

Spillover Effects from Peers in Local Markets and International Acquisitions: Evidence from China

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Abstract

This paper studies spillover effects from peer firms in local markets and international acquisitions. The main analysis examines whether institutional reform that weakens dominant state-owned enterprises (SOEs) indirectly affect investment by privately owned enterprises (POEs) in China. We study such a change using China's 2016 supply-side structural reform. This provides quasi-experimental variation in exposure to shifts in dominant state-owned enterprises' (SOEs') expansion capacity. We use cross-industry differences in pre-reform SOE prevalence as exposure and implement a difference-in-differences design to identify the causal effect of reform-induced changes in competitive conditions on investment by privately-owned enterprises (POEs). In the post-reform period, we find a divergent trend in relative capital expenditure levels of POEs in industries with a high SOE prevalence compared to those with a low SOE prevalence. We show that these effects are driven by changes in competitive pressure from SOEs rather than changes in financing channels. These spillover effects are more pronounced in non-politically connected POEs. As a complementary extension, we examine Chinese cross border acquisitions and firm level spillovers in host country industries. Using 720 Chinese majority acquisitions across 42 host countries from 2000 to 2023, we find that acquisition exposure is associated with higher profitability and lower selling, general, and administrative expenses among non-target firms, but also with lower R&D intensity and Tobin's Q. These effects are concentrated in advanced host countries and are stronger when Chinese acquirers originate from industries with higher investment intensity, asset utilization efficiency, or product market concentration. The findings show that changes in the institutional or ownership position of important peer firms can affect untreated rivals through competitive spillovers.

Keywords: Spillover Effect, Imperfect Competition, Political Connection, Supply-Side Structural Reform, Chinese Cross-Border Acquisitions

1. Introduction

Firms do not make strategic decisions in isolation. Their investment, operating policies, and market valuation are shaped not only by their own resources and shocks, but also by changes affecting peer firms in the same market. Prior research shows that firms respond to peer actions, peer financial policies, ownership changes, and competitive shocks (Leary and Roberts, 2014; Berg et al., 2021; Naaraayanan and Wolfenzon, 2024). These spillovers are especially important under imperfect competition, where the institutional position, ownership structure, and competitive capacity of important peer firms can reshape the market environment faced by untreated rivals.

This paper studies spillover effects on peer firms in two China related settings. The main analysis focuses on local product markets in China, where state-owned enterprises (SOEs) and privately-owned enterprises (POEs) compete within the same industries. In this setting, China's 2016 supply-side structural reform provides a quasi-experimental shock to the expansion capacity of dominant SOEs. We use this setting to examine whether changes in SOE dominance affect investment by POE rivals. We then provide a short extension using Chinese cross-border acquisitions. This extension does not rely on the SOE POE mechanism. Instead, it examines a related form of peer spillover in which an ownership transfer transforms an existing local target firm in a foreign host country and affects non-target firms in the same host country industry. The two settings therefore do not share the same institutional channel. They share a broader economic logic: when the competitive position of important peer firms changes, untreated rivals may adjust their decisions.

The local market setting provides the core identification and mechanism evidence of the paper. State intervention can distort industrial competition by providing dominant firms with persistent advantages that rivals are unable to replicate. These advantages are conferred by the institutional environment rather than obtained through efficiency or productivity. They may

arise from regulatory protection, implicit guarantees, soft budget constraints, preferential access to credit, or privileged access to state-controlled resources. Similar institutionally supported advantages have been documented across a wide range of economies (Acharya et al., 2021; Gandhi et al., 2020; Koch et al., 2021). When such advantages persist, dominant firms can sustain market positions that would be harder to maintain under neutral competition, and rivals may face constrained market space, weaker investment opportunities, and lower incentives to expand.

State ownership provides a canonical setting for examining this mechanism. In many economies, SOEs occupy strategically important positions and receive support that is tied directly to ownership. These ownership-based advantages make the source of dominance more observable than in settings where favoritism operates through informal channels. In China, SOEs have been incorporated into market competition, yet ownership-based advantages remain embedded in credit allocation, regulatory support, implicit guarantees, and access to state-controlled resources (Allen et al., 2005; Bai et al., 2004; Chen et al., 2011; Cull and Xu, 2005; Song et al., 2011). POEs operate in the same product, factor, and financing markets, but they do not receive the same support. As a result, POEs may face persistent structural disadvantages in both product and capital markets (An et al., 2016; Cong et al., 2019; Cull et al., 2015; Firth et al., 2012; Hu et al., 2024).

Prior research documents that SOE dominance can crowd-out private sector activity. SOEs may absorb financial resources, maintain inefficient capacity, and weaken the allocation of capital toward more productive firms (Huang et al., 2020; Ouyang, 2024; Ru, 2018). These studies provide important evidence on the consequences of persistent state favoritism. However, they largely treat the institutional environment as fixed. The documented spillover effects are therefore equilibrium outcomes under stable SOE advantages. A central unresolved question is whether these spillovers change when the institutional environment itself changes. When

reforms weaken the expansion capacity of dominant SOEs, do private rivals simply experience less crowding out, or does the competitive environment shift in a way that alters their investment behavior?

China provides an ideal setting for examining this question. First, Chinese SOEs occupy a unique position in market competition. The principle of competitive neutrality requires that state-ownership not confer net competitive advantages over POE rivals. China is informative because its SOEs have been largely incorporated into market competition, yet ownership-based advantages remain embedded in credit allocation, policy support, and access to state-controlled resources (Allen et al., 2005; Chen et al., 2011; Cong et al., 2019; Cull et al., 2015; Ru, 2018). Because SOEs are prevalent in the Chinese economy, these advantages are not isolated departures from competitive neutrality. They create a structurally uneven competitive environment, and they allow us to examine how POEs respond when that structure changes. Second, this form of imperfect competition is not confined to a narrow set of public utility or network industries. In many economies, SOEs are concentrated in utilities, transport, energy, and finance, where state ownership is often linked to public service obligations or network industry features (OECD, 2017). China differs because SOEs and POEs coexist across a broader set of industries, placing institutionally advantaged SOEs and private rivals in the same local markets. Third, POEs provide an active margin for observing responses to changes in competitive conditions. Although POEs lack ownership-based advantages, they are widely viewed as a dynamic and market-oriented segment of the Chinese economy (Huang et al., 2020). Their investment decisions therefore provide a natural outcome for examining whether changes in SOE advantages reshape rival firm behavior.

We study this issue using China's 2016 supply side structural reform as a quasi-experimental shock to SOEs' expansion capacity. The reform aimed to reduce overcapacity, deleverage firms, cut corporate costs, and promote productivity upgrading. For our setting, the

deleveraging component is especially relevant because China's corporate financing system has historically been dominated by bank-based financing, and SOEs have benefited disproportionately from this institutional structure (Allen et al., 2005; Ayyagari et al., 2010; He et al., 2013; Jiang et al., 2020). SOEs' perceived lower risk, political roles, and implicit guarantees have helped them obtain preferential access to capital from state-controlled banks (Chen et al., 2011; Cong et al., 2019; Firth et al., 2008; Ru, 2018). By imposing greater financing discipline and reducing tolerance for excessive leverage, the reform weakened SOEs' ability to sustain pre reform expansion. If SOE dominance had constrained POE investment opportunities before the reform, POEs in industries with higher pre reform SOE prevalence should respond more strongly after the reform.

This prediction is consistent with the view that corporate investment depends not only on financing capacity, but also on expected profitability, market demand, and rivals' strategic behavior (Modigliani and Miller, 1958; Stein, 2003; Aguerrevere, 2009; Akdoğu and MacKay, 2012; Frésard and Valta, 2016). In industries with high SOE prevalence, institutionally protected SOEs may sustain capacity and market shares despite weak profitability, thereby reducing the effectiveness of market-based reallocation (Chen et al., 2011; Firth et al., 2012; Song et al., 2011). When the reform weakens SOEs' expansion capacity, competitive pressure from SOEs should decline more strongly in these industries. POEs may then face improved investment opportunities and respond by increasing capital expenditure.

To test this prediction, we use a panel of Chinese non-financial A share listed firms from 2013 to 2019. We classify firms as SOEs or POEs based on the nature of their ultimate controlling shareholder, following the ownership classification logic used in prior studies of Chinese SOEs and POEs (Chen et al., 2011; Ru, 2018). We measure industry level exposure using pre reform SOE asset shares in 2015 and define high SOE prevalence industries as those in the top quartile of the distribution. Following the spillover framework in Berg et al. (2021),

our difference in differences design compares changes in POE investment before and after the reform between high and low SOE prevalence industries. This design holds firm ownership constant and uses predetermined industry level exposure to identify spillover effects from changes in SOEs' competitive position rather than direct ownership effects.

We find that POEs in high SOE prevalence industries increase investment by 2.2 percentage points more than POEs in low SOE prevalence industries after the reform. This magnitude is economically meaningful relative to the average POE investment rate. The result indicates that the investment response to the reform is not uniform across private firms. Instead, it varies systematically with pre reform exposure to SOE dominance. Dynamic specifications following Beck et al. (2010) and Naaraayanan and Wolfenzon (2024) show no differential pre reform investment trends between POEs in high and low SOE prevalence industries, supporting the parallel trends assumption. Permutation placebo tests following Alpert et al. (2022) further show that the estimated effect is unlikely to be generated by random treatment assignment or confounded unobserved shocks.

We provide evidence that the effect operates through product market competition rather than direct financing reallocation. A natural alternative explanation is that POEs in high SOE prevalence industries may have received more financing after the reform, which could mechanically increase investment. This concern is important because financing capacity is a central determinant of corporate investment (Hennessy et al., 2007; Khwaja and Mian, 2008; Lewellen and Lewellen, 2016; Moyen, 2004). We examine this possibility using several financing measures, including net debt financing, bank loans, bond financing, equity financing, and internal cash flow. We find no evidence that POEs in high SOE prevalence industries experienced differential improvements in financing conditions after the reform. This pattern suggests that the baseline investment response is unlikely to be driven by a direct supply side reallocation of capital toward POEs.

We then examine SOE related market concentration. Industries with higher pre-reform SOE prevalence experience a larger post reform decline in SOE based concentration, suggesting that SOEs' product market dominance weakened more strongly in these industries. This pattern is consistent with a competition-based spillover mechanism. When the reform constrained SOEs' ability to sustain expansion, competitive pressure from SOEs declined more in industries where SOEs had previously been more prevalent. POEs in these industries then faced improved investment opportunities and responded by increasing investment. We further conduct a set of horse race regression tests to address alternative explanations. The estimated spillover effect remains robust after accounting for exposure to other SSSR pillars, regional SOE concentration, alternative pre reform measures of SOE prevalence, and pre-reform industry concentration. We also use the anti-corruption campaign as an alternative policy shock and find no similar SOE spillover pattern before the SSSR. Finally, we show that the effect is not driven by POE side industry exposure. These tests support the interpretation that the identified spillover effect arises from reform induced changes in SOEs' competitive position rather than from other reform components, prior or contemporaneous policies, spatial dynamics, pre reform competition, or POE side exposure.

We further examine heterogeneity across POEs by focusing on political connections. Political connections may help private firms obtain resources, reduce financing frictions, and access policy information. This view is consistent with resource dependence theory and evidence that politically connected firms can gain access to critical resources in interventionist environments (Pfeffer, 1972; Boyd, 1990; Faccio, 2006; Hillman, 2005; Chen et al., 2011; Liu et al., 2021a). Politically connected firms may also benefit from preferential access to bank credit and government related resources (Li et al., 2008; Chang et al., 2021; Ding et al., 2023). At the same time, political connections may reduce market responsiveness, expose firms to political objectives, and weaken managerial incentives to adjust to changing competitive

conditions. This tradeoff is consistent with evidence that political connections can impose constraints as well as benefits (Fan et al., 2007; Fan et al., 2013; Schweizer et al., 2019).

We identify politically connected POEs using top executives' prior government experience from curriculum vitae data, following the common approach of measuring political connections through senior executives' political backgrounds (Faccio, 2006; Chen et al., 2011; Liu et al., 2021a). The investment response is concentrated among non-politically connected POEs. Politically connected POEs do not experience a significantly stronger response. This pattern suggests that political connections do not help POEs capture the spillover benefits generated by weakened SOE dominance. Instead, firms more exposed to market incentives appear more responsive to reform induced changes in competitive conditions. This finding is consistent with the political connection trade off theory, which emphasizes that political ties may generate both benefits and constraints (Schweizer et al., 2019).

We include a short extension to connect the local market evidence to the broader theme of peer spillovers. The extension examines Chinese cross border acquisitions. This setting differs from the SOE POE setting because the source of change is not institutional reform or state ownership. Instead, the relevant change is an ownership transfer. Cross border acquisitions differ from other forms of foreign entry because they transfer control over an existing local firm. By changing control rights, acquisitions can connect the target to the acquirer's resources, financing structure, operating practices, sourcing network, and strategic priorities (Bresman et al., 1999; Fee et al., 2009; Meyer et al., 2020). Non target firms in the same host country industry do not receive direct inputs from the Chinese acquirer, but they may face the competitive consequences of a transformed local peer.

China provides a useful setting for this extension because Chinese outward foreign direct investment has grown rapidly over the past two decades, and Chinese firms have become increasingly active in cross border acquisitions (Buckley et al., 2018; Gaur et al., 2018; Lu et

al., 2014). Prior research shows that foreign entry and cross border acquisitions can affect firms beyond the directly treated target through productivity, governance, and competitive spillovers (Aitken and Harrison, 1999; Javorcik, 2004; Albuquerque et al., 2019; Servaes and Tamayo, 2014; Yilmaz, 2024). Using Chinese majority acquisitions from 2000 to 2023, the extension examines whether acquisition exposure affects non target firms operating in the same host country industries as acquired targets. The evidence shows that exposure to Chinese acquisitions is associated with changes in profitability, operating costs, R&D intensity, and market valuation among non-target firms. These results are consistent with the broader argument that firm outcomes may respond to changes affecting important peers, even when the firms themselves are not directly treated. The extension is deliberately secondary to the local market analysis. It shows that the peer spillover logic is not limited to SOE POE competition, while the main identification and mechanism evidence of the paper comes from China's local market reform setting.

This paper contributes to several strands of literature. First, we show that competitive spillover effects are institutional context dependent. While prior research documents crowding out effects of dominant firms under persistent institutional advantages (e.g., Huang et al., 2020; Ouyang, 2024; Ru, 2018), we show that reform induced reductions in such advantages can alter rival firms' investment under imperfect competition.

Second, we provide causal evidence for spillover theories under imperfect competition (Berg et al., 2021). Unlike much of the existing spillover literature that emphasizes geographic channels (e.g., Greenstone et al., 2010; Huber, 2018; Matray, 2021; Naaraayanan and Wolfenzon, 2024), we identify a product market competition channel through which shocks to dominant firms affect untreated rivals in the same industry.

Third, we highlight the importance of accounting for inter firm spillovers when evaluating policy interventions (e.g., An et al., 2016; Alok and Ayyagari, 2020; Deng et al.,

2020). When firms' outcomes are interdependent, policy interventions can affect untreated firms through industry level interactions. Ignoring these spillovers may bias estimated treatment effects and lead to misleading policy conclusions.

Fourth, we contribute to the literature on political connections by providing evidence consistent with the political connection trade off theory (Schweizer et al., 2019). While prior research documents the benefits of political connections (e.g., Li et al., 2008; Deng et al., 2020; Liu et al., 2021a; Liu et al., 2021b), our findings show that their value depends on the institutional context. Methodologically, we also develop a scalable textual analysis-based approach to identify executives' political backgrounds from CV data.

Finally, we provide supplementary evidence for the literature on FDI spillovers, cross border acquisitions, and Chinese outward investment (Aitken and Harrison, 1999; Javorcik, 2004; Albuquerque et al., 2019; Servaes and Tamayo, 2014; Buckley et al., 2018; Yilmaz, 2024). The cross-border acquisition extension shows that ownership changes affecting an existing local peer can also influence untreated rivals in international markets.

The remainder of this paper proceeds as follows. Section 2 develops the conceptual framework and institutional background for the local market analysis. Section 3 describes the data, variables, and empirical design. Section 4 presents the main local market evidence on SOE spillovers and POE investment, alternative explanations, potential mechanism and political connections. Section 5 shows the robustness test for the baseline results. Section 6 provides a short extension using Chinese cross-border acquisitions. Section 7 concludes.

2. Institutional setting and theoretical background

2.1. China's bank based financial system and SOE advantages

China's financial system has historically relied heavily on bank financing as the primary source of external funding for non-financial firms (Allen et al., 2005; Ayyagari et al., 2010; He et al.,

2013). Equity and bond markets have remained relatively less important sources of external finance (Allen et al., 2017; Jiang et al., 2020). In 2015, bank loans accounted for 73.1 percent of total new external financing raised by non-financial firms, while equity and bond financing accounted for 4.9 percent and 19.1 percent, respectively (Jiang et al., 2020). This bank-based structure has persisted over time, with the banking sector accounting for 90.4 percent of total financial assets in 2023 (PBoC, 2024).

The dominance of bank financing reflects the institutional legacy of China's state led development model (Allen et al., 2005). Since the post 1979 reforms, large state-owned commercial banks have played a central role in credit intermediation and continue to dominate the financial system (Bailey et al., 2011; Zhang et al., 2016). The dominance of state-owned banks has also limited the development of market-based debt financing, as policy makers have historically favored traditional bank lending over deeper capital market development (Jiang et al., 2020).

In this institutional environment, SOEs benefit disproportionately from bank-based credit allocation. Their perceived lower risk, political role, and implicit government backing help them secure preferential access to capital (Chen et al., 2011; Cong et al., 2019). State owned banks allocate credit to SOEs in key industries such as infrastructure, energy, and heavy manufacturing, often supported by soft budget constraints and implicit government guarantees (Firth et al., 2008; Ru, 2018). POEs, by contrast, face higher borrowing costs, stricter collateral requirements, and greater difficulty obtaining long term credit, especially when financial conditions tighten (Allen et al., 2005; Chen et al., 2010; Cull et al., 2015).

As a result, credit is not allocated purely according to efficiency or market performance. Institutional advantages allow SOEs to sustain expansion and maintain dominant positions even when their efficiency is lower. This financing distortion reinforces resource misallocation and creates an uneven competitive environment for POEs. In industries where SOEs are more

prevalent, POEs may face stronger constraints not only in capital markets, but also in product markets, because SOE expansion can occupy market space that would otherwise be available to more efficient private firms.

2.2. Supply side structural reform as a shock to SOE expansion capacity

China launched the supply side structural reform in 2016 in response to rising leverage, structural distortions, excess capacity, and financial risks. The reform aimed to shift the growth model away from policy driven expansion toward more efficient and productivity-based development. It consisted of five policy pillars: overcapacity reduction, destocking of property inventory, corporate deleveraging, cutting corporate costs, and innovation upgrading. These pillars are commonly summarized as “three cuts, one reduction, and one improvement.”

Among these pillars, corporate deleveraging is most directly related to our mechanism. Before the reform, SOEs accounted for a disproportionate share of corporate debt and benefited from implicit guarantees in the credit allocation system. High leverage reinforced SOEs’ ability to sustain expansion through preferential access to policy-based financing. The deleveraging pillar marked a shift toward greater financing discipline by weakening implicit guarantees and limiting preferential credit access. These changes reduced SOEs’ ability to maintain pre reform expansion and weakened their institutional advantages in credit allocation.

Other pillars of the reform may also affect firm behavior, but they operate through different channels. Overcapacity reduction primarily targeted steel and coal industries through administrative production cuts and capacity closures. Destocking focused on reducing excessive housing inventories, especially in lower tier cities. Cost reduction aimed to lower nonproductive institutional burdens, including administrative fees and regulatory compliance costs. Innovation upgrading sought to promote industrial upgrading, technological progress, and productivity improvement. In the empirical analysis, we exclude industries directly

targeted by overcapacity reduction and destocking, and we further account for exposure to cost reduction and innovation upgrading. This helps isolate the channel most relevant to our argument: reform induced weakening of SOEs' expansion capacity and the resulting changes in product market competition.

2.3. SOE prevalence and POE investment responses

Corporate investment depends not only on financing availability, but also on expected profitability, market demand, and competitive conditions (Modigliani and Miller, 1958; Stein, 2003). In China, investment opportunities have long been shaped by the dominant role of SOEs, whose expansion is supported by institutional protection and soft budget constraints (Chen et al., 2021; Cong et al., 2019; Cull et al., 2015). Such protection can allow SOEs to maintain capacity expansion even under weak demand conditions. As a result, investment may become less responsive to market signals, leading to overinvestment, lower capital efficiency, and resource misallocation away from more productive firms (Chen et al., 2011; Firth et al., 2012; Song et al., 2011).

These distortions are likely to be stronger in industries with high SOE prevalence. When institutionally protected SOEs control a large share of industry assets or capacity, their market positions are preserved not only by competitive efficiency, but also by continued access to preferential financing and policy support. This weakens the role of market competition in reallocating resources. For POEs in these industries, profitable investment opportunities may remain unrealized because market space is constrained by the persistence of SOE capacity. Even when POEs are more responsive to demand or more efficient in capital use, their ability to expand may be limited by SOE dominance.

The supply side structural reform altered this environment. Corporate deleveraging tightened financing discipline and reduced SOEs' preferential access to bank-based credit.

Because SOEs relied more heavily on implicit guarantees and bank-based financing, this change constrained their ability to sustain expansion at pre reform levels. In industries with high pre reform SOE prevalence, the weakening of SOE advantages should therefore lead to larger changes in competitive pressure. As SOE expansion slows, POEs may face improved market opportunities and stronger incentives to invest.

This prediction is consistent with theories of imperfect competition. Product market competition affects investment by changing expected payoffs and rivals' strategic responses (Aguerrevere, 2009; Frésard and Valta, 2016). Investment decisions are interdependent across firms, so changes in one group's expansion behavior can generate spillover effects for rivals (Akdoğan and MacKay, 2012). In our setting, the reform weakened the expansion capacity of institutionally advantaged SOEs. POEs in industries with higher SOE prevalence should therefore experience a stronger improvement in investment incentives after the reform.

2.4. Political connections and heterogeneous responses among POEs

Political connections are an important source of heterogeneity among POEs. In economies with extensive government intervention, firms may use political connections to reduce institutional disadvantages in financing access, regulatory approval, taxation, and policy uncertainty (Faccio, 2006; Boubakri et al., 2012; Fan et al., 2013; Huang et al., 2024; Schweizer et al., 2025). In China, POEs often build such connections by appointing senior executives with government backgrounds (Chen et al., 2011; Liu et al., 2021a).

One view suggests that political connections may help POEs benefit from the post reform environment. Resource dependence theory argues that political connections can improve access to critical resources and help firms manage environmental uncertainty (Pfeffer, 1972; Boyd, 1990; Hillman, 2005). Empirical evidence shows that politically connected firms can obtain preferential access to bank credit (Chang et al., 2021; Ding et al., 2023), face fewer

financing constraints (Chen et al., 2010; Cull et al., 2015), and enjoy advantages in taxation and licensing (Li et al., 2008). Political connections can also improve access to policy relevant information (Liu et al., 2021a). Consistent with this view, Deng et al. (2020) show that politically connected POEs increased investment more strongly during a large-scale stimulus program.

A competing view suggests that political connections may weaken firms' responsiveness to market-based opportunities. The political connection trade off theory emphasizes that political ties may reduce administrative frictions but also expose firms to political intervention, rent extraction, and weaker performance outcomes (Schweizer et al., 2019). Political connections may reduce incentives for risk taking and market-based adjustment by providing resource security and policy protection (Du and Luo, 2016; Fernández Méndez et al., 2018). They may also impose political obligations that constrain managerial discretion and limit market driven decisions (Chen et al., 2011; Sun et al., 2017). Prior evidence shows that firms led by politically connected CEOs may have weaker post IPO performance and less professional boards (Fan et al., 2007), receive less informal capital than firms with professional connections (Liu et al., 2016), and adjust more slowly during financial distress (Fan et al., 2013).

The effect of political connections on POEs' responses to SOE spillovers is therefore theoretically ambiguous. On one hand, politically connected POEs may be better positioned to mobilize resources when SOE advantages weaken. On the other hand, political connections may reduce sensitivity to market discipline and weaken firms' ability to respond to changes in competitive conditions. This ambiguity motivates our heterogeneity analysis. If political connections mainly provide access to resources, connected POEs should respond more strongly to the relaxation of SOE competitive pressure. If political connections create strategic rigidity

and reduce market responsiveness, non-politically connected POEs should display the stronger investment response.

3. Data and empirical design

3.1. Data and sample construction

We obtained firm-level data from the China Securities Market and Accounting Research (CSMAR) database, which provides comprehensive financial, ownership, firm-specific information and governance information for A-share firms listed on the Shanghai, Shenzhen, and Beijing stock exchanges. Industry-level and state-level variables are constructed by aggregating firm-level information to the corresponding industry-year and province-year levels. We begin the sample in 2013, when the effects of the 2008 stimulus plan had largely dissipated and the economy entered a more sustainable growth phase, and end in 2019 to avoid distortions from the COVID-19 pandemic. Table 1 shows our sample selection procedures.

Table 1: Sample selection procedures

	No. of firm-year observations
1. All non-ST A-shares firm-year observations from 2013 to 2019	18,314
2. Exclude financial firms	(903)
3. Exclude firms in steel and coal industries	(368)
4. Exclude observations with missing key financial value	(1,802)
5. Exclude observations involving ownership changes from SOE to POE or vice versa	(746)
6. Exclude all firm-year observations in industries where SOEs account for more than 90% of total assets in 2015	(1,151)
Final sample	13,344

3.2. Empirical design

We use China's 2016 supply-side structural reform as an external shock to SOE dominance. The reform aimed to reduce overcapacity, deleverage firms, cut costs, and shift growth toward productivity. For our setting, the relevant component is deleveraging, which constrained SOEs' access to preferential financing and weakened their ability to sustain pre-reform expansion. If SOE dominance had restricted private-sector investment opportunities, POEs in industries with higher pre-reform SOE prevalence should respond more strongly after the reform.

We test this prediction using a difference-in-differences design based on industry-level SOE prevalence before the reform. The sample consists of China non-financial A-share listed firms from 2013 to 2019. Firms are classified as SOEs or POEs according to the nature of their ultimate controlling shareholder. The treatment indicator, High SOE, equals one for industries in the top quartile of SOE asset share in 2015. The main specification compares POE investment in high- and low-SOE-prevalence industries before and after the reform:

$$Investment_{it} = \alpha + \beta_1 SSSR_t + \beta_2 High\ SOE_j + \beta_3 SSSR_t \times High\ SOE_j + \gamma X_{it-1} + \theta_j + \lambda_t + \varepsilon_{ijt}$$

where $High\ SOE_j$ is an industry-level variable equal to one if the share of SOE total assets in industry j ranked in the top quartile of the distribution in 2015. This variable captures pre-reform industry-level exposure to SOE dominance. POEs in high SOE prevalence industries are treated, while those in low SOE prevalence industries serve as controls. θ_j and λ_t refers to industry and year fixed effects, respectively. The standard errors are clustered at the industry-level. The coefficient on β_3 is our central estimate of interest, capturing the reform-induced spillover effect on POEs in industries with high SOE prevalence, relative to those with low SOE prevalence.

4. Results

4.1. Baseline results of spillover effects

Table 2 presents the baseline DiD estimates of our baseline estimates of how the SSSR affected POE investment through the spillover effects of SOE prevalence within the industry. Columns 1 to 3 introduce the regressors sequentially without fixed effects. The coefficient on SSSR is negative and statistically significant throughout (-0.031 to -0.035, all at the 1 percent level), indicating that POE investment fell by roughly three percentage points on average in the post-reform period. The *High SOE* main effect is small and insignificant in both Columns 2 and 3,

indicating no systematic difference in baseline investment levels between the two groups of POEs.

Our coefficient of interest is the interaction $SSSR \times High\ SOE$. Column 4 presents our preferred specification, which includes industry and year fixed effects. The coefficient is positive and statistically significant at the 1 percent level. The estimate indicates that POEs in high-SOE-prevalence industries experience a 2.2 percentage point higher investment intensity in the post-reform period relative to the pre-reform period, compared to POEs in low-prevalence industries. Relative to the average POE investment rate of 14.7 percent, this effect is economically meaningful ($0.022/0.147=0.150$). The result suggests that the reform's effect on private investment varies systematically with pre-reform SOE dominance.

Table 2: Baseline results on the spillover effects of SOEs on POE investment

This table reports estimates of direct effects of the reform on POE investment and spillover effects from SOEs on POE investment after the implementation of the reform. *SSSR* is an indicator equal to 1 for years 2016 and onward. *High SOE* equals 1 for industries in the top quartile of SOE prevalence in 2015. The interaction $SSSR \times High\ SOE$ captures the differential investment response of POEs in industries with high SOE prevalence. We included industry fixed effects and industry and year fixed effects for model 2 and 3, respectively. Standard errors are clustered at industry level. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. The sample consists of POE firms only.

	Investment			
	(1)	(2)	(3)	(4)
SSSR	-0.031*** (0.005)	-0.031*** (0.005)	-0.035*** (0.005)	
High SOE		-0.001 (0.011)	-0.016 (0.012)	
SSSR $\times$ High SOE			0.022*** (0.007)	0.022*** (0.007)
Tobin's Q	-0.009*** (0.002)	-0.009*** (0.002)	-0.009*** (0.002)	-0.010*** (0.003)
Tangibility	-0.043 (0.030)	-0.043 (0.030)	-0.044 (0.030)	-0.129*** (0.024)
Firm Size	-0.030*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)
Cash Holding	0.123*** (0.025)	0.122*** (0.025)	0.121*** (0.024)	0.121*** (0.025)
Cash Flow	0.671*** (0.063)	0.671*** (0.062)	0.672*** (0.063)	0.639*** (0.070)
Leverage	0.092*** (0.022)	0.092*** (0.023)	0.093*** (0.023)	0.096*** (0.023)
Constant	0.774*** (0.072)	0.774*** (0.071)	0.777*** (0.072)	
Industry FE	No	No	No	Yes
Year FE	No	No	No	Yes
Cluster on Industry	Yes	Yes	Yes	Yes
Observation	9282	9282	9282	9281
Adjusted R ²	0.067	0.067	0.068	0.088
Sample: All POEs	Yes			

4.2. Parallel trend assumption and permutation placebo tests

As our identification strategy relies on a DiD approach, we first examine whether the parallel trends assumption holds. Following Beck et al. (2010) and Naaraayanan and Wolfenzon (2024), we estimate a dynamic specification that interacts *High SOE* with a full set of year dummies, using 2015 as the omitted baseline year. This model traces the time varying relationship between pre reform SOE prevalence and POE investment while controlling for industry and year fixed effects, as well as lagged firm level controls in the extended specification. We further center the estimated coefficients by subtracting the average pre reform value and plot the results with 90 percent confidence intervals, clustering standard errors at the industry level. The pre

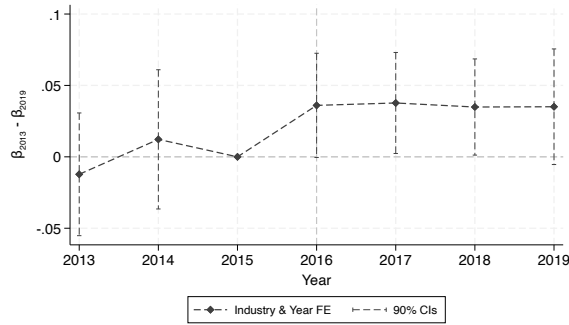
reform coefficients are small and statistically insignificant, indicating no differential investment trends between POEs in high and low SOE prevalence industries before the reform. In contrast, the post reform coefficients become positive and are statistically significant in most years, suggesting that POEs in high SOE prevalence industries increased investment relative to those in low SOE prevalence industries after the reform. The similar patterns in specifications with and without firm level controls further suggest that the estimated dynamics are not driven by firm level heterogeneity.

We also conduct permutation placebo tests to examine whether the estimated spillover effects could be driven by unobservable events or endogenous treatment assignment. Following Alpert et al. (2022), we randomly assign placebo treatment status to 588 POE firms in each of 1,000 iterations, matching the size of the actual treated group, and re estimate the pseudo DiD effect using the same model specifications. The resulting placebo distributions are reported in Figure 5a and Figure 5b. In both specifications, the actual estimated coefficients, 0.024 and 0.022, lie in the extreme upper tail of the placebo distributions, and all simulated placebo estimates are smaller than the actual effects. The corresponding nonparametric p values are therefore close to zero. These results indicate that the observed spillover effects are unlikely to reflect random treatment assignment, omitted variables, or confounded unobserved events, reinforcing the robustness of our main findings.

Figure 1: Dynamic spillover effects from SOEs on POEs investment

These figures present dynamic coefficients ($\beta_{2013} - \beta_{2019}$) and their corresponding two-tailed 90 percent confidence intervals (present by vertical dash line) of investment by POEs in high SOE prevalence industries around the implementation of the SSSR reform. All dynamic coefficients are de-trending and de-centering by subtracting the average of the pre-reform coefficients to eliminate baseline differences and emphasize post-reform deviations. The coefficient of 2015 is normalized to zero as the baseline year. Figure 1A includes industry and year fixed effects only, and 1B additionally controls for firm-level characteristics. Standard errors are clustered at the industry level.

A: Industry and year fixed effects



B: Industry and year fixed effects with controls

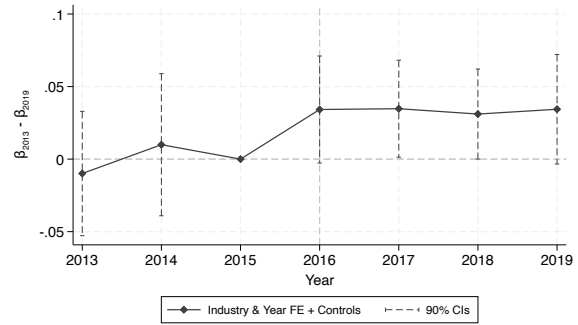
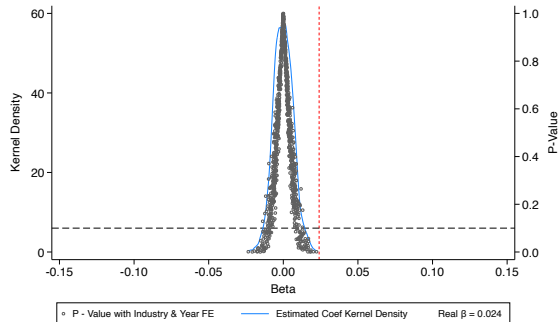


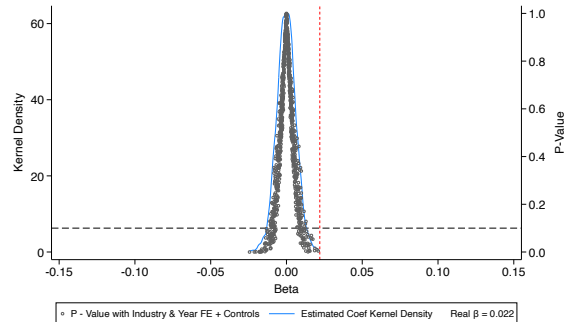
Figure 2: Dynamic spillover effects of placebo SOEs prevalence on POEs investment

This figure presents results from a permutation placebo test with 1,000 random assignments of the reform timing across industries. Each iteration re-estimates the baseline model using the main specification. Dots represent the placebo coefficients. The blue line shows their kernel density. The vertical red line indicates the actual estimated coefficient. Figure 2A includes industry and year fixed effects; 2B additionally controls for firm characteristics. In both panels, the actual estimate lies in the extreme upper tail of the permutation distribution, ranking among the largest 1 percent of simulated values. These results reinforce the robustness of the observed spillover effect.

A: Industry and year fixed effects



B: Industry and year fixed effects with controls



4.3. Horse race regressions: eliminating potential confound effects from other pillars and spatial effects

We further examine whether our baseline results reflect SSSR alternative pillars or unobserved regional dynamics rather than the industry level competitive restructuring mechanism. The SSSR included several pillars implemented at the same time, and some of them may also affect POE investment. Although we exclude firms in steel, coal, and real estate industries, which were directly targeted by overcapacity reduction and destocking policies, the cost cutting and innovation upgrading pillars may still influence investment through other industry specific channels. To address this concern, we follow Naaraayanan and Wolfenzon (2024) and conduct horse race regressions using two pre reform industry level exposure measures related to another pillars. *High BC* equals one if the ratio of administrative expenses to total assets in 2015 falls in the top quartile of the industry distribution, capturing exposure to cost cutting policies. *High RD* equals one if the ratio of R&D investment to total assets in 2015 falls in the top quartile, capturing exposure to innovation upgrading policies. We also address the possibility that the estimated spillover effects reflect geographic SOE concentration rather than industry level competition. Specifically, *High SOE Province* equals one if the share of SOE assets in a province in 2015 falls in the top quartile across provinces. We interact each exposure variable with SSSR and compare these alternative channels with the baseline interaction between SSSR and *High SOE*.

Table 3 reports the results. When each alternative exposure is included separately, the interactions $SSSR \times High\ BC$ and $SSSR \times High\ RD$ are statistically insignificant, suggesting that neither cost related exposure nor innovation related exposure explains the post reform increase in POE investment. The interaction $SSSR \times High\ SOE\ Province$ is negative and statistically significant, consistent with prior evidence that local SOE concentration can crowd out POE investment. However, when each alternative interaction is added to the baseline

specification, the coefficient on $SSSR \times High\ SOE$ remains positive, statistically significant, and close in magnitude to the baseline estimate. The same pattern holds when all interaction terms are included simultaneously. In the full specification, $SSSR \times High\ BC$ and $SSSR \times High\ RD$ remain insignificant, $SSSR \times High\ SOE\ Province$ remains significant, and the coefficient on $SSSR \times High\ SOE$ relative unchanged. Moreover, the weak correlation between $High\ SOE$ and $High\ SOE\ Province$ ($\rho = 0.045$), suggests that the industry and regional SOE exposure measures capture distinct sources of variation. These findings indicate that the estimated spillover effects are not driven by other SSSR pillars or by unobserved regional dynamics. Instead, they support our interpretation that POE investment increased mainly because deleveraging weakened SOEs' financing based institutional advantages and reduced their competitive strength in product markets.

Table 3: Horse race regressions

This table reports horse race regressions that examine whether the spillover effects of SOE prevalence on POE investment are confounded by exposure to other pillars of the SSSR or by spatial dynamics. We construct industry-level exposure to bureaucratic costs (*High BC*) and R&D investment (*High RD*) to proxy the cutting corporate costs and innovation upgrading pillars, respectively. We construct a province-level measure of SOE prevalence (*High SOE Province*) to capture regional SOE concentration. For each exposure variable, we define an indicator equal to one if the industry or province in the top quartile of the distribution in the pre-reform year 2015. All regressions control for lagged firm characteristics. We include industry and year fixed effects or state and year fixed effects, depending on the specification. Standard errors are clustered at the industry or state level, as indicated. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. The sample consists of POE firms only.

	Investment							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SSSR × High SOE	0.022*** (0.007)		0.024*** (0.007)		0.026*** (0.007)		0.022*** (0.007)	0.026*** (0.007)
SSSR × High BC		0.003 (0.013)	0.008 (0.013)					0.003 (0.013)
SSSR × High RD				0.004 (0.010)	0.010 (0.010)			0.011 (0.010)
SSSR × High SOE Province						-0.029*** (0.009)	-0.030** (0.012)	-0.032*** (0.012)
Tobin's Q	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.002)	-0.010*** (0.002)	-0.010*** (0.002)
Tangibility	-0.129*** (0.024)	-0.127*** (0.024)	-0.129*** (0.024)	-0.127*** (0.024)	-0.128*** (0.024)	-0.064*** (0.020)	-0.139*** (0.022)	-0.138*** (0.022)
Firm Size	-0.030*** (0.003)	-0.030*** (0.003)	-0.031*** (0.003)	-0.030*** (0.003)	-0.031*** (0.003)	-0.030*** (0.003)	-0.030*** (0.004)	-0.030*** (0.004)
Cash Holding	0.121*** (0.025)	0.123*** (0.025)	0.122*** (0.025)	0.123*** (0.025)	0.122*** (0.025)	0.114*** (0.017)	0.117*** (0.024)	0.118*** (0.024)
Cash Flow	0.639*** (0.070)	0.638*** (0.070)	0.640*** (0.070)	0.638*** (0.070)	0.639*** (0.070)	0.662*** (0.046)	0.633*** (0.068)	0.633*** (0.068)
Leverage	0.096*** (0.023)	0.095*** (0.023)	0.096*** (0.023)	0.095*** (0.023)	0.096*** (0.022)	0.089*** (0.018)	0.093*** (0.021)	0.094*** (0.021)
Industry FE	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
State FE	No	No	No	No	No	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster on Industry	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Cluster on State	No	No	No	No	No	Yes	No	No
Observation	9281	9281	9281	9281	9281	9282	9281	9281
Adjusted R ²	0.088	0.088	0.088	0.088	0.088	0.072	0.090	0.090
Sample: All POEs	Yes							

4.4. Eliminating potential confound effects from prior or contemporaneous policies

Another concern is that pre-SSSR policy initiatives or other contemporaneous reforms may confound our baseline estimates. If these policies affected POE investment in industries with high SOE prevalence or industrial competition, the estimated effects may capture not only the spillover effect from weakened SOE advantages, but also the influence of other policy shocks. We therefore conduct additional tests to examine whether our results are driven by alternative policy channels rather than by the competitive restructuring mechanism emphasized in our baseline interpretation.

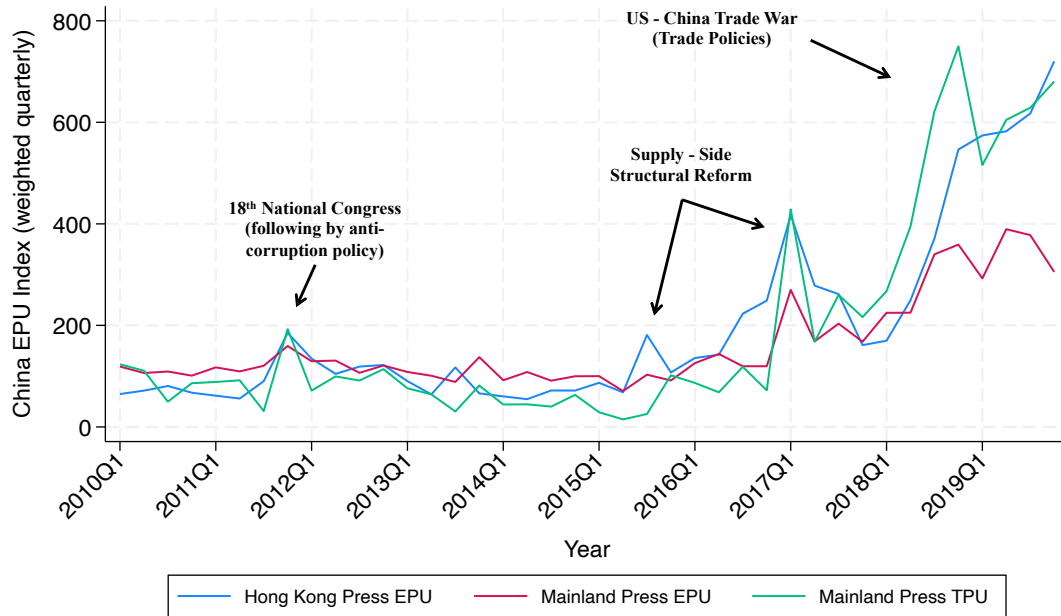
4.4.1. The broader policy environment from 2010 to 2019

We first use economic policy uncertainty (EPU) indices¹ to characterize China's broader policy environment from 2010 to 2019 and to identify policy episodes that may confound our baseline estimates. Figure 3 plots three quarterly indices: the Hong Kong press based EPU index constructed from the South China Morning Post, the mainland press based EPU index constructed from the People's Daily and Guangming Daily, and the mainland Trade Policy Uncertainty index. Monthly series are aggregated into quarterly observations following Liu et al. (2021) and Gulen and Ion (2016). The figure shows three major spikes in policy uncertainty. The first occurs around 2012, coinciding with the 18th National Congress and the subsequent anti-corruption campaign. The second and most pronounced spike appears around 2016, aligning with the announcement and implementation of the SSSR. The third emerges around 2019, reflecting the escalation of the US China trade war. Although policy uncertainty between 2012 and 2016 remains relatively muted, these patterns highlight the need to distinguish the effect of the SSSR from prior or contemporaneous policy shocks.

¹ Data obtained from Economic Policy Uncertainty (Baker et al., 2016), available at <https://www.policyuncertainty.com>

Figure 3 China Economic Policy Uncertainty index (2010-2019)

This figure plots the China news-based Economic Policy Uncertainty (EPU) Index from 2009 Q1 to 2019 Q4, constructed from three measures: Hong Kong Press EPU, Mainland Press EPU, and Mainland Press TPU. The index is based on news-based textual analysis and captures the level of uncertainty that firms face regarding future government economic policies. Three prominent spikes are annotated: the 18th National Congress and subsequent anti-corruption campaign around 2012, the announcement and implementation of the Supply-Side Structural Reform in around 2016, and the escalation of the US-China trade war in 2019.



4.4.2. Robustness check on potential pre-SSSR effects on SOE prevalence

We further extend the sample back to 2010 and reconstruct SOE prevalence exposure using industry level SOE asset shares from earlier pre reform years. If our results are driven by persistent SOE exposure rather than by pre-SSSR shocks to SOE prevalence, the estimated effect should remain stable across these alternative exposure definitions. Table 4 reports the results. It shows that the interaction between SSSR and High SOE remains positive and statistically significant when High SOE is constructed using SOE asset shares from 2014, 2013, 2012, and 2011 instead of the baseline 2015 measure. The estimates range from 0.018 to 0.022, which are close to the baseline estimate of 0.022. These results suggest that *High SOE* captures a persistent industry characteristic rather than a short run response to earlier policy shocks, thereby mitigating the concern that our baseline estimates are driven by pre-SSSR or overlapping policy induced changes in SOE prevalence.

Table 4: Robustness checks on base year of SOE prevalence measure

This table examines whether the baseline spillover effect is sensitive to the year used to measure pre reform SOE prevalence. It estimates the baseline specification using alternative *High SOE* indicators constructed from industry level SOE asset shares. Column 1 uses the baseline 2015 measure. Columns 2 to 5 replace it with measures based on SOE asset shares in 2014, 2013, 2012, and 2011, respectively. All regressions control for lagged firm-level characteristics and include industry and year fixed effects. Standard errors are clustered at the industry level. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. The sample consists of POE firms only.

	Investment				
	(1)	(2)	(3)	(4)	(5)
SSSR $\times$ High SOE	0.022*** (0.007)				
SSSR $\times$ High SOE14		0.018** (0.007)			
SSSR $\times$ High SOE13			0.021*** (0.007)		
SSSR $\times$ High SOE12				0.021*** (0.007)	
SSSR $\times$ High SOE11					0.021*** (0.007)
Tobin's Q	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)
Tangibility	-0.129*** (0.024)	-0.128*** (0.023)	-0.129*** (0.024)	-0.129*** (0.024)	-0.129*** (0.024)
Firm Size	-0.030*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)
Cash Holding	0.121*** (0.025)	0.122*** (0.025)	0.121*** (0.025)	0.121*** (0.025)	0.121*** (0.025)
Cash Flow	0.639*** (0.070)	0.638*** (0.070)	0.638*** (0.071)	0.638*** (0.071)	0.638*** (0.071)
Leverage	0.096*** (0.023)	0.095*** (0.023)	0.096*** (0.023)	0.096*** (0.023)	0.096*** (0.023)
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Cluster on Industry	Yes	Yes	Yes	Yes	Yes
Observation	9281	9281	9281	9281	9281
Adjusted R ²	0.088	0.088	0.088	0.088	0.088
Sample: All POEs			Yes		

4.4.3. Robustness checks on pre-SSSR effects on product market competition

One concern is that other pre-SSSR policies may have changed industry product market competition, causing our estimates to capture these changes rather than the effect of SOE prevalence. To address this concern, we control for pre reform industry concentration by constructing an industry level Herfindahl Hirschman Index based on operating revenue shares of all firms in each industry, including both SOEs and POEs, and interacting it with SSSR. We use industry HHI rather than SOE HHI because SOE HHI captures variation in SOE dominate, which is part of the proposed treatment channel, whereas industry HHI captures the overall

competitive structure before the reform. Table 5 reports the results. Column 1 replicates the baseline specification, while Columns 2 to 6 add interactions between *SSSR* and industry *HHI* measured in 2015, 2014, 2013, 2012, and 2011. The coefficient on *SSSR* $\times$ *High SOE* remains positive and statistically significant across all specifications. These results suggest that our baseline findings are not driven by pre *SSSR* changes in product market competition, but by *SOE* prevalence.

Table 5: Robustness checks on pre-reform product market competition

This table examines whether the estimated spillover effects are confounded by pre-reform differences in product market competition. Column 1 replicates the baseline specification. Columns 2 to 4 add interactions between *SSSR* and the industry-level Herfindahl-Hirschman Index (*Industry HHI*) measured in 2015, 2014, 2013, 2012, and 2011, respectively. *Industry HHI* is constructed as the sum of squared market shares of all firms within each industry, based on firm-level operating revenue in the corresponding base year. All regressions control for lagged firm-level characteristics and include industry and year fixed effects. Standard errors are clustered at the industry level. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. The sample consists of *POE* firms only.

Panel A:

	Investment					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>SSSR</i> $\times$ <i>High SOE</i>	0.022*** (0.007)	0.018** (0.008)	0.021** (0.009)	0.022** (0.009)	0.022** (0.009)	0.023** (0.009)
<i>SSSR</i> $\times$ <i>Industry HHI</i> 15		0.075 (0.064)				
<i>SSSR</i> $\times$ <i>Industry HHI</i> 14			0.026 (0.077)			
<i>SSSR</i> $\times$ <i>Industry HHI</i> 13				0.002 (0.075)		
<i>SSSR</i> $\times$ <i>Industry HHI</i> 12					-0.001 (0.073)	
<i>SSSR</i> $\times$ <i>Industry HHI</i> 11						-0.002 (0.057)
Tobin's Q	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)
Tangibility	-0.129*** (0.024)	-0.129*** (0.023)	-0.129*** (0.023)	-0.129*** (0.024)	-0.129*** (0.024)	-0.129*** (0.024)
Firm Size	-0.030*** (0.003)	-0.031*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)
Cash Holding	0.121*** (0.025)	0.121*** (0.025)	0.121*** (0.025)	0.121*** (0.025)	0.121*** (0.025)	0.121*** (0.025)
Cash Flow	0.639*** (0.070)	0.640*** (0.071)	0.639*** (0.070)	0.639*** (0.070)	0.639*** (0.070)	0.639*** (0.070)
Leverage	0.096*** (0.023)	0.096*** (0.023)	0.096*** (0.023)	0.096*** (0.023)	0.096*** (0.023)	0.096*** (0.023)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster on Industry	Yes	Yes	Yes	Yes	Yes	Yes
Observation	9281	9281	9281	9281	9281	9281
Adjusted R ²	0.088	0.088	0.088	0.088	0.088	0.088
Sample: All POEs	Yes					

4.5. Potential mechanism

4.5.1. Stylized facts of financing dynamics

Because financing capacity is one of the most direct determinants of corporate investment (Hennessy et al., 2007; Khwaja and Mian, 2008; Lewellen and Lewellen, 2016; Moyen, 2004), we begin by examining whether POEs in high SOE prevalence industries experienced differential changes in financing conditions after the reform. This analysis provides *stylized facts* on financing dynamics and helps examine whether the baseline investment response may be explained by direct financing reallocation rather than by changes in the competitive environment. Table 6 reports results using six financing measures constructed from firms' cash flow statements, including net debt financing, net bank loans, net bond financing, net other debt financing, net equity financing, and internal cash flow. Across all columns, the coefficient on $SSSR \times High\ SOE$ is small and statistically insignificant, suggesting that POEs in high SOE prevalence industries did not experience differential changes in external financing or internal cash flow relative to POEs in low SOE prevalence industries after the reform. These *stylized facts* exclude the possibility that our baseline investment effects are driven by a direct supply side reallocation of financing toward POEs. Instead, they are more consistent with our interpretation that the investment response operates through changes in the competitive environment.

Table 6: Financing dynamics of POEs in high and low SOE prevalence industries

This table reports formal tests of differential financing dynamics between POEs in high and low SOE prevalence industries following the reform. The dependent variables are six financing measures constructed from firms' cash flow statements: net debt financing, net bank loans, net bond financing, net other debt financing, net equity financing, and internal cash flow, all scaled by total assets. The key variable of interest is $SSSR \times High\ SOE$, which captures whether POEs in high SOE prevalence industries experience differential changes in financing conditions relative to those in low SOE prevalence industries following the reform. All regressions control for lagged firm-level characteristics and include industry and year fixed effects. Standard errors are clustered at the industry level. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. The sample consists of POE firms only.

	Net debt	Net bank loan	Net bond	Net other debt	Net equity	Internal cash flow
	(1)	(2)	(3)	(4)	(5)	(6)
SSSR $\times$ High SOE	0.001 (0.004)	-0.002 (0.005)	0.002 (0.001)	0.002 (0.001)	0.004 (0.004)	-0.001 (0.006)
Tobin's Q	0.000 (0.001)	-0.000 (0.001)	0.000** (0.000)	0.000** (0.000)	0.005*** (0.001)	0.004*** (0.001)
Tangibility	-0.039*** (0.008)	-0.036*** (0.008)	-0.005 (0.003)	0.001 (0.003)	0.007 (0.007)	0.105*** (0.008)
Firm Size	0.000 (0.001)	-0.002 (0.001)	0.003*** (0.000)	-0.001** (0.000)	-0.006*** (0.001)	0.009*** (0.001)
Cash Holding	-0.050*** (0.005)	-0.054*** (0.005)	0.003 (0.003)	0.001 (0.002)	-0.037*** (0.004)	0.041*** (0.009)
Cash Flow	0.196*** (0.015)	0.165*** (0.016)	0.038*** (0.005)	-0.007 (0.006)	0.096*** (0.012)	0.265*** (0.023)
Leverage	-0.033*** (0.006)	-0.018*** (0.006)	-0.021*** (0.002)	0.006*** (0.002)	0.055*** (0.007)	-0.026*** (0.006)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster on Industry	Yes	Yes	Yes	Yes	Yes	Yes
Observation	9281	9281	9281	9281	9281	9281
Adjusted R ²	0.064	0.047	0.051	0.012	0.096	0.175
Sample: All POEs	Yes					

4.5.2. SOE product market competition mechanism

Table 7 examines the product market competition channel. The dependent variable is SOE HHI, constructed from SOE market shares within each industry using fixed 2015 industry sales as the denominator. The coefficient on $SSSR \times High\ SOE$ is negative and statistically significant, indicating that SOE-related market concentration declines more sharply in high-SOE-prevalence industries after the reform. This pattern supports a competition-based spillover interpretation: by weakening SOEs' product-market dominance, the reform relaxed competitive constraints on private firms and enabled POEs in previously SOE-dominated industries to expand investment.

Table 7: Product market competition mechanism

This table compares the product market competition between industries with high and low SOE prevalence. The dependent variable *SOE HHI* is defined as the Herfindahl-Hirschman index based on SOE market shares within each industry. To avoid fluctuations driven by firm entry and exit, SOE market shares are computed using total industry sales in 2015 as the fixed denominator. Industry Size is measured as the logarithm of the total number of firms in each industry.

	SOE HHI	
	(1)	(2)
$SSSR \times High\ SOE$	-0.048*** (0.008)	-0.047*** (0.009)
Industry Size		0.014 (0.010)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Cluster on Industry	Yes	Yes
Observation	392	392
Adjusted R ²	0.442	0.442
Sample: Full industries	Yes	

4.6. Heterogeneity and political connection mechanism

We next examine whether political connections explain the reform induced spillover effects on POE investment. Following Faccio (2006), Chen et al. (2011), and Liu et al. (2021a), we define a POE as politically connected if at least one top executive has prior government experience, using CSRC definitions to identify top executive positions. We construct this measure from executive CVs in the CSMAR database and apply LLM based textual analysis to identify government experience, using ChatGPT for English CVs and DeepSeek for Chinese CVs. Table 8 reports the results. Column 1 replicates the baseline specification. Columns 2 to 4 add

PC and its lower order interactions with SSSR and High SOE. Across these specifications, the coefficient on $SSSR \times High\ SOE$ remains positive and statistically significant, while the political connection terms are statistically insignificant. Column 5 further includes the triple interaction $SSSR \times High\ SOE \times PC$. The coefficient on $SSSR \times High\ SOE$ remains positive and significant, whereas the triple interaction is negative but statistically insignificant. These results suggest that political connections do not strengthen POEs' ability to capture SOE spillover effects after the reform. Instead, the estimated spillover effect is evident among non-politically connected POEs and is not significantly amplified by political connections.

Table 8: Political connections and the SOE spillover effect on POE investment

This table reports the heterogeneity within POEs and tests whether the positive spillover from SOEs following the SSSR reform was driven by political connections (PC). PC is a dummy variable equal to one if at least one top executive of a firm has prior experience in a government-related position. The coefficient on $SSSR \times High\ SOE$ captures the differential investment responses to the reform across POEs in high SOE prevalence industries, separately for politically connected and non-connected firms. The triple interaction term $SSSR \times High\ SOE \times PC$ tests whether political connections serve as a mechanism to explain the post-reform investment increase. All regressions control for lagged firm characteristics. All specifications include industry and year fixed effects. Standard errors are clustered at the industry level. ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively. The sample includes POE firms only.

	Investment				
	(1)	(2)	(3)	(4)	(5)
PC		0.006 (0.007)	0.004 (0.005)	0.006 (0.007)	0.003 (0.008)
SSSR $\times$ High SOE	0.022*** (0.007)			0.021*** (0.007)	0.032*** (0.009)
PC $\times$ SSSR		-0.004 (0.006)		-0.004 (0.006)	0.001 (0.006)
High SOE $\times$ PC			-0.001 (0.015)	-0.001 (0.015)	0.017 (0.019)
SSSR $\times$ High SOE $\times$ PC					-0.027 (0.018)
Tobin's Q	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)
Tangibility	-0.129*** (0.024)	-0.129*** (0.024)	-0.129*** (0.024)	-0.130*** (0.024)	-0.130*** (0.024)
Firm Size	-0.030*** (0.003)	-0.031*** (0.003)	-0.031*** (0.003)	-0.031*** (0.003)	-0.031*** (0.003)
Cash Holding	0.121*** (0.025)	0.123*** (0.025)	0.123*** (0.025)	0.122*** (0.025)	0.122*** (0.025)
Cash Flow	0.639*** (0.070)	0.638*** (0.070)	0.638*** (0.070)	0.639*** (0.070)	0.640*** (0.070)
Leverage	0.096*** (0.023)	0.096*** (0.022)	0.096*** (0.022)	0.097*** (0.022)	0.097*** (0.022)
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Cluster on Industry	Yes	Yes	Yes	Yes	Yes
Observation	9281	9275	9275	9275	9275
Adjusted R ²	0.088	0.088	0.088	0.088	0.088
Sample: POEs	All POEs				

5. Robustness checks

We conduct two additional robustness checks to validate our baseline interpretation. We first test whether the investment response is confounded by POE prevalence rather than purely SOE prevalence, and then conduct a falsification test around the anti-corruption campaign to examine whether the SOE spillover pattern is specific to the SSSR.

5.1. Potential spillover effects by POE prevalence

We conduct this analysis in two steps. First, we construct two additional industry level exposure variables based on pre reform asset shares in 2015. *High PC POE* equals one if the asset share of politically connected POEs is in the top quartile of the industry distribution, while *High Non-PC POE* equals one if the asset share of non-politically connected POEs is in the top quartile. We interact both indicators with SSSR and include them together with $SSSR \times High\ SOE$ in the same horse race specification. Panel A of Table 1 shows that the coefficient on $SSSR \times High\ SOE$ remains positive and statistically significant across all specifications, whereas the coefficients on $SSSR \times High\ PC\ POE$ and $SSSR \times High\ Non-PC\ POE$ are small and statistically insignificant. These results suggest that our baseline findings are not driven by industries with greater pre reform exposure to politically connected or non-politically connected POEs, but by exposure to SOEs.

Second, we examine whether the stronger investment response among non-politically connected POEs is uniquely associated with SOE exposure rather than with POE related industry exposure. We construct triple interactions between SSSR, each industry level exposure measure, and firm level political connection status. Panel B of Table 9 shows that $SSSR \times High\ SOE \times Non-PC\ POE$ is positive and statistically significant, while the triple interactions involving *High PC POE* or *High Non-PC POE* are insignificant for both politically connected and non-politically connected POEs. These results indicate that the stronger response among non-politically connected POEs arises specifically in industries with high SOE exposure. The

evidence therefore supports our interpretation that the documented spillover effects reflect SOE prevalence rather than POE related industry composition.

Table 9: Horse race regressions: POE-related exposures

This table reports horse-race regressions examining whether the spillover effects associated with SOE presence are confounded by POE-related industry exposure. *High PC POE*, and *High Non-PC POE* are industry-level indicators equal to one for industries in the top quartile of the 2015 cross-industry distribution of asset shares held by politically connected POEs and non-politically connected POEs, respectively. Panel A reports estimate for the full POE sample. Column 1 repeats the baseline results. Columns 2 and 3 separately add $SSSR \times High\ PC\ POE$ and $SSSR \times High\ Non-PC\ POE$; Column 4 includes all three exposure interactions. Panel B also uses the full POE sample and further separately test for politically connected and non-politically connected POEs. Column 1 reports the SOE exposure effect for both groups; Columns 2 and 3 separately add the corresponding effects for *High PC POE* and *High Non-PC POE* exposure; Column 4 includes all of them. The firm-level indicator PC POE (equal to one for politically connected POEs) is included to absorb baseline investment differences across firm types. All regressions control for lagged firm-level characteristics and include industry and year fixed effects. Standard errors are clustered at the industry level. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Panel A: SOE versus POE-related industry exposure

	Investment			
	(1)	(2)	(3)	(4)
SSSR $\times$ High SOE	0.022*** (0.007)	0.020*** (0.007)	0.024*** (0.007)	0.022*** (0.006)
SSSR $\times$ High PC POE		-0.008 (0.011)		-0.007 (0.011)
SSSR $\times$ High Non-PC POE			0.008 (0.011)	0.007 (0.011)
Tobin's Q	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)
Tangibility	-0.129*** (0.024)	-0.129*** (0.024)	-0.129*** (0.023)	-0.129*** (0.023)
Firm Size	-0.030*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)
Cash Holding	0.121*** (0.025)	0.121*** (0.025)	0.121*** (0.025)	0.122*** (0.025)
Cash Flow	0.639*** (0.070)	0.639*** (0.070)	0.640*** (0.070)	0.639*** (0.070)
Leverage	0.096*** (0.023)	0.095*** (0.023)	0.096*** (0.023)	0.096*** (0.023)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster on Industry	Yes	Yes	Yes	Yes
Observations	9281	9281	9281	9281
Adjusted R ²	0.088	0.088	0.088	0.088
Sample: All POEs	Yes			

Panel B: Spillover effects by firms' political connection status

	Investment			
	(1)	(2)	(3)	(4)
SSSR $\times$ High SOE $\times$ PC POE	0.015 (0.010)	0.013 (0.011)	0.017 (0.011)	0.015 (0.011)
SSSR $\times$ High SOE $\times$ Non-PC POE	0.026** (0.011)	0.023** (0.010)	0.027** (0.011)	0.025** (0.010)
SSSR $\times$ High PC POE $\times$ PC POE		-0.004 (0.011)		-0.004 (0.011)
SSSR $\times$ High PC POE $\times$ Non-PC POE		-0.008 (0.012)		-0.008 (0.011)
SSSR $\times$ High Non-PC POE $\times$ PC POE			0.010 (0.011)	0.009 (0.011)
SSSR $\times$ High Non-PC POE $\times$ Non-PC POE			0.005 (0.013)	0.005 (0.012)
PC POE	0.005 (0.004)	0.004 (0.005)	0.004 (0.005)	0.003 (0.005)
Tobin's Q	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)
Tangibility	-0.130*** (0.024)	-0.130*** (0.024)	-0.130*** (0.024)	-0.130*** (0.024)
Firm Size	-0.031*** (0.003)	-0.031*** (0.003)	-0.031*** (0.003)	-0.031*** (0.003)
Cash Holding	0.122*** (0.025)	0.122*** (0.025)	0.122*** (0.025)	0.122*** (0.025)
Cash Flow	0.639*** (0.070)	0.639*** (0.070)	0.640*** (0.070)	0.640*** (0.070)
Leverage	0.097*** (0.022)	0.096*** (0.022)	0.097*** (0.022)	0.096*** (0.022)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster on Industry	Yes	Yes	Yes	Yes
Observation	9275	9275	9275	9275
Adjusted R ²	0.088	0.088	0.088	0.088
Sample: All POEs	Yes			

5.2. Falsification tests using anti-corruption campaign as an alternative shock

We next conduct a falsification test using the anti-corruption campaign as an alternative policy shock. As Figure 3 shows, the anti-corruption campaign generated a notable policy uncertainty shock before the SSSR. The anti-corruption campaign and the SSSR operated through different channels. The anti-corruption campaign primarily targeted political connection-based access to government resources, while the SSSR weakened SOEs' institutional advantages through a broader structural reform. If our baseline results capture a general policy shock rather than the specific effect of the SSSR, similar spillovers should appear around the anti-corruption

campaign. If not, this would support the interpretation that the documented SOE spillover pattern is specific to the SSSR.

To implement this test, we define $ACC13$ as an indicator equal to one for 2013 and later years and replicate the DiD design over the 2010 to 2015 period. Because political connection data are available only from 2013 onward, we backfill each firm's political connection status using the earliest observed value and construct industry exposure measures using 2013 asset shares. Panel A of Table 10 shows that $ACC13 \times High\ SOE13$ is insignificant across all specifications, indicating that the anti-corruption campaign did not generate spillovers through the SOE exposure channel. The interactions involving $High\ PC\ POE13$ and $High\ Non-PC\ POE13$ are also insignificant, suggesting no broad spillovers through POE related exposure. Panel B further allows these effects to vary by firm level political connection status. None of the interactions is statistically significant, including $ACC13 \times High\ PC\ POE13 \times Non-PC\ POE$. These results provide no evidence that the anti-corruption campaign produced spillover patterns like those documented after the SSSR. The falsification test therefore mitigates the concern that our baseline estimates are driven by earlier policy shocks or by general changes in POE competition. Appendix Table A1.2 further reports a robustness check using 2012 as the exposure year, and the results remain unchanged.

Table 10: Falsification test using the anti-corruption campaign as an alternative policy shock

This table reports a falsification test using the anti-corruption campaign as an alternative policy shock during the period before the SSSR. The sample covers 2010 to 2015 and includes all POEs. ACC13 equals one for 2013 and later years, corresponding to the implementation of the anti-corruption campaign. *High SOE13*, *High PC POE13*, and *High Non-PC POE13* are industry level indicators equal to one for industries in the top quartile of the 2013 cross industry distribution of asset shares held by SOEs, politically connected POEs, and non-politically connected POEs, respectively. Panel A reports horse race estimates using the three industry exposure measures. Panel B further allows each exposure effect to differ by firms' political connection status. All regressions control for lagged firm level characteristics and include industry and year fixed effects. Standard errors are clustered at the industry level. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. The sample consists of POE firms only.

Panel A: Full POE sample horse race estimates

	Investment			
	(1)	(2)	(3)	(4)
ACC13 × High SOE13	0.011 (0.016)	0.023 (0.014)	0.005 (0.020)	0.017 (0.018)
ACC13 × High PC POE13		0.036 (0.025)		0.036 (0.023)
ACC13 × High Non-PC POE13			-0.014 (0.019)	-0.016 (0.017)
Tobin's Q	-0.009** (0.004)	-0.009** (0.004)	-0.009** (0.004)	-0.009** (0.004)
Tangibility	-0.257*** (0.043)	-0.257*** (0.043)	-0.257*** (0.043)	-0.257*** (0.043)
Firm Size	-0.025*** (0.005)	-0.025*** (0.005)	-0.025*** (0.006)	-0.025*** (0.006)
Cash Holding	0.155*** (0.032)	0.153*** (0.032)	0.155*** (0.032)	0.153*** (0.032)
Cash Flow	0.474*** (0.120)	0.474*** (0.119)	0.476*** (0.120)	0.476*** (0.119)
Leverage	0.011 (0.034)	0.011 (0.034)	0.011 (0.034)	0.011 (0.034)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster on Industry	Yes	Yes	Yes	Yes
Observations	5119	5119	5119	5119
Adjusted R ²	0.092	0.093	0.092	0.093
Sample: All POEs	Yes			

Panel B: Full POE sample estimates with firm political connection status interactions

	Investment			
	(1)	(2)	(3)	(4)
ACC13 × High SOE13 × PC POE	0.020 (0.022)	0.031 (0.020)	0.016 (0.025)	0.027 (0.023)
ACC13 × High SOE13 × Non-PC POE	0.009 (0.015)	0.019 (0.015)	0.004 (0.019)	0.015 (0.017)
ACC13 × High PC POE13 × PC POE		0.036 (0.027)		0.038 (0.026)
ACC13 × High PC POE13 × Non-PC POE		0.029 (0.023)		0.030 (0.022)
ACC13 × High Non-PC POE13 × PC POE			-0.011 (0.023)	-0.016 (0.021)
ACC13 × High Non-PC POE13 × Non-PC POE			-0.012 (0.019)	-0.011 (0.018)
PC POE	0.013 (0.008)	0.012 (0.009)	0.013 (0.010)	0.013 (0.010)
Tobin's Q	-0.009** (0.004)	-0.009** (0.004)	-0.009** (0.004)	-0.009** (0.004)
Tangibility	-0.253*** (0.041)	-0.253*** (0.041)	-0.253*** (0.041)	-0.253*** (0.041)
Firm Size	-0.025*** (0.005)	-0.025*** (0.005)	-0.025*** (0.005)	-0.025*** (0.005)
Cash Holding	0.158*** (0.031)	0.157*** (0.031)	0.158*** (0.031)	0.157*** (0.031)
Cash Flow	0.497*** (0.117)	0.498*** (0.117)	0.499*** (0.117)	0.499*** (0.117)
Leverage	0.016 (0.033)	0.015 (0.033)	0.016 (0.033)	0.015 (0.033)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster on Industry	Yes	Yes	Yes	Yes
Observation	5098	5098	5098	5098
Adjusted R ²	0.094	0.095	0.094	0.095
Sample: All POEs	Yes			

6. Chinese cross-border acquisitions and firm level spillovers

The main analysis shows that reform induced changes in SOEs' competitive position generate spillover effects on POE investment in China's local markets. In this section, we provide a short extension to examine whether a similar peer spillover pattern appears in an international setting. This extension does not rely on the SOE POE mechanism. Instead, it studies whether ownership changes affecting an existing local peer firm generate spillovers to untreated firms in the same host country industry.

6.1. Motivation and empirical setting

Cross border acquisitions differ from other forms of foreign entry because they transfer control over an existing local firm. After acquisition, the target remains embedded in the host country industry, but its financing, operating policies, resource access, and strategic priorities may be influenced by the foreign acquirer. Non target firms in the same host country industry do not receive direct organizational inputs from the acquirer, but they may face the competitive consequences of a transformed local rival.

Chinese cross border acquisitions provide a useful setting for this extension. China's outward foreign direct investment expanded rapidly after the Going Out initiative, supported by policy encouragement, state financing support, and gradual easing of approval procedures (Buckley et al., 2018; Gaur et al., 2018; Lu et al., 2014). Prior research shows that foreign entry and cross border acquisitions can affect non target firms through productivity, governance, and competitive spillovers (Aitken and Harrison, 1999; Javorcik, 2004; Albuquerque et al., 2019; Servaes and Tamayo, 2014; Yilmaz, 2024). We use this setting to examine whether Chinese acquisitions affect non target firms in the same host country industries as acquired targets.

6.2. Data and exposure measure

We use deal level data from SDC Platinum to identify 720 Chinese majority acquisitions across 42 host countries from 2000 to 2023. We construct a host country industry year measure of Chinese acquisition exposure as the total value of Chinese acquisitions in a given country industry year scaled by the market capitalization of firms in the same country industry year:

$$Exposure_{c,j,t} = \frac{\sum_{s \in (c,j,t)} Deal\ value_s}{Market\ capitalization_{c,j,t}}$$

We merge this exposure measure with Compustat firm level data and focus on non-target firms operating in ever exposed host country industries. The final sample contains 40,630 firm year observations from 2001 to 2024. The exposure measure varies substantially across host

countries and industries, reflecting both differences in Chinese acquisition activity and differences in the size of host country industries.

6.3. Empirical specification

We examine whether non-target firms in more exposed industries differ systematically from those in less exposed industries, establishing the baseline relation between Chinese acquisition exposure and firm-level outcomes.

$$Y_{i,c,j,t} = \beta Exposure_{c,j,t-1} + \gamma X_{i,c,j,t} + \mu_j + \lambda_t + \varepsilon_{i,c,j,t}$$

where subscripts i, c, j, t refer to firm, country, industry, and year, respectively. The dependent variable $Y_{i,c,j,t}$ will be replaced by return on assets ratio (ROA), research and development ratio ($R\&D$), Tobin's Q ratio (*Tobin's Q*), and selling, general, and administrative expenses ratio (SGA). $Exposure_{c,j,t-1}$ is the lagged ratio of the total value of Chinese cross-border acquisitions over total market capitalization in country c , industry j , and year $t-1$. $X_{i,c,j,t}$ is a set of firm-level control variables including firm size, tangibility, short-term debt, leverage, and dividends. μ_j and λ_t denotes industry and year fixed effects, respectively. The standard errors are clustered at the firm-level.

6.4. Baseline results

Table 11 reports the baseline firm-level spillover results. Greater Chinese acquisition exposure is associated with higher ROA and lower SGA among non-target firms, suggesting that exposure is linked to higher current profitability and lower indirect operating costs. At the same time, exposure is associated with lower $R\&D$ intensity and lower *Tobin's Q*. This pattern is consistent with short-run operating discipline under stronger competitive pressure, but it also suggests weaker investment in future growth and lower market valuation. The evidence

indicates that Chinese acquisitions affect host-country industries beyond acquired firms themselves.

Table 11: Baseline spillover effects

This table reports the baseline relation between lagged Chinese cross-border acquisition exposure and firm-level outcomes for non-target firms operating in ever-exposed industries in years in which the corresponding host-country industry is exposed to Chinese cross-border acquisitions. The dependent variables are return on assets (ROA), research and development intensity (R&D), Tobin's Q, and selling, general, and administrative expenses scaled by total assets (SGA). All regressions included industry and year fixed effects. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

	ROA (2)	R&D (4)	Tobin's Q (6)	SGA (8)
Exposure _{t-1}	0.404*** (0.050)	-0.128*** (0.017)	-1.889*** (0.334)	-0.522*** (0.061)
Firm size	0.095*** (0.002)	-0.014*** (0.001)	-0.251*** (0.014)	-0.073*** (0.002)
Tangibility	0.255*** (0.018)	-0.063*** (0.005)	-1.647*** (0.128)	-0.201*** (0.014)
ST debt	-0.781*** (0.071)	0.201*** (0.024)	6.430*** (0.429)	0.695*** (0.062)
Leverage	-0.030* (0.016)	-0.081*** (0.006)	-2.584*** (0.123)	-0.049*** (0.014)
Dividends	-0.104 (0.200)	0.058 (0.076)	8.855*** (1.155)	1.102*** (0.163)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster on Firm	Yes	Yes	Yes	Yes
Observation	40,630	40,630	40,630	40,630
Adjusted R ²	0.315	0.311	0.169	0.284
Sample:	Non-target firms from ever exposed industries			

6.5. Potential mechanism

Table 12 examines three potential channels through which Chinese acquisitions may generate competitive spillovers: investment intensity, asset-utilization efficiency, and product market competition. The results indicate that spillovers are stronger when the Chinese parent's home industry differs more sharply from the host-country target industry along these dimensions. In Panels A and B, the interactions with higher Chinese capital expenditure intensity and higher Chinese asset turnover are positive for *ROA* and negative for *R&D* and *SGA*, while insignificant for *Tobin's Q*. These patterns suggest that investment- and efficiency-based spillovers operate mainly through short-run operating discipline: non-target firms reduce discretionary expenditures and improve current profitability, but markets do not revalue these adjustments as clear long-term gains. In Panel C, the interaction with higher Chinese product market

concentration is positive for *ROA* and negative for *R&D*, *SGA*, and *Tobin's Q*. This indicates a stronger competitive pressure channel: non-target firms improve current profitability through expenditure discipline, but also experience a decline in market valuation, consistent with a perceived deterioration in future growth prospects. Overall, the table suggests that what Chinese acquirers bring into the host-country industry matters for the competitive responses of local non-target firms. These estimates should be interpreted as cross-sectional evidence on potential channels rather than direct mediation tests.

Table 12: Potential channels of exposure effects

This table tests potential channels through which Chinese acquisition exposure affects non-target firms in the same host-country target industry. Panels A, B, and C examine investment-based, efficiency-based, and product market competition-based channels, respectively, using indicators for whether the corresponding Chinese industry exceeds the host-country target industry in capital expenditure intensity, asset turnover, and sales-based HHI. The dependent variables are *ROA*, *R&D*, *Tobin's Q*, and *SGA*. All specifications include firm-level controls, industry fixed effects, and year fixed effects. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Panel A: Capital expenditure channel

	ROA (1)	R&D (2)	Tobin's Q (3)	SGA (4)
Exposure _{t-1}	0.2849*** (0.0600)	-0.0745*** (0.0212)	-2.0641*** (0.3347)	-0.3949*** (0.0441)
IndVar_CapExp _{t-1}	-0.0638*** (0.0076)	0.0326*** (0.0023)	0.2207*** (0.0537)	0.0687*** (0.0059)
Exposure _{t-1} × IndVar_CapExp _{t-1}	0.2017** (0.0969)	-0.1013*** (0.0332)	0.1431 (0.6323)	-0.2384** (0.1045)
Firm size	0.0962*** (0.0022)	-0.0141*** (0.0008)	-0.2525*** (0.0144)	-0.0734*** (0.0020)
Tangibility	0.2553*** (0.0180)	-0.0625*** (0.0052)	-1.6678*** (0.1298)	-0.1993*** (0.0138)
ST debt	-0.7825*** (0.0715)	0.2013*** (0.0243)	6.4286*** (0.4312)	0.6930*** (0.0625)
Leverage	-0.0327** (0.0167)	-0.0814*** (0.0060)	-2.5796*** (0.1249)	-0.0451*** (0.0145)
Dividends	-0.0980 (0.2043)	0.0498 (0.0782)	8.7563*** (1.1896)	1.1049*** (0.1666)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster on Firm	Yes	Yes	Yes	Yes
Observation	39,784	39,784	39,784	39,784
Adj R ²	0.247	0.086	0.116	0.217
Sample:	Non-target firms from ever exposed industries			

Panel B: Operational efficiency channel

	ROA (1)	R&D (2)	Tobin's Q (3)	SGA (4)
Exposure _{t-1}	0.3448*** (0.0548)	-0.0810*** (0.0219)	-1.7380*** (0.3891)	-0.4440*** (0.0787)
IndVar_AssetsTurnover _{t-1}	-0.0678*** (0.0070)	0.0402*** (0.0026)	0.0206 (0.0481)	0.0377*** (0.0056)
Exposure _{t-1} × IndVar_AssetsTurnover _{t-1}	0.2377* (0.1316)	-0.2013*** (0.0454)	-0.8184 (0.8169)	-0.3207** (0.1286)
Firm size	0.0958*** (0.0022)	-0.0139*** (0.0008)	-0.2504*** (0.0143)	-0.0729*** (0.0020)
Tangibility	0.2542*** (0.0179)	-0.0616*** (0.0052)	-1.6776*** (0.1296)	-0.2002*** (0.0138)
ST debt	-0.7856*** (0.0717)	0.2027*** (0.0243)	6.4525*** (0.4323)	0.6983*** (0.0627)
Leverage	-0.0341** (0.0167)	-0.0803*** (0.0059)	-2.5879*** (0.1251)	-0.0457*** (0.0145)
Dividends	-0.1123 (0.2046)	0.0582 (0.0783)	8.7618*** (1.1887)	1.1118*** (0.1670)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster on Firm	Yes	Yes	Yes	Yes
Observation	39,784	39,784	39,784	39,784
Adj R ²	0.248	0.089	0.116	0.216
Sample:	Non-target firms from ever exposed industries			

Panel C: Product market competition channel

	ROA (1)	R&D (2)	Tobin's Q (3)	SGA (4)
Exposure _{t-1}	0.2843*** (0.0510)	-0.0755*** (0.0166)	-0.9443*** (0.3317)	-0.2689*** (0.0548)
IndVar_HHI _{t-1}	-0.0366*** (0.0078)	0.0215*** (0.0025)	0.3306*** (0.0513)	0.0918*** (0.0057)
Exposure _{t-1} × HHI _{t-1}	0.6751*** (0.1538)	-0.2543*** (0.0508)	-5.2381*** (1.2218)	-1.2626*** (0.1771)
Firm size	0.0961*** (0.0022)	-0.0142*** (0.0008)	-0.2568*** (0.0143)	-0.0738*** (0.0020)
Tangibility	0.2577*** (0.0180)	-0.0631*** (0.0052)	-1.6656*** (0.1292)	-0.1992*** (0.0137)
ST debt	-0.7910*** (0.0717)	0.2041*** (0.0243)	6.4886*** (0.4332)	0.7072*** (0.0623)
Leverage	-0.0310* (0.0167)	-0.0818*** (0.0059)	-2.5991*** (0.1248)	-0.0503*** (0.0145)
Dividends	-0.1188 (0.2032)	0.0551 (0.0777)	8.8192*** (1.1754)	1.1003*** (0.1656)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster on Firm	Yes	Yes	Yes	Yes
Observation	39,912	39,912	39,912	39,912
Adj R ²	0.247	0.084	0.118	0.220
Sample:	Non-target firms from ever exposed industries			

6.6. Heterogeneity: Haier and Huawei pathways

Table 13 examines heterogeneity by host-country development status. The baseline effects are concentrated in advanced host countries, where exposure is positively associated with *ROA* and negatively associated with *R&D*, *Tobin's Q*, and *SGA*. In developing host countries, the corresponding estimates are statistically insignificant. This contrast is consistent with the view that Chinese acquisitions in advanced economies are more likely to involve strategic asset-seeking motives and to affect established competitive environments, whereas acquisitions in developing economies may be more resource-oriented or more localized in their spillover effects.

Table 13: Spillover effects by host country development status

This table reports the relation between lagged Chinese cross-border acquisition exposure and firm-level outcomes separately for non-target firms in advanced and developing host countries. All regressions included industry and year fixed effects. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

	ROA (1)	R&D (2)	Tobin's Q (3)	SGA (4)	ROA (5)	R&D (6)	Tobin's Q (7)	SGA (8)
Exposure _{t-1}	0.407*** (0.058)	-0.134*** (0.020)	-2.102*** (0.391)	-0.543*** (0.072)	0.036 (0.031)	0.010 (0.012)	-0.186 (0.832)	0.012 (0.037)
Firm size	0.099*** (0.002)	-0.015*** (0.001)	-0.263*** (0.015)	-0.076*** (0.002)	0.015*** (0.003)	0.001* (0.001)	-0.021 (0.059)	-0.013*** (0.003)
Tangibility	0.223*** (0.018)	-0.046*** (0.005)	-1.617*** (0.133)	-0.181*** (0.014)	0.001 (0.019)	-0.005 (0.004)	-0.195 (0.350)	-0.047** (0.021)
ST debt	-0.747*** (0.072)	0.188*** (0.024)	6.270*** (0.437)	0.675*** (0.063)	-0.274*** (0.105)	-0.003 (0.006)	7.836*** (2.012)	0.293*** (0.104)
Leverage	-0.053*** (0.017)	-0.074*** (0.006)	-2.501*** (0.128)	-0.035** (0.015)	-0.086*** (0.015)	-0.018*** (0.007)	-3.201*** (0.347)	-0.073*** (0.017)
Dividends	-0.160 (0.207)	0.069 (0.079)	8.383*** (1.181)	1.127*** (0.168)	1.085*** (0.110)	-0.079* (0.043)	19.811*** (6.039)	0.501** (0.197)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster on Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation	39,346	39,346	39,346	39,346	1,284	1,284	1,284	1,284
Adjusted R ²	0.331	0.338	0.170	0.292	0.267	0.017	0.214	0.200
Sample:	Non-target firms from ever exposed industries in advanced countries				Non-target firms from ever exposed industries in developing countries			

7. Conclusion

This paper examines how changes affecting important peer firms shape the decisions of untreated rivals. The main analysis focuses on local product markets in China, where state owned enterprises and privately owned enterprises compete within the same industries. Using China's 2016 supply side structural reform as a quasi-experimental shock, we study whether reform induced changes in SOEs' expansion capacity affect POE investment through competitive spillovers.

The local market evidence shows that POEs in high SOE prevalence industries increase investment relative to POEs in low SOE prevalence industries after the reform. The effect is economically meaningful and is supported by dynamic specifications and placebo tests. The evidence is consistent with a product market competition channel rather than a direct financing channel. SOE related market concentration declines more sharply in high SOE prevalence industries, while POEs in these industries do not experience comparable differential improvements in financing conditions. The results remain robust after accounting for other reform pillars, regional SOE concentration, alternative pre reform SOE prevalence measures, pre reform industry concentration, prior policy shocks, and POE side industry composition.

The heterogeneity analysis further shows that the investment response is concentrated among non-politically connected POEs. This finding suggests that political connections do not necessarily help private firms capture new investment opportunities when competitive conditions change. Instead, political ties may reduce firms' responsiveness to market-based changes by creating strategic rigidity, political obligations, or weaker exposure to market discipline.

As a short extension, the paper also examines Chinese cross border acquisitions. This setting differs from the SOE POE setting because the relevant change is an ownership transfer rather than institutional reform. The evidence shows that Chinese acquisition exposure is

associated with higher profitability and lower selling, general, and administrative expenses among non-target firms in the same host country industries, but also with lower R&D intensity and lower Tobin's Q. These effects are concentrated in advanced host countries and are stronger when Chinese acquirers come from industries with higher investment intensity, asset utilization efficiency, or product market concentration. The extension supports the broader peer spillover argument, while the main identification and mechanism evidence comes from the local market analysis.

The paper's central implication is that institutional reform and ownership change can affect firms beyond those directly targeted. In China's local markets, reform induced constraints on SOEs alter POE investment through product market competition. In international markets, Chinese acquisitions can reshape the outcomes of non-target firms by changing the position of an existing local peer. These findings indicate that analyses focused only on directly treated firms may understate the broader consequences of reforms and ownership changes.

Several limitations point to future research. The local market analysis relies on industry level SOE prevalence as the exposure measure. More granular product market data could further sharpen the measurement of competitive overlap between SOEs and POEs. The cross-border acquisition extension documents firm level spillovers among non-target firms, but future work could examine the underlying channels more directly using data on supply chains, employment, pricing, product market shares, and subsidiary level operations. More detailed data on acquirer target integration would also help clarify how ownership changes are transmitted to host country competitors.

Overall, the evidence shows that peer spillovers are central to understanding how institutional reforms and ownership changes reshape market outcomes. Firms respond not only to their own treatment status, but also to changes in the competitive position of important peers.

Accounting for these indirect effects is therefore essential for evaluating policy interventions, ownership changes, and the broader dynamics of imperfect competition.

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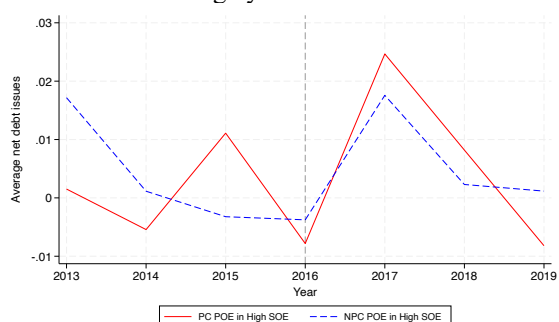
Appendix

Appendix A

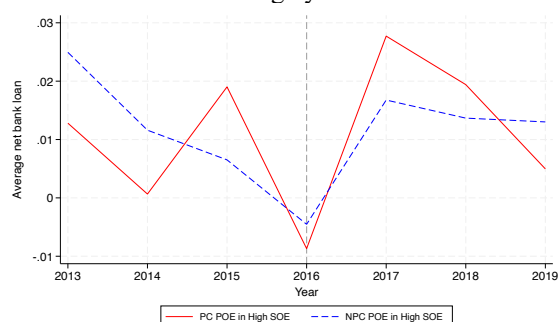
Figure A1: Financing dynamics of politically and non-politically connected POEs in high SOE industry

This figure reports the financing dynamics of politically and non-politically connected POEs in high SOE industry. It reports annual average values of aggregate net debt financing, net equity financing, and internal cash flow, constructed from firms' cash flow statements. Figure A.1.1A presents the dynamics of total net debt financing, defined as the sum of net bank loans, net bond financing, and net other debt financing. Figures A.1.1B, A.1.1C, and A.1.1D further decompose net debt financing into net bank loans, net bond financing, and net other debt financing, respectively. Figure A.1.1E presents the dynamics of net equity financing over the sample period, and Figure A.1.1F presents the dynamics of internal cash flow.

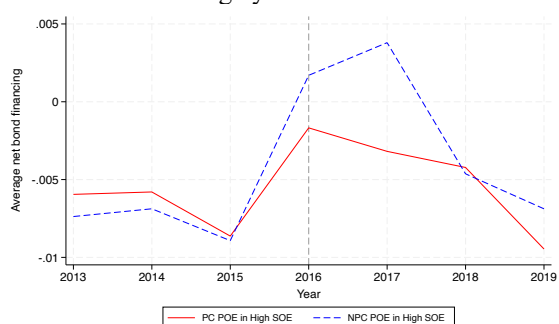
A: Net debt financing dynamics



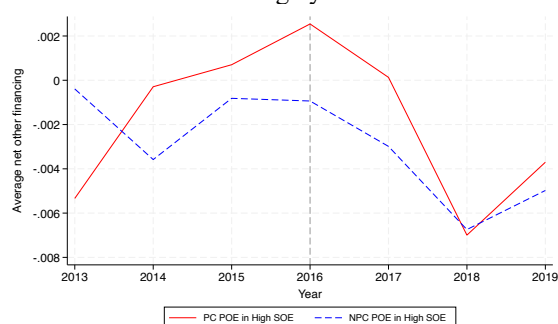
B: Net bank loan financing dynamics



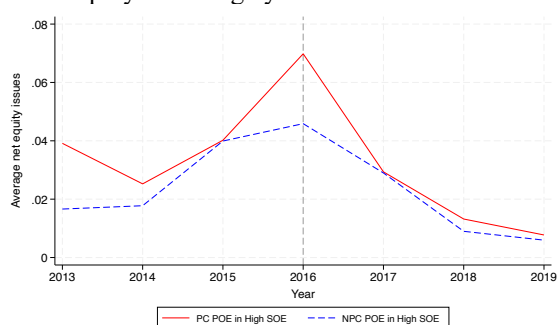
C: Net bond financing dynamics



D: Net other debt financing dynamics



E: Net equity financing dynamics



F: Internal cash flow dynamics

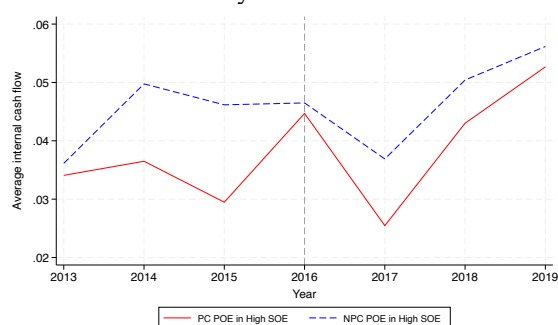


Table A1: Variable definitions and sources

This table reports the definitions and sources of variables, the terms in parentheses refer to the original item names in the CSMAR database.

Variable	Definition	Data source
Investment	Firm-level investment is calculated as the change in net fixed assets (Net Fixed Assets) plus depreciation of fixed assets (Depreciation of Fixed Assets, Oil and Gas Assets, and Bearer Biological Assets), scaled by lagged total non-current assets (Total Non-current Assets).	CSMAR
Tobin's Q	Firm-level Tobin's Q is calculated as the sum of market value of equity (Market Value) and total assets (Total Assets), minus the book value of equity (Total Shareholders' Equity), divided by total assets (Total Assets). The market value (Market Value) is calculated as the number of A shares multiplied by their closing price plus the number of B shares multiplied by their closing price.	CSMAR
Tangibility	Firm-level tangibility is measured as the ratio of property, plant, and equipment (Net Fixed Assets) to total assets (Total Assets).	CSMAR
Firm size	Firm-level firm size is measured as the natural logarithm of total assets (Total Assets).	CSMAR
Cash holding	Firm-level cash holding is the ratio of cash (Cash and Cash Equivalents) to total assets (Total Assets).	CSMAR
Cash flow	Firm-level cash flow, measured as net profit (Net Profit) plus depreciation of fixed assets (Depreciation of Fixed Assets, Oil and Gas Assets, and Bearer Biological Assets) minus cash paid for distributing dividends (Cash Paid for Distributing Dividends and Profits or Paying Interests), scaled by total assets (Total Assets).	CSMAR
Leverage	Firm-level leverage, measured as the ratio of total liabilities (Total Liabilities) to total assets (Total Assets).	CSMAR
Bank Loan (accumulated)	Firm-level accumulated bank loan is measured by the sum of short-term (Short-term Loans) and long-term loans (Long-term Loans), scaled by total assets (Total Assets).	CSMAR
Trade Credit	Firm-level trade credit is the ratio of accounts payable (Accounts Payable) over total assets (Total Assets)	CSMAR
Notes Payable	Firm-level notes payable is measured as the ratio of notes payable (Notes Payable) to total assets (Total Assets)	CSMAR
Taxes Payable	Firm-level taxes payable is measured as the ratio of taxes payable (Taxes Payable) to total assets (Total Assets)	CSMAR
Total Investment	Firm-level total investment is the net investment measured by the difference between cash outflow from investment (Subtotal of Cash Outflow from Investing Activities) and cash inflow from investment (Subtotal of Cash Inflow from Investing Activities), scaled by total assets (Total Assets).	CSMAR
Fixed Assets Investment	Firm-level fixed assets investment is calculated as the change in net fixed assets (Net Fixed Assets) plus depreciation of fixed assets (Depreciation of Fixed Assets, Oil and Gas Assets, and Bearer Biological Assets), scaled by total assets (Total Assets).	CSMAR
Dividends	Firm-level dividends are the ratio of dividends (Total Dividends) over total assets (Total Assets).	CSMAR
Δ Cash	Firm-level cash change is calculated as the net increase in cash and cash equivalents (Net Increase of Cash and Cash Equivalents) minus the effect of exchange rate changes (Effect of Exchange Rate Changes on Cash and Cash Equivalents) and other items affecting cash (Effect of Other Items on Cash), scaled by total assets (Total Assets).	CSMAR
Bank	Firm-level net bank financing is measured as loan borrowing (Proceeds from Borrowings) minus principal of loans (Cash Repayments of Amounts Borrowed), divided by total assets (Total Assets).	CSMAR
Bond	Firm-level net bond financing is measured as the new bond issuance (Proceeds from Issuing Bonds) minus the difference between cash paid for distributing dividends (Cash Paid for Distributing Dividends) and total dividends (Total Dividends), scaled by total assets (Total Assets).	CSMAR
Other	Firm-level net other financing is calculated as debt financing except bank and bond (Other Cash Received Relating to Financing Activities) minus	CSMAR

Equity	other cash paid relating to financing activities (Other Cash Paid Relating to Financing Activities), scaled by total assets (Total Assets). Firm-level net equity financing is calculated as total net cash received from equity issuance (Cash Received from Equity Investment) to total assets (Total Assets).	CSMAR
Internal Cash Flow	Firm-level internal cash flow is calculated as net cash flow from operating activities (Net Cash Flow from Operating Activities), scaled by total assets (Total Assets).	CSMAR
SOE HHI	SOE HHI is an industry-level Herfindahl–Hirschman Index calculated as the sum of squared market shares of SOE firms within an industry-year. Firm-level market share is computed as operating revenue (Operating Revenue) divided by total industry operating revenue in 2015.	The authors' calculation
Industry Size	Industry-level variable industry size is measured as the natural logarithm of the total number of firms operating in an industry-year.	The authors' calculation
PC	PC is a firm-level dummy variable measure the political connection status of the firm equal to one if a firm has at least one top executive with prior government employment, and zero otherwise.	The authors' calculation
High SOE	Industry-level indicator equal to one if the industry's share of SOE assets falls in the top quartile of the distribution in 2015. The industry-level SOE asset share is calculated as the sum of total assets (Total Assets) of SOE firms divided by the total assets of all sample firms in the same industry and year.	The authors' calculation
High BC	Industry-level indicator equal to one if the total industry's bureaucratic costs share falls in the top quartile of the distribution in 2015. The bureaucratic costs share is calculated as total administrative expenses (Administrative Expenses) divided by total assets (Total Assets), aggregated across all sample firms in the same industry and year.	The authors' calculation
High RD	Industry-level indicator equal to one if the total industry's R&D investment falls in the top quartile of the distribution in 2015. The industry-level R&D investment is calculated as total R&D investment (Amount of R&D Investment) divided by total assets (Total Assets), aggregated across all sample firms in the same industry and year.	The authors' calculation
High SOE Province	Province-level indicator equal to one if the province's share of SOE assets falls in the top quartile of the distribution in 2015. The SOE asset share is calculated as the total assets of SOE firms (Total Assets) divided by the total assets of all sample firms in the same province and year.	The authors' calculation
SSSR	Indicator variable equal to one for years 2016 and onward (including 2016), and zero otherwise.	The authors' calculation

Table A2: Robustness check using pre-anti-corruption campaign year exposure measures

This table repeats the ACC falsification test using exposure measures constructed from 2012, the year before the ACC implementation. The sample covers 2010 to 2015 and includes all POEs. *ACC13* equals one for 2013 and later years. *High SOE12*, *High PC POE12*, and *High Non-PC POE12* are defined using the 2012 industry asset shares of SOEs, politically connected POEs, and non-politically connected POEs, respectively. Panel A reports horse race estimates using the three exposure measures. Panel B allows each exposure effect to differ by firms' political connection status. All regressions control for lagged firm level characteristics and include industry and year fixed effects. Standard errors are clustered at the industry level. ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. The sample consists of POE firms only.

Panel A: Horse race estimates with robustness checks

	Investment			
	(1)	(2)	(3)	(4)
ACC13 × High SOE12	-0.017 (0.026)	-0.008 (0.025)	-0.024 (0.028)	-0.015 (0.027)
ACC13 × High PC POE12		0.029 (0.026)		0.026 (0.024)
ACC13 × High Non-PC POE12			-0.023 (0.018)	-0.019 (0.015)
Tobin's Q	-0.009** (0.004)	-0.009** (0.004)	-0.009** (0.004)	-0.009** (0.004)
Tangibility	-0.258*** (0.043)	-0.257*** (0.043)	-0.258*** (0.043)	-0.258*** (0.043)
Firm Size	-0.025*** (0.005)	-0.025*** (0.005)	-0.025*** (0.005)	-0.025*** (0.005)
Cash Holding	0.155*** (0.032)	0.155*** (0.032)	0.154*** (0.032)	0.154*** (0.032)
Cash Flow	0.473*** (0.120)	0.474*** (0.120)	0.476*** (0.120)	0.476*** (0.120)
Leverage	0.011 (0.034)	0.011 (0.034)	0.010 (0.034)	0.011 (0.034)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster on Industry	Yes	Yes	Yes	Yes
Observations	5119	5119	5119	5119
Adjusted R ²	0.092	0.093	0.093	0.093
Sample: All POEs	Yes			

Panel B: Robustness estimates with firm political connection status

	Investment			
	(1)	(2)	(3)	(4)
ACC13 × High SOE12 × PC POE	0.007 (0.028)	0.016 (0.026)	0.001 (0.030)	0.010 (0.029)
ACC13 × High SOE12 × Non-PC POE	-0.025 (0.023)	-0.017 (0.023)	-0.032 (0.025)	-0.024 (0.024)
ACC13 × High PC POE12 × PC POE		0.029 (0.029)		0.026 (0.028)
ACC13 × High PC POE12 × Non-PC POE		0.023 (0.023)		0.021 (0.021)
ACC13 × High Non-PC POE12 × PC POE			-0.014 (0.023)	-0.012 (0.022)
ACC13 × High Non-PC POE12 × Non-PC POE			-0.023 (0.018)	-0.019 (0.016)
PC POE	0.011 (0.008)	0.010 (0.009)	0.010 (0.010)	0.009 (0.010)
Tobin's Q	-0.010** (0.004)	-0.010** (0.004)	-0.010** (0.004)	-0.010** (0.004)
Tangibility	-0.253*** (0.042)	-0.253*** (0.042)	-0.254*** (0.042)	-0.253*** (0.042)
Firm Size	-0.025*** (0.005)	-0.025*** (0.005)	-0.025*** (0.006)	-0.025*** (0.006)
Cash Holding	0.159*** (0.031)	0.159*** (0.031)	0.159*** (0.031)	0.159*** (0.031)
Cash Flow	0.497*** (0.118)	0.498*** (0.117)	0.499*** (0.117)	0.499*** (0.117)
Leverage	0.015 (0.033)	0.015 (0.033)	0.015 (0.033)	0.015 (0.033)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Cluster on Industry	Yes	Yes	Yes	Yes
Observation	5098	5098	5098	5098
Adjusted R ²	0.095	0.095	0.095	0.095
Sample: All POEs	Yes			

Table A3: Robustness checks on the cutoff measurement of SOE prevalence

This table reports robustness checks for the definition of SOE prevalence exposure. Column 1 presents the baseline specification using the top quartile cutoff. Columns 2 to 4 replace the top quartile with alternative quartile thresholds to examine whether spillover effects extend beyond industries with the highest SOE concentration. Column 5 uses a continuous measure of SOE prevalence. All regressions include industry and year fixed effects and control for lagged firm-level characteristics. Standard errors are clustered at the industry level. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively. The sample consists of POEs only. The sample consists of POE firms only.

	Investment				
	Baseline (1)	Alternative quartile		Continues	
	(1)	(2)	(3)	(4)	(5)
SSSR $\times$ High SOE (top quartile)	0.022*** (0.007)				
SSSR $\times$ High SOE (quartile 3)		-0.006 (0.008)			
SSSR $\times$ High SOE (quartile 2)			-0.004 (0.007)		
SSSR $\times$ High SOE (quartile 1)				-0.006 (0.011)	
SSSR $\times$ High SOE (continuous)					0.026 (0.023)
Tobin's Q	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)
Tangibility	-0.129*** (0.024)	-0.127*** (0.024)	-0.128*** (0.023)	-0.128*** (0.024)	-0.128*** (0.024)
Firm Size	-0.030*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)	-0.030*** (0.003)
Cash Holding	0.121*** (0.025)	0.122*** (0.025)	0.122*** (0.025)	0.122*** (0.025)	0.122*** (0.025)
Cash Flow	0.639*** (0.070)	0.638*** (0.070)	0.638*** (0.070)	0.637*** (0.070)	0.637*** (0.070)
Leverage	0.096*** (0.023)	0.095*** (0.022)	0.095*** (0.023)	0.095*** (0.023)	0.095*** (0.023)
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Cluster on Industry	Yes	Yes	Yes	Yes	Yes
Observation	9281	9281	9281	9281	9281
Adjusted R ²	0.088	0.088	0.088	0.088	0.088
Sample: All POEs			Yes		

Table A4: Variable definition and sources

This table reports the definitions and sources of variables, the terms in parentheses refer to the original item names in Compustat Fundamentals.

Variable	Definition	Data source
ROA	Firm-level return of assets is measured as the ratio of EBIT (ebit) over total assets (at).	Compustat Fundamentals
R&D	Firm-level research and development is measured as the ratio of research and development (xrd) over total assets (at).	Compustat Fundamentals
Tobin's' Q	Firm-level Tobin's is calculated as the sum of market capitalization and total assets (at) minus the book value of common equity (ceq), divided by total assets (at). For global firms, market capitalization is measured as the year-end stock price (prccd) multiplied by the number of common shares outstanding (cshoc) and divided by one million. For north American firms, the market capitalization is measured as the year-end stock price (prcc_f) multiplied by the number of common shares outstanding (csho).	Compustat Fundamentals
SGA	Firm-level selling, general, and administrative expense ratio is measured as selling, general, and administrative expenses (xsga) scaled by total assets (at).	Compustat Fundamentals
Firm size	Firm-level firm size is measured as the natural logarithm of total assets (at).	Compustat Fundamentals
Cash holding	Firm-level cash holding is calculated as cash and short-term investments (che) scaled by total assets (at).	Compustat Fundamentals
Tangibility	Firm-level tangibility ratio is measured as property, plant, and equipment (ppent) scaled by total assets (at).	Compustat Fundamentals
ST Debt	Firm-level short-term debt is measured as long-term debt due within one year (dd1) scaled by total assets (at).	Compustat Fundamentals
Leverage	Firm-level leverage ratio is measured as the sum of debt in current liabilities (dlc) and long-term debt (dltt), divided by the sum of debt in current liabilities (dlc), long-term debt (dltt) and market capitalization.	Compustat Fundamentals
Dividends	Firm-level dividends is measured as total dividends (dvt) divided by total assets (at).	Compustat Fundamentals
Exposure	Industry-level Chinese acquisition exposure is measure as sum of the value of deals in target industry over the market capitalization within the same year.	The authors' calculation
EC	EC is a binary indicator equal to one for year of 2008 and onwards, and zero otherwise.	The authors' calculation
NC	NC is a binary indicator equal to one for year of 2012 and onwards, and zero otherwise.	The authors' calculation
SSSR	SSSR is a binary indicator equal to one for year of 2016 and onwards, and zero otherwise.	The authors' calculation
TW	TW is a binary indicator equal to one for year of 2018 and onwards, and zero otherwise.	The authors' calculation
Pre08 treated	Pre08 treated is an indicator equal to one for industries that had already been exposed to Chinese cross-border acquisitions before 2008, and zero otherwise.	The authors' calculation
Pre12 treated	Pre12 treated is an indicator equal to one for industries that had already been exposed to Chinese cross-border acquisitions before 2012, and zero otherwise	The authors' calculation
Pre16 treated	Pre16 treated is an indicator equal to one for industries that had already been exposed to Chinese cross-border acquisitions before 2016, and zero otherwise.	The authors' calculation
Pre18 treated	Pre18 treated is an indicator equal to one for industries that had already been exposed to Chinese cross-border acquisitions before 2018, and zero otherwise.	The authors' calculation

Table A5: Cross-border acquisition exposure by target country

This table reports the distribution of exposure across countries. No. of deal refers to the number of country-industry-year deal with positive exposure no exceeding to one in each country. Percentage of target public listed refers to the percentage of public listed target firms over the overall target firms across industries and years. Mean exposure ratio, median exposure ratio and SD refer to the mean, median and standard deviation (SD) of the exposure ratio across identified exposure ratio within a country across industries and years, respectively. The exposure ratio is defined as total value of China cross-border acquisition divided by host country-industry-year market capitalization.

Country	No. of deal	Percentage of public listed target firm	No. of Non-target observations	No. of Non-target firms	Mean exposure ratio	Median exposure ratio	SD
TZA	1	0	1	1	0.734	0.734	N/A
TUR	1	0	5	5	0.621	0.621	N/A
BRA	5	0	6	6	0.473	0.382	0.414
HUN	1	0	3	3	0.345	0.345	N/A
NOR	6	0	13	13	0.188	0.234	0.120
VGB	10	0	2	2	0.177	0.177	0.244
ESP	16	0.062	30	26	0.157	0.070	0.206
NLD	20	0	58	40	0.156	0.004	0.234
FIN	6	0.167	16	16	0.152	0.055	0.218
VNM	9	0	48	38	0.134	0.026	0.271
ISR	12	0.167	165	130	0.124	0.030	0.214
IRL	2	0.500	2	2	0.117	0.117	N/A
KAZ	5	0.200	2	1	0.114	0.114	0.123
SWE	7	0	59	43	0.112	0.020	0.209
AUT	5	0.200	3	3	0.105	0.105	0.144
SGP	40	0.275	529	304	0.095	0.013	0.179
NZL	8	0	25	16	0.071	0.004	0.152
ITA	34	0	140	83	0.071	0.009	0.172
AUS	69	0.362	5713	1262	0.068	0.005	0.168
BEL	4	0	14	14	0.045	0.017	0.057
POL	3	0	47	47	0.033	0.009	0.044
KOR	22	0.182	1283	758	0.028	0.003	0.084
CHL	4	0	18	17	0.027	0.014	0.035
LVA	1	0	3	3	0.026	0.026	N/A
THA	6	0	76	76	0.024	0.004	0.036
MYS	13	0.077	289	232	0.022	0.006	0.040
ZAF	10	0.300	108	24	0.021	0.007	0.043
LUX	6	0	2	2	0.020	0.020	N/A
PAK	1	0	3	3	0.020	0.020	N/A
CAN	51	0.549	5955	1601	0.017	0.004	0.062
GBR	38	0.158	1038	493	0.014	0.006	0.024
CHE	8	0	47	47	0.012	0.002	0.023
DEU	47	0.064	792	228	0.011	0.002	0.020
IDN	5	0.200	31	31	0.010	0.010	0.010
FRA	35	0.114	697	277	0.008	0.002	0.019
PER	3	0	17	12	0.006	0.006	0.007
USA	161	0.130	19632	5059	0.004	0.000	0.021
DNK	5	0	12	6	0.004	0.002	0.005
IND	2	0.500	575	333	0.003	0.003	0.004
JPN	32	0.125	3118	1116	0.001	0.000	0.002
CYM	2	0	50	35	0.001	0.001	0.001
RUS	4	0.250	3	3	0.000	0.000	N/A
Total	720	0.109	40630	12411	0.104	0.077	0.106

Table A6: Cross-border acquisition exposure by target industry

This table reports the cross-industry distribution of Chinese cross-border acquisition exposure at the two-digit SIC level. Panel A reports the top 10 industries ranked by mean exposure ratio, while Panel B reports the bottom 10 industries. No. of deal refers to the number of deals in the target industry across country. Percentage of target firm is public listed refers to the share of public listed target firms among all target firms in that industry across countries and years. No. of observations and No. of firms refer to the number of non-target firm-year observations and non-target firms in the sample, respectively. Mean exposure ratio, median exposure ratio, and SD report the mean, median, and standard deviation of the exposure ratio across country-industry-year observations within each industry. The exposure ratio is defined as the total value of Chinese cross-border acquisitions divided by host-country-industry-year market capitalization.

Panel A: Top 10 exposed industries

SIC 2-digit	Industry name	No. of deal	Percentage of target firm is public listed	No. of observations	No. of firms	Mean exposure ratio	Median exposure ratio	SD
01	Agricultural Production - Crops	4	0	8	8	0.623	0.926	0.532
02	Agricultural Production - Livestock	6	0	4	4	0.225	0.225	0.298
32	Stone, Clay, Glass, and Concrete	9	0.444	37	35	0.170	0.035	0.286
78	Motion Pictures	3	0	15	15	0.167	0.167	0.054
17	Special Trade Contractors	2	0	6	6	0.157	0.157	N/A
34	Fabricated Metal Products	11	0.091	126	70	0.128	0.011	0.234
70	Hotels and Other Lodging Places	20	0	88	44	0.103	0.014	0.189
30	Rubber and Miscellaneous Plastics	12	0.083	134	94	0.099	0.049	0.141
80	Health Services	11	0.182	327	141	0.090	0.002	0.234
26	Paper and Allied Products	6	0.167	41	41	0.086	0.020	0.126

Panel B: Bottom 10 exposed industries

SIC 2-digit	Industry name	No. of deal	Percentage of target firm is public listed	No. of observations	No. of firms	Mean exposure ratio	Median exposure ratio	SD
55	Automotive Dealers and Service Stations	2	0.500	1	1	0.009	0.009	N/A
72	Personal Services	1	0	8	8	0.008	0.008	N/A
56	Apparel and Accessory Stores	2	0.500	4	4	0.008	0.008	0.007
75	Automotive Repair, Services, and Parking	1	0	7	7	0.007	0.007	N/A
57	Home Furniture and Furnishings Stores	5	0.400	44	28	0.006	0.007	0.005
08	Forestry	3	0	1	1	0.005	0.005	N/A
59	Miscellaneous Retail	2	0	71	71	0.003	0.003	0.004
22	Textile Mill Products	4	0	6	6	0.002	0.002	N/A
27	Printing and Publishing	1	0	21	21	0.002	0.002	N/A
21	Tobacco Products	1	0	6	6	0.000	0.000	N/A