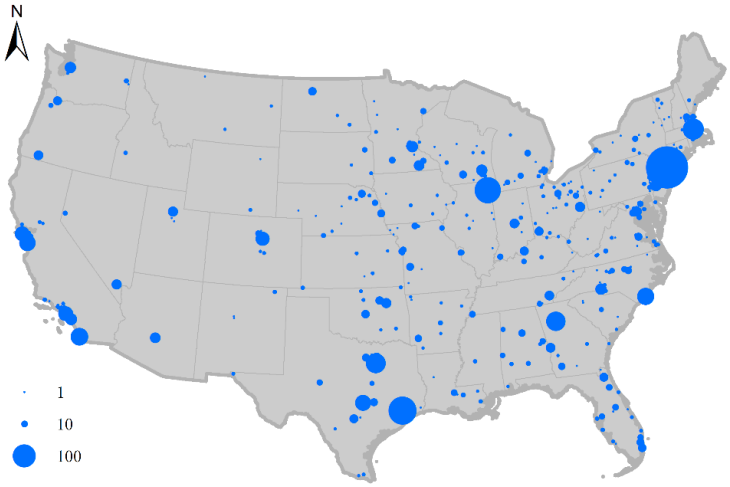
FIGURE 1. SPATIAL DISTRIBUTION OF LISTED COMPANIES, CHINA AND THE UNITED STATES



(A) China



(B) United States

Source: Wind Info (http://www.wind.com.cn/) and OSIRIS database (https://osiris.bvdinfo.com).

FIGURE 2. NUMBER OF HQ RELOCATIONS OF CHINA'S LISTED COMPANIES

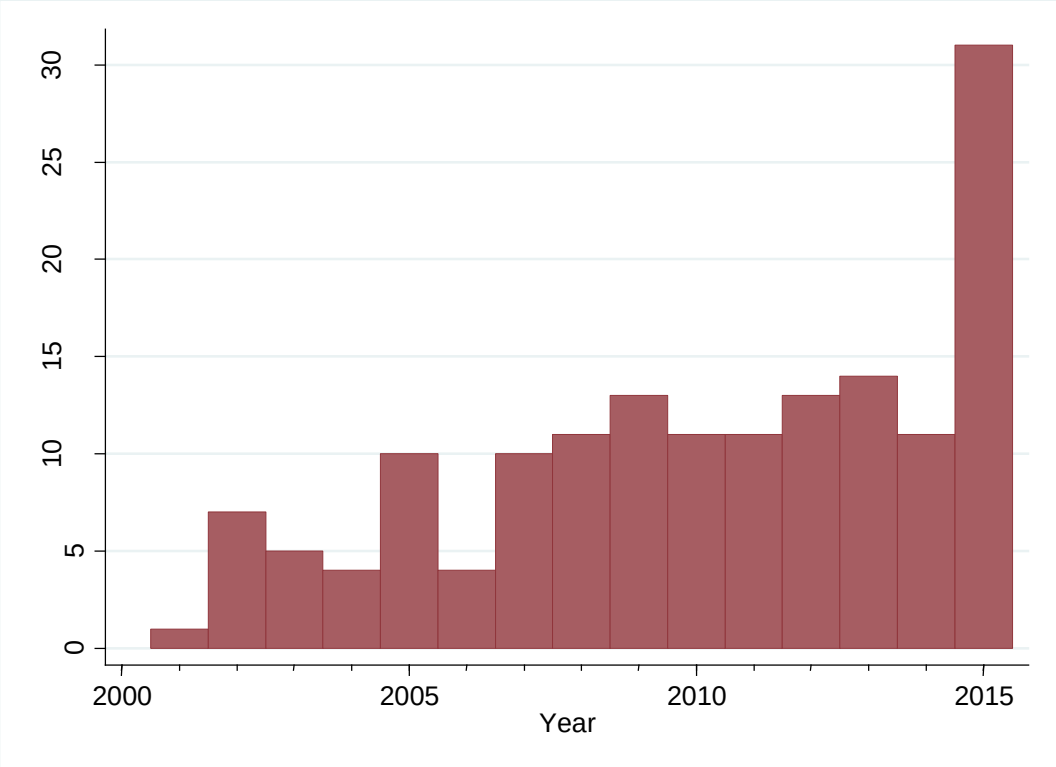
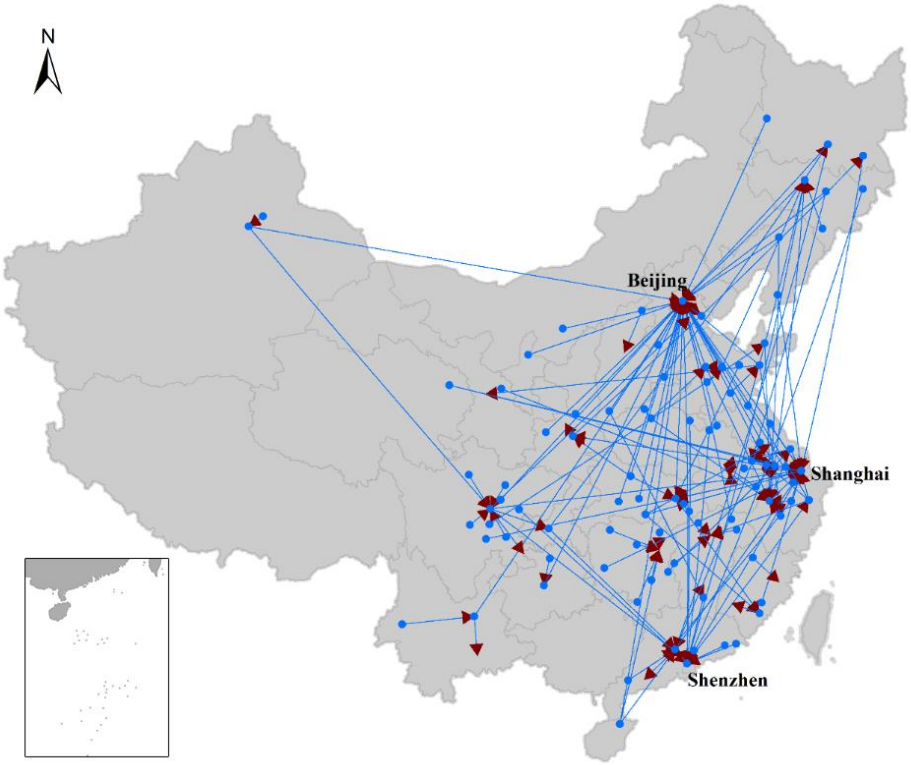
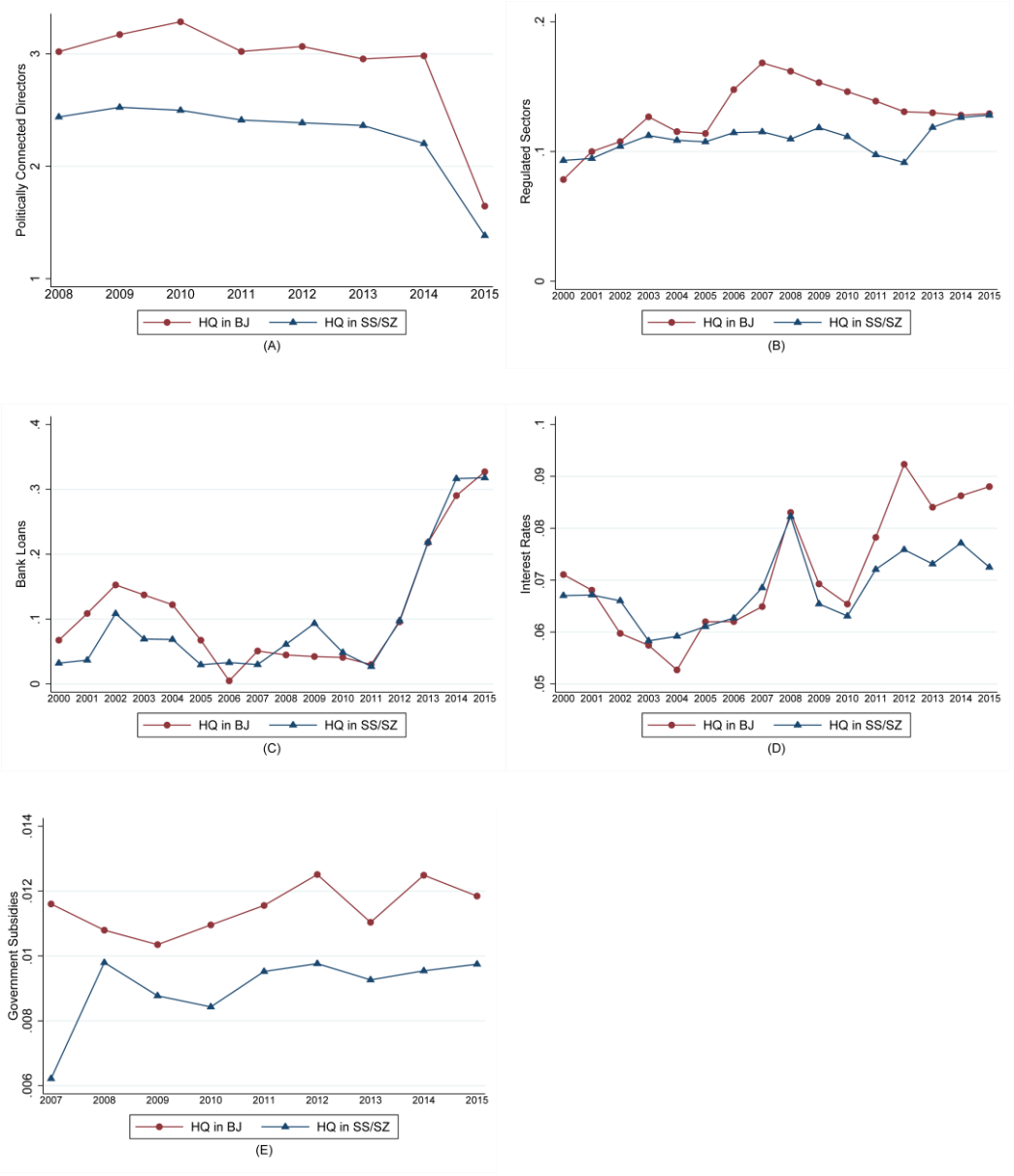


FIGURE 3. DIRECTION OF HQ RELOCATIONS OF CHINA'S LISTED COMPANIES



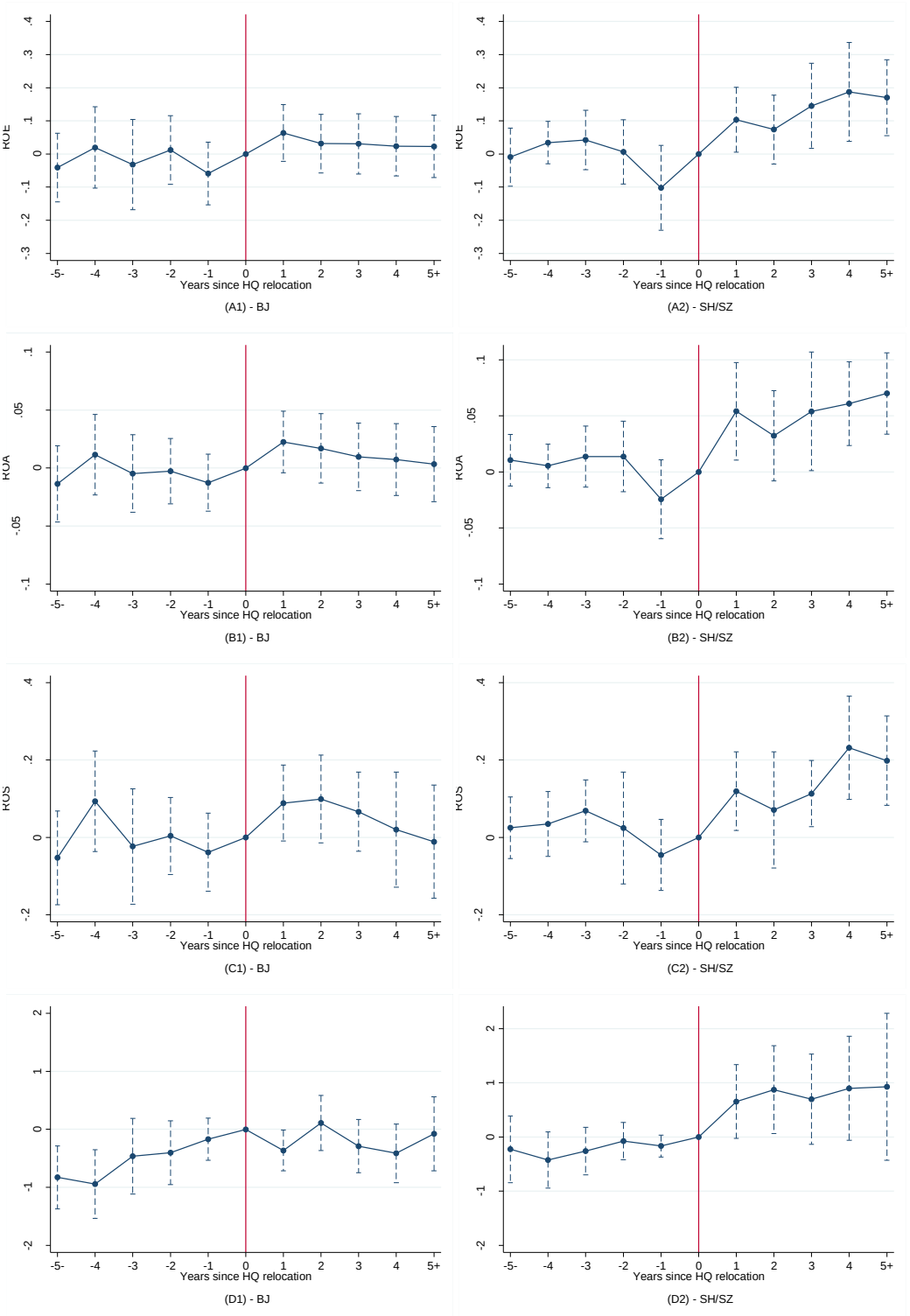
Note: Each line represents a HQ relocation from the original city (blue solid dots) to the destination city (red triangle).

FIGURE 4. FIVE INDICATORS OF POLITICAL FAVORITISM, 2000–2015



Note: The number of politically connected directors dropped dramatically in 2015, as many government officials resigned as independent directors of listed companies after the introduction of “Opinions on Further Regulating the Part-time and Part-time Employment of Party and Government Leading Cadres in Enterprises", issued by the Organization Department of the Central Committee of the Communist Party of China in October 2013. The sample used to generate these figures does not include relocated firms.

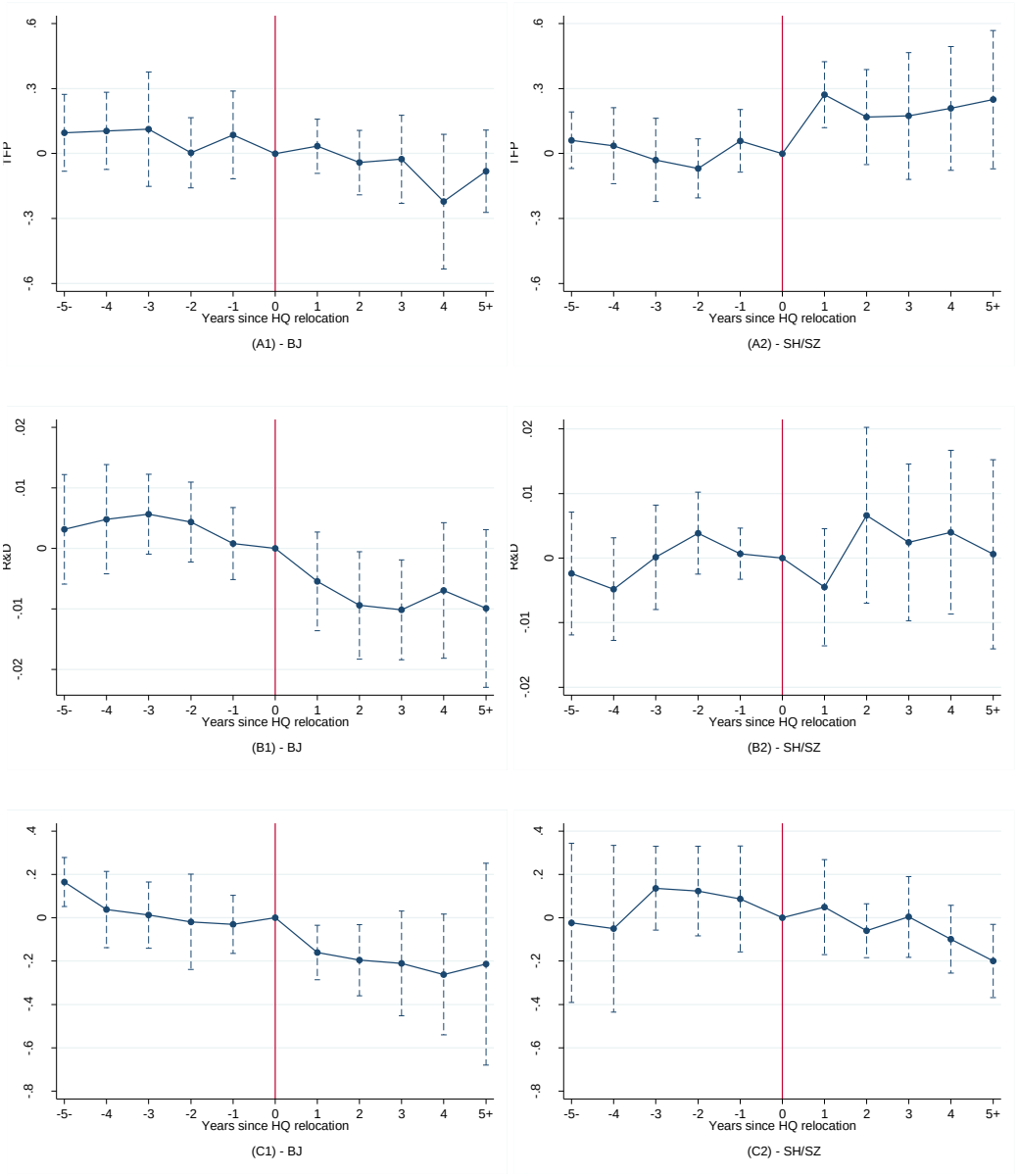
FIGURE 5. DYNAMIC IMPACTS OF HQ RELOCATIONS ON FIRMS' ACCOUNTING AND STOCK PERFORMANCE



Notes: the horizontal axis represents the time relative to the reference year – the year immediately before HQ relocations (red vertical line): "-5-" is the fifth year prior to HQ relocations as well as years before the fifth year; "5+" is the fifth year after HQ relocations as well as years after the fifth year. The plots connected by the solid line show the changes in accounting or stock performance of relocated vs. non-

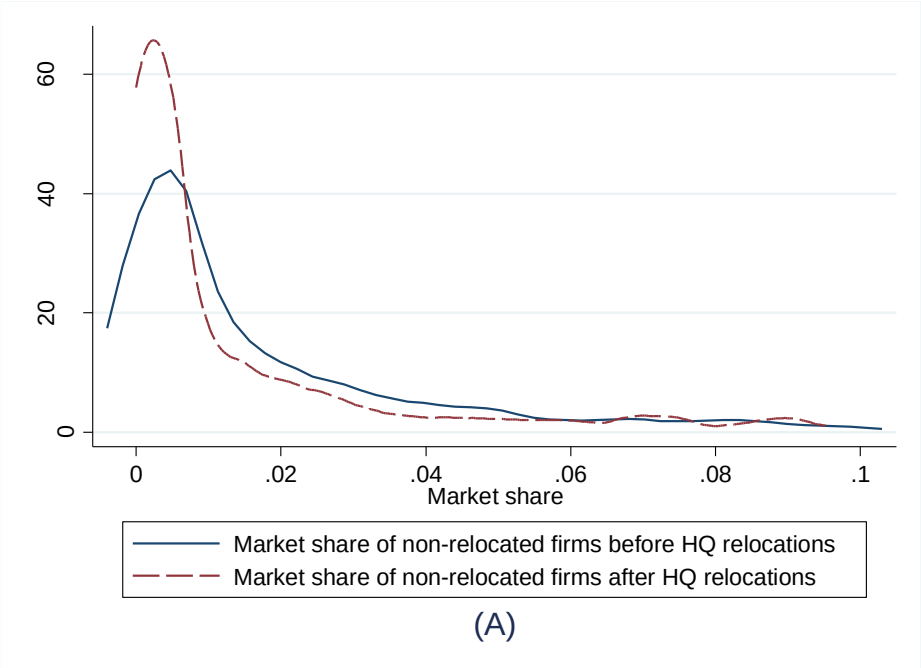
relocated firms (the reference group) relative to the reference year, derived from the propensity-weighted regressions after controlling for firm fixed effects, year fixed effects, and control variables. The dotted line shows the 95% confidence intervals, and standard errors are clustered at the firm level.

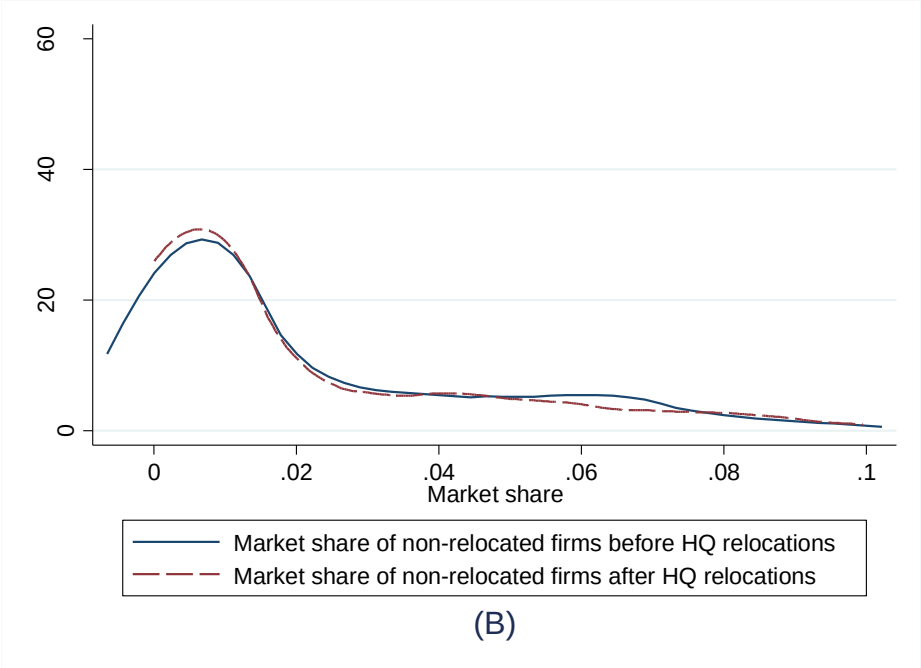
FIGURE 6. DYNAMIC IMPACT OF HQ RELOCATIONS ON FIRMS' SUSTAINABILITY



Notes: the horizontal axis represents the time relative to the reference year – the year immediately before HQ relocations (red vertical line). "-5-" is the fifth year prior to HQ relocations as well as years before the fifth year; "5+" is the fifth year after HQ relocations as well as years after the fifth year. The plots connected by the solid line show the changes in sustainability in relocated vs. non-relocated firms (the reference group) relative to the reference year, derived from the propensity-weighted regressions after controlling for firm fixed effects, year fixed effects, and control variables. The dotted line shows the 95% confidence intervals, and standard errors are clustered at the firm level.

FIGURE 7. MARKET SHARE CHANGES OF RIVAL FIRMS





Note: Figure (A) illustrates the market shares of rival firms to firms that reloated their HQ to Beijing; Figure (B) shows the market shares of rival firms to firms that relocated their HQ to Shanghai/Shenzhen. The solid blue line shows the distribution of market shares before HQ relocations, while the dotted red line shows the distribution after HQ relocations. The figure does not include the segment where the market share is larger than 0.1 and the density is very close to zero.

TABLE 1. SUMMARY STATISTICS

	Mean	Median	Std. Dev.	No. of Obs.	Data source
Panel A: Dependent variables					
Politically connected directors	0.953	1.099	0.603	14,972	A
Regulated sectors	0.088	0.000	0.283	24,027	B
Bank loans	0.104	0.000	0.315	23,158	A
Interest rates	0.073	0.063	0.045	19,485	A, C
Government subsidies	0.010	0.004	0.017	16,370	A
ROE	0.051	0.068	0.163	23,620	A
ROA	0.034	0.033	0.056	23,620	A
ROS	0.111	0.094	0.196	23,437	A
Tobin's Q	2.362	1.925	1.448	23,567	A
TFP	0.000	0.004	0.280	20,019	A
R&D	0.015	0.000	0.025	16,370	A
Patent	0.620	0.000	1.111	24,027	A
Panel B: Key independent variables					
Move to Beijing	0.009		0.096	24,027	A, D
Move to Shanghai/Shenzhen	0.006		0.080	24,027	A, D
Panel C: Control variables					
Second	0.010	0.000	0.100	24,027	D
Size	21.879	21.698	1.389	24,025	A
Leverage	0.489	0.482	0.234	24,025	A
Block	0.378	0.359	0.163	24,027	A
Volatility	0.034	0.028	0.023	23,907	A
FCF	-0.001	0.015	0.120	22,583	A
Age	12.278	12.000	5.618	24,027	A
IPO	0.060	0.000	0.238	24,027	A
MAR	0.046	0.000	0.210	24,027	A

Sources: A. China Securities Market and Accounting Research (CSMAR) database (http://www.gtarsc.com/)
B. RESSET database (http://www.resset.cn/)
C. Wind database (http://www.wind.com.cn/)
D. Manually collected.

Note: To eliminate the impacts of outliers, the following variables are winsorized at the top and bottom 1 percentiles: Bank loans, Interest rates, Government subsidies, ROE, ROA, ROS, Tobin's Q, R&D, and Patent.

TABLE 2. BALANCE TESTS BETWEEN RELOCATED AND NON-RELOCATED FIRMS

Variable	(1) BJ-Control	(2) SH/SZ-Control	(3) BJ-Control (weighted)	(4) SH/SZ-Control (weighted)
Size	-0.556***	-0.652***	-0.027	0.051
	(0.185)	(0.222)	(0.148)	(0.115)
Leverage	0.025	0.033	0.036	0.029
	(0.030)	(0.036)	(0.029)	(0.041)
Block	-0.015	-0.028	-0.001	0.010
	(0.026)	(0.031)	(0.028)	(0.029)
Volatility	-0.003	0.010	-0.008	0.000
	(0.006)	(0.007)	(0.006)	(0.009)
FCF	-0.030	0.047**	-0.032*	-0.009
	(0.017)	(0.020)	(0.019)	(0.022)
Age	-0.010	-1.263	0.335	0.039
	(0.636)	(0.763)*	(0.527)	(0.591)
West	0.055	0.026	0.048	0.030
	(0.049)	(0.059)	(0.059)	(0.068)
Central	0.270***	0.128*	0.001	-0.014
	(0.061)	(0.073)	(0.079)	(0.088)
SOE	-0.081	-0.382***	-0.103	0.020
	(0.078)	(0.093)	(0.078)	(0.060)
HQ count1	-23.175***	-20.383**	0.603	1.120
	(7.286)	(8.783)	(2.527)	(5.595)
HQ count2	-1.733**	-1.636*	0.063	0.086
	(0.808)	(0.975)	(0.265)	(0.737)
ROE	-0.044**	-0.064***	0.003	0.020
	(0.018)	(0.022)	(0.029)	(0.042)
ROA	-0.019***	-0.018***	-0.006	0.008
	(0.007)	(0.008)	(0.008)	(0.008)
ROS	-0.042	-0.084***	-0.007	0.013
	(0.027)	(0.032)	(0.039)	(0.044)
Tobin's Q	0.814***	0.107	0.057	-0.556**
	(0.226)	(0.269)	(0.265)	(0.248)

Note: the variable *West* indicates that the HQ is located in provinces in the western region (Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Ningxia, Qinghai, and Xinjiang), *Central* indicates that the HQ is located in provinces in central region (Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, Hunan, and Inner Mongolia). All variables are measured in 2000. When a firm did not go public before 2000, we use the average of the first two year since IPO. * significant at 10%, ** significant at 5%, *** significant at 1%.

TABLE 3. IMPACTS OF HQ RELOCATIONS ON FIRMS' POLITICAL FAVORS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Beijing subsample					Shanghai/Shenzhen subsample				
	Politically connected directors	Regulated sectors	Bank loans	Interest rates	Government subsidies	Politically connected directors	Regulated sectors	Bank loans	Interest rates	Government subsidies
Move	0.175*	0.088**	0.093*	-0.048**	0.008	0.064	0.003	-0.036	-0.003	0.002
	(0.097)	(0.044)	(0.049)	(0.022)	(0.005)	(0.126)	(0.008)	(0.030)	(0.021)	(0.005)
Second	0.322**	-0.065**	0.226	0.015	-0.005	0.126	0.002	0.033	-0.041	0.011
	(0.154)	(0.032)	(0.140)	(0.030)	(0.005)	(0.226)	(0.005)	(0.071)	(0.043)	(0.009)
Constant	0.865***	0.041***	0.023	0.083***	0.007***	0.876***	0.024***	-0.007	0.067*	0.008***
	(0.040)	(0.009)	(0.025)	(0.008)	(0.002)	(0.042)	(0.006)	(0.033)	(0.007)	(0.003)
Obs.	11,564	19,039	18,521	15,653	12,648	9,221	14,673	14,249	11,917	10,062
R^2	0.131	0.064	0.142	0.026	0.030	0.170	0.001	0.111	0.056	0.036
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: due to data limitations, data in Column (1) and (6) starts in 2008; data in Columns (2)–(4) and (7)–(9) starts in 2000; and data in Column (5) and (10) starts in 2007. Standard errors clustered at the firm level are shown in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

TABLE 4. IMPACTS OF HQ RELOCATIONS ON FIRMS' ACCOUNTING AND STOCK PERFORMANCE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Beijing subsample				Shanghai/Shenzhen subsample			
	ROE	ROA	ROS	Tobin's Q	ROE	ROA	ROS	Tobin's Q
Move	0.060**	0.019**	0.076**	0.208	0.129***	0.050***	0.115**	0.907***
	(0.026)	(0.009)	(0.038)	(0.143)	(0.044)	(0.016)	(0.045)	(0.340)
Second	-0.019	-0.014	-0.011	0.131	-0.044	-0.023	0.105	-0.395
	(0.049)	(0.014)	(0.046)	(0.417)	(0.064)	(0.023)	(0.075)	(0.342)
Size	0.058***	0.011***	0.055***	-1.180***	0.035**	0.006	0.007	-0.872***
	(0.012)	(0.003)	(0.018)	(0.104)	(0.015)	(0.005)	(0.018)	(0.135)
Leverage	-0.471***	-0.123***	-0.343***	0.221	-0.362***	-0.108***	-0.182*	-0.363
	(0.063)	(0.015)	(0.061)	(0.334)	(0.081)	(0.026)	(0.100)	(0.385)
Block	0.040	0.019	0.097	-0.416	0.245**	0.098***	0.150	0.342
	(0.077)	(0.024)	(0.094)	(0.682)	(0.099)	(0.027)	(0.117)	(0.752)
Volatility	0.899**	0.262*	1.354***	15.955***	1.880***	0.568*	2.834**	15.355***
	(0.379)	(0.149)	(0.339)	(2.954)	(0.630)	(0.337)	(1.437)	(5.788)
FCF	0.152***	0.031*	0.098	0.081	-0.011	0.001	-0.008	-0.579***
	(0.056)	(0.017)	(0.079)	(0.278)	(0.058)	(0.017)	(0.076)	(0.219)
Age	-0.004*	-0.002**	-0.007*	0.026*	-0.001	-0.001	-0.004	0.026
	(0.002)	(0.001)	(0.004)	(0.016)	(0.004)	(0.001)	(0.004)	(0.021)
IPO	0.010	0.015*	0.021	-0.085	-0.097***	-0.020	-0.104	-0.447*
	(0.029)	(0.008)	(0.037)	(0.181)	(0.036)	(0.016)	(0.070)	(0.267)
MAR	0.031	0.009	0.032	0.327**	0.043	0.011	0.048*	0.079
	(0.026)	(0.008)	(0.041)	(0.140)	(0.032)	(0.013)	(0.028)	(0.228)
Constant	-1.009***	-0.161**	-0.950***	28.202***	-0.779**	-0.117	-0.171	21.545***
	(0.243)	(0.067)	(0.320)	(2.177)	(0.327)	(0.104)	(0.362)	(2.656)
Obs.	17,789	17,789	17,781	17,789	13,561	13,561	13,555	13,561
R^2	0.145	0.130	0.092	0.541	0.171	0.183	0.138	0.517
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Note: standard errors clustered at the firm level are shown in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

TABLE 5. IMPACTS OF HQ RELOCATIONS ON FIRMS' SUSTAINABILITY

	(1)	(2)	(3)	(4)	(5)	(6)
	Beijing subsample			Shanghai/Shenzhen subsample		
	TFP	R&D	Patent	TFP	R&D	Patent
Move	-0.100*	-0.009***	-0.229***	0.226***	-0.000	-0.065
	(0.057)	(0.003)	(0.085)	(0.069)	(0.004)	(0.088)
Second	-0.050	0.015	-0.159**	-0.153	-0.012***	-0.218**
	(0.120)	(0.014)	(0.070)	(0.131)	(0.002)	(0.090)
Size	-0.013	0.003**	0.042**	0.011	-0.001	0.064*
	(0.026)	(0.001)	(0.021)	(0.026)	(0.001)	(0.035)
Leverage	-0.192**	-0.018**	-0.024	-0.237	0.003	0.224***
	(0.084)	(0.008)	(0.052)	(0.188)	(0.003)	(0.073)
Block	0.284**	-0.014	-0.085	0.230	0.004	-0.710***
	(0.136)	(0.009)	(0.127)	(0.203)	(0.008)	(0.265)
Volatility	-0.110	-0.050	0.388	-0.016	0.024	-0.989
	(0.983)	(0.044)	(0.546)	(0.563)	(0.030)	(0.904)
FCF	0.311***	0.008*	-0.019	0.084	0.001	-0.055
	(0.078)	(0.005)	(0.054)	(0.070)	(0.004)	(0.126)
Age	0.007	0.002***	0.021***	0.001	0.003***	0.015***
	(0.005)	(0.000)	(0.005)	(0.006)	(0.000)	(0.005)
IPO	0.045	0.006	-0.001	-0.096*	-0.004	-0.174
	(0.078)	(0.005)	(0.152)	(0.051)	(0.004)	(0.141)
MAR	0.017	0.002	-0.118**	0.040	-0.003*	-0.128**
	(0.038)	(0.003)	(0.052)	(0.038)	(0.002)	(0.052)
Constant	0.171	-0.062**	-0.809**	-0.261	-0.011	-0.994
	(0.508)	(0.024)	(0.384)	(0.520)	(0.015)	(0.666)
Obs.	15,451	12,169	18,072	11,642	9,595	13,822
R^2	0.067	0.225	0.092	0.100	0.190	0.138
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

Note: standard errors clustered at the firm level are shown in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

TABLE 6. SUBSAMPLE RESULTS OF HIGHLY POLITICALLY MOTIVATED HQ RELOCATIONS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Beijing subsample						
	ROE	ROA	ROS	Tobin's Q	TFP	R&D	Patent
Move	0.056**	0.019*	0.080*	0.114	-0.092*	-0.011***	-0.228**
	(0.028)	(0.010)	(0.044)	(0.145)	(0.055)	(0.003)	(0.093)
Second	-0.039	-0.020	-0.016	0.164	-0.067	0.022	-0.198***
	(0.050)	(0.014)	(0.050)	(0.466)	(0.141)	(0.017)	(0.075)
Size	0.062***	0.013***	0.059***	-1.170***	-0.021	0.003**	0.046*
	(0.013)	(0.003)	(0.019)	(0.113)	(0.028)	(0.001)	(0.025)
Leverage	-0.507***	-0.127***	-0.359***	0.284	-0.203**	-0.020**	-0.048
	(0.072)	(0.016)	(0.070)	(0.391)	(0.100)	(0.008)	(0.059)
Block	0.043	0.017	0.064	-0.424	0.391***	-0.011	-0.079
	(0.073)	(0.025)	(0.097)	(0.723)	(0.143)	(0.009)	(0.157)
Volatility	1.094***	0.396***	1.394***	19.505***	1.149**	-0.055	0.326
	(0.343)	(0.142)	(0.439)	(3.922)	(0.563)	(0.054)	(0.642)
FCF	0.180***	0.038**	0.135	0.100	0.275***	0.007	-0.001
	(0.062)	(0.018)	(0.088)	(0.327)	(0.084)	(0.005)	(0.062)
Age	-0.006**	-0.002***	-0.010**	0.039**	0.007	0.002***	0.027***
	(0.003)	(0.001)	(0.004)	(0.018)	(0.006)	(0.000)	(0.007)
IPO	0.016	0.013	0.029	-0.107	0.008	0.005	0.024
	(0.032)	(0.009)	(0.042)	(0.213)	(0.096)	(0.005)	(0.157)
MAR	0.026	0.007	0.027	0.365**	0.034	0.002	-0.099*
	(0.031)	(0.010)	(0.050)	(0.174)	(0.045)	(0.004)	(0.052)
Constant	-1.082***	-0.187***	-0.989***	27.576***	0.286	-0.069**	-0.938**
	(0.256)	(0.067)	(0.354)	(2.396)	(0.536)	(0.027)	(0.471)
Obs.	13,933	13,933	13,929	13,933	12,405	9,703	14,139
R^2	0.167	0.147	0.108	0.545	0.088	0.259	0.102
Firm FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES

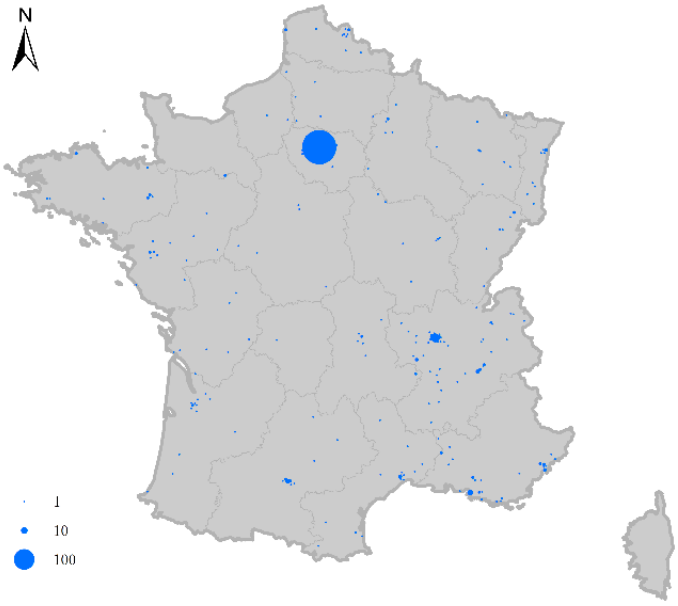
Note: standard errors clustered at the firm level are shown in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

TABLE 7. IMPACTS OF HQ RELOCATIONS ON INDUSTRIES' MONOPOLY LEVELS

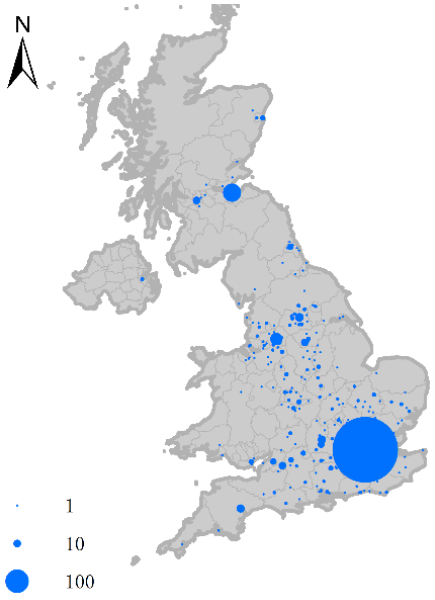
	(1)	(2)	(3)	(4)
	Dependent variable: Herfindahl Index			
Number of HQ relocations to Beijing	0.012*	0.015*		
	(0.007)	(0.008)		
Number of HQ relocations to Shanghai/Shenzhen			-0.002	0.006
			(0.007)	(0.008)
Number of firms	-0.080*	-0.018	-0.048	0.014
	(0.045)	(0.057)	(0.038)	(0.053)
Obs.	336	336	336	336
R^2	0.028	0.101	0.019	0.086
Industry FE	NO	YES	NO	YES
Year FE	NO	YES	NO	YES

Note: the dependent variable is the annual Herfindahl Index for each industry. The number of HQ relocations is the number of firms that had relocated their HQ to Beijing or Shanghai/Shenzhen as of year *t* within an industry. The number of firms refers to the number of listed companies in each industry during that year. Standard errors clustered at the industry level are shown in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

Appendix A: The Spatial Distribution of Listed Companies in France, the United Kingdom, and Russia



(A) France



(B) United Kingdom

(C) Russia

Note: in these three countries the political and economic centers coincide, and the share of the listed companies in the capital city far exceeds that in the city with the second-largest number. Up to the end of 2015, there were a total 798 listed companies in France, of which 276 firms (34.6%) had their HQ in Paris, and Lyon – the city with the second-largest number of listed companies – hosted only 19 HQ (2.4%). Of the 1,665 listed companies in the UK, 768 firms (46.1%) located their HQ in London, and 61(3.7%) in Edinburgh, the city with the second-largest number. Of the 899 listed companies in Russia, 188 firms (20.9%) had their HQ in Moscow, and Novosibirsk hosted 19 (2.1%). In comparison, the rank of the Chinese cities by the number of listed companies' HQ are: Beijing (261 firms, 9.4% of total), Shanghai (218, 7.8%) and Shenzhen (199, 7.2%).
Data source: Osiris database (https://osiris.bvdinfo.com)

Appendix B: Graphic Description of the Measures of Corporate Performance

Figure B-1 Accounting Performance of Listed Companies in China, 2000–2015

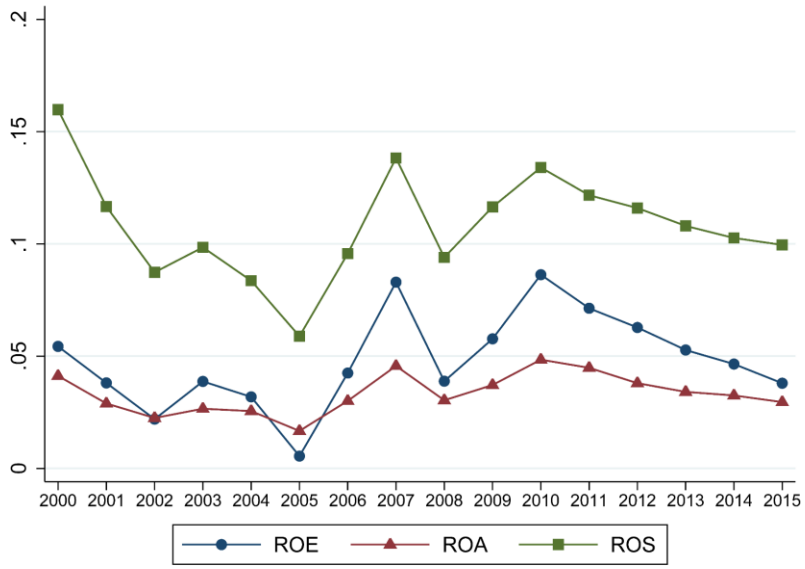
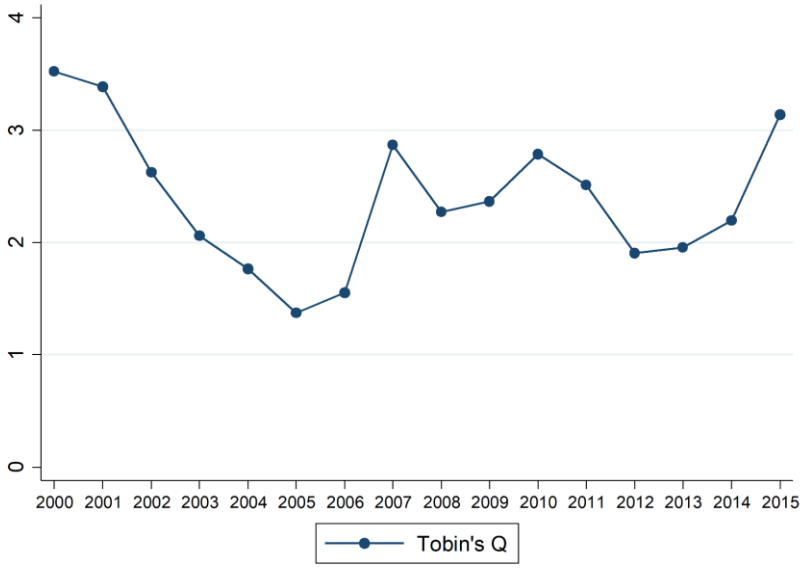


Figure B-2 Market Performance of Listed Companies in China, 2000–2015



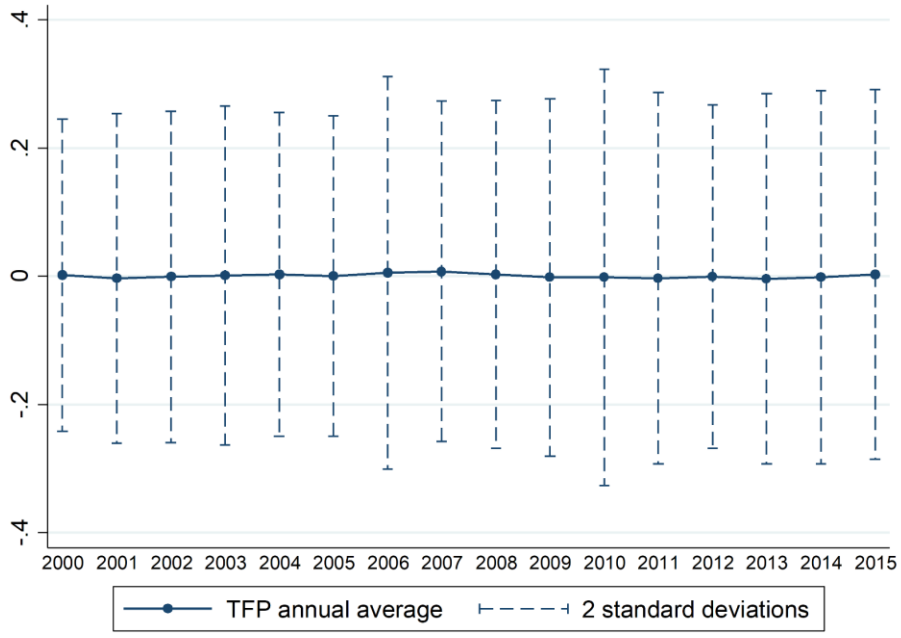
Appendix C: TFP Estimation Method

We utilize the classic log-linear Cobb-Douglas production function to calculate the TFP of the listed companies. Specifically, TFP is the estimated residual of the following equation:

$$y_{ijt} = \alpha_{jt} + \beta_{jt} l_{ijt} + \gamma_{jt} k_{ijt} + \delta_{jt} m_{ijt} + \epsilon_{ijt}$$

where y_{ijt} denotes the logarithm of the total output of firm *i* in sector *j* in year *t*; *l*, *k*, *m* are the logarithm of labor, capital, and material inputs, respectively. The residual term $\widehat{\epsilon_{ijt}}$ is the TFP of the focal firm. To allow for different factor intensities across industries and years, we estimate the equation by industry and year. Thus, our TFP estimates indicate the deviation of the individual deviation from the average factor productivity within its industry in a given year. As suggested in Giannetti *et al.* (2015), we use the 'sales of goods and services', 'number of employers', 'total assets', 'cash payments for raw materials and service' in the annual reports of the listed companies to proxy for *y*, *l*, *k*, *m* in the equation. All the data used for the TFP estimation comes from the CSMAR database.

Figure C TFP of Listed Companies in China, 2000–2015



Appendix D: Estimation of the Propensity Score

We use a *logit* model to estimate each firm' propensity score (i.e. probability) of relocating its HQ. The variables used for prediction are those showing significant differences between relocated and non-relocated firms in Table 2. All variables are measured in 2000; when a firm did not go public before 2000 we use the average of first two years since IPO. The dependent variable is a dummy indicating whether the firm relocated its HQ during 2000–2015. Table D-1 presents the estimation results. The sample in Column (1) includes firms that relocated their HQ to Beijing and non-relocated firms; the sample in Column (2) includes firms that relocated their HQ to Shanghai/Shenzhen and non-relocated firms. The fitted values p obtained from the two regression models are the propensity scores of moving HQ to Beijing or Shanghai/Shenzhen, respectively. Figures D1 and D2 demonstrate the corresponding distribution of the estimated propensity scores in each subsample. For each subsample, firms that are not in the common support (outside the zone delimitated by the two red lines) are dropped. We estimate the specifications of interest with weights equal to 1 for the relocated firms and $p/(1-p)$ for non-relocated firms.

Table D-1 Logit Models of the Probability of Relocating Corporate HQ, 2000–2015

	(1)	(2)
	Beijing subsample	Shanghai/Shenzhen
Size	-0.353	-0.665**
	(0.252)	(0.315)
FCF		3.811*
		(1.983)
Age		-0.126**
		(0.061)
Central	1.085***	0.725*
	(0.332)	(0.434)
SOE		-2.264***
		(0.625)
	-0.020	-0.009
	(0.013)	(0.011)
	0.019	-0.034
	(0.096)	(0.095)
ROA	-6.947***	-7.822**
	(2.559)	(3.319)
Tobin's Q	0.232**	
	(0.098)	
Constant	3.244	11.575*
	(5.454)	(6.547)
Obs.	1,806	1,793

Note: * significant at 10%, ** significant at 5%, *** significant at 1%.

Figure D-1 Distribution of the Estimated Propensity Scores in Beijing Subsample

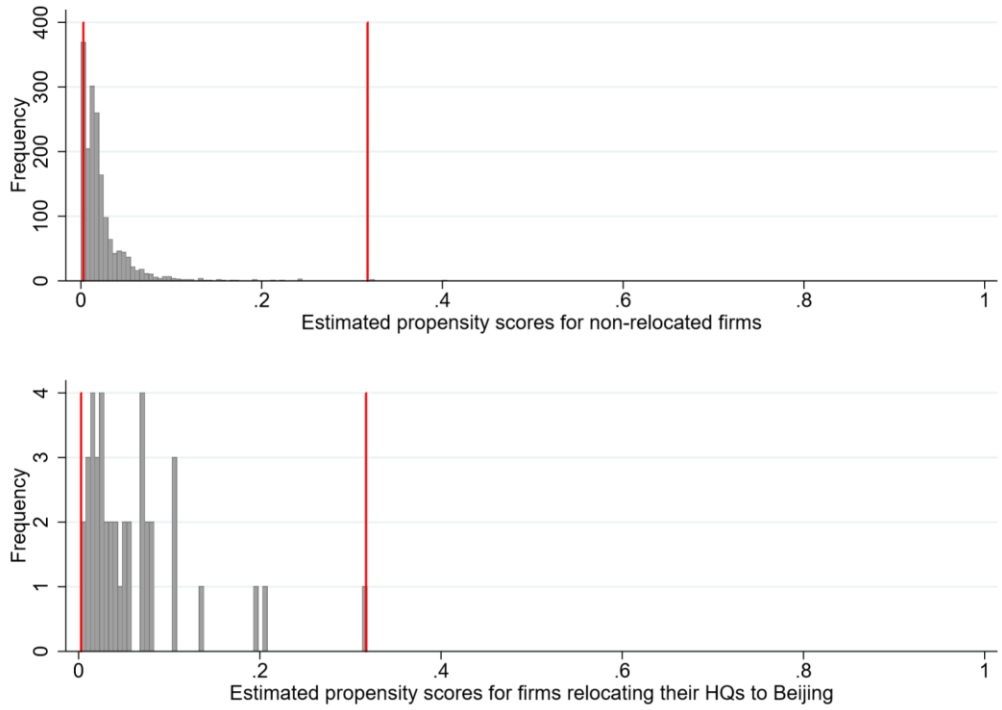
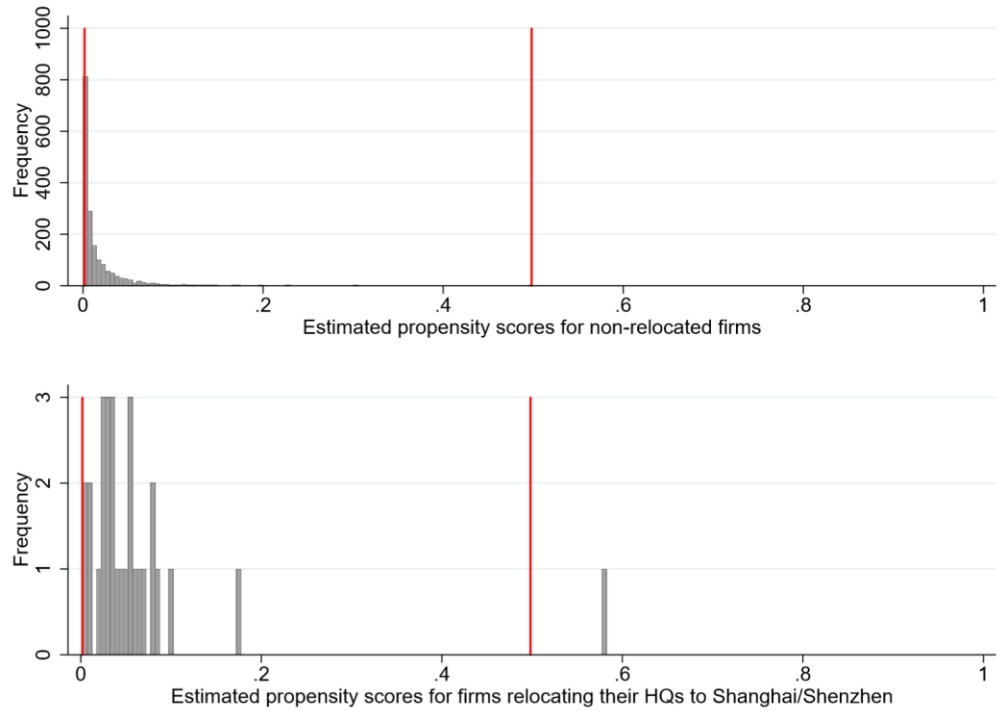


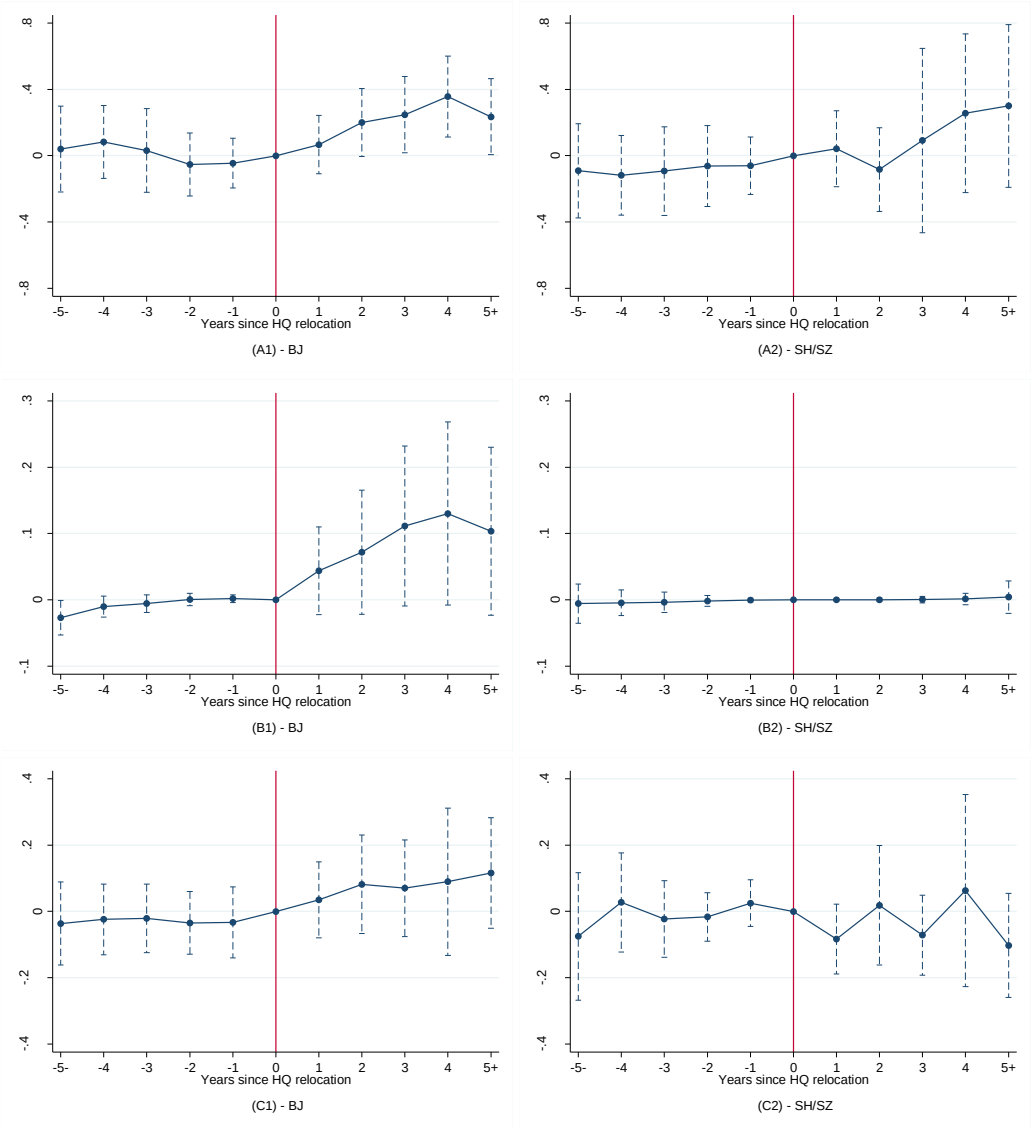
Figure D-2 Distribution of the Estimated Propensity Scores in Shanghai/Shenzhen Subsample

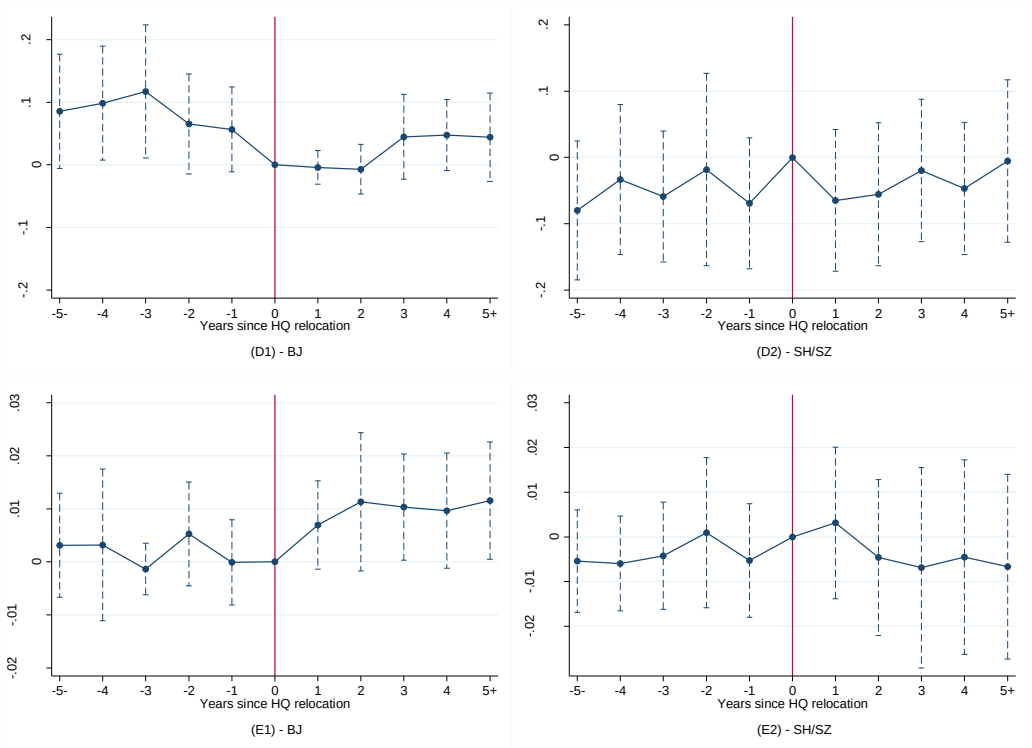


Appendix E: Dynamic Impacts of HQ Relocations on Political Favors

It can be observed from the charts below that the estimated coefficients $\widehat{\beta_k}(k < 0)$ are close to zero and insignificant, indicating that before the relocations there were no systematic differences between relocated and non-relocated firms in terms of obtained political favors. This means that the estimates in Table 3 are not affected by different pre-trends.

Figure E Dynamic Impact of HQ Relocation on Firms' Political Favoritism





Notes: the horizontal axis represents the time relative to the reference year – the year immediately before HQ relocations (red vertical line). "-5-" is the fifth year prior to HQ relocations as well as years before the fifth year; "5+" is the fifth year after HQ relocations as well as years after the fifth year. The plots connected by the solid line show the changes in political favoritism between relocated and non-relocated firms (the reference group) relative to the reference year, which is derived from the propensity-weighted regressions after controlling for firm fixed effects, year fixed effects, and repeated relocations afterwards. The dotted line shows the 95% confidence intervals, and standard errors are clustered at the firm level.

Appendix F: Impact of Relocation Distance on Efficiency

This table introduces the interaction between the HQ relocation variable *Move* and the demeaned relocation distance, based on Column (1) of Table 5. The equation is as follows:

$$TFP_{i,t} = \alpha_0 + \beta Move_{i,t} + \beta' Move_{i,t} * (Distance_i - \overline{Distance}) + \gamma X'_{i,t} + \varphi_i + \delta_t + \varepsilon_{i,t}.$$

where $\overline{Distance}$ is the mean relocation distance of relocated firms in each subsample.

Table F Impact of Relocation Distance on TFP

	(1) Beijing subsample	(2) Shanghai/Shenzhen subsample
Move	-0.095*	0.227***
	(0.056)	(0.068)
$Move * (Distance_i - \overline{Distance})$	-9.979e-5	-5.558e-5
	(10.444e-5)	(4.189e-5)
Second	-0.033	-0.160
	(0.124)	(0.125)
Size	-0.012	0.009
	(0.025)	(0.027)
Leverage	-0.191**	-0.240
	(0.084)	(0.190)
Block	0.278**	0.217
	(0.136)	(0.199)
Volatility	-0.085	-0.185
	(0.986)	(0.562)
FCF	0.313***	0.092
	(0.079)	(0.072)
Age	0.007	0.002
	(0.005)	(0.006)
IPO	0.060	-0.087
	(0.070)	(0.053)
MAR	0.018	0.042
	(0.037)	(0.037)
Constant	0.153	-0.217
	(0.489)	(0.531)
Obs.	15,451	11,642
R^2	0.070	0.102
Firm FE	YES	YES
Year FE	YES	YES

Note: standard errors clustered at the firm level are shown in parentheses. * significant at 10%, ** significant at 5%, *** significant at 1%.

Appendix G: Remove the Impact of Beijing as an Economic Center

We generate a composite index based on five measures of political favors to identify industries within which firms are more likely to relocate their HQ to obtain political favors, rather than to benefit from the economic advantages in Beijing. As variables of different units cannot be added directly, we first standardize the five variables with their standard deviations (we take the inverse number for interest rates because a lower interest rate means a stronger political bias) before calculating the sum of the five measures for every industry, and then obtain the difference between the sums of measures in Beijing and in Shanghai/Shenzhen for every industry. If the difference (the composite index) is greater than zero, this industry enjoys more political favors in Beijing than in Shanghai/Shenzhen and thus is classified as a high political favoritism industry. Figure G-1 presents the composite index of each industry.

Figure G: Differences in Political Favors between Beijing and Shanghai/Shenzhen, by Industry