The Ripple Effects of China's Global Ownership*

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Abstract

We document the rise in China's global corporate ownership across 162 countries over the past decade using detailed firm level data, and assess its real impact on target firms, its spillover effect on non-Chinese-owned firms in the same country and industry, and its spillback effect on ultimate owners' firms in China. We find that China's global ownership increased at a rate of 30 percent per annum to reach a global share of 1.2 percent as of 2019. After being acquired by Chinese shareholders, target firms tend to increase R&D investments by 16.4% on average, gain larger market shares, become less profitable, and hold less cash, while also becoming more integrated into China-related supply chains. In contrast, competing firms in the same country and industry exhibit reduced R&D investments and diminished market share. These effects are more pronounced when the acquiring firms are affiliated with the Chinese government and state-owned entities, consistent with a strategic emphasis on R&D by the Chinese government. We also find that government-related entities target natural resource sectors strategically. Lastly, we identify a significant spillback effect, whereby Chinese firms augment domestic R&D investment following overseas investment in R&D-intensive firms, indicative of knowledge transfers.

Keywords: Foreign ownership, China, overseas investment, state-owned enterprises, innovation

JEL Classification: G30, G32, O3, F3

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1. Introduction

Over the past decade, China has experienced remarkable economic growth, solidifying its position as a global economic powerhouse. From 2010 to 2020, China's GDP expanded at an average annual rate of around 7%, consistently outpacing most developed economies. This rapid growth has propelled China to become a key driver of global economic activity and trade. Parallel to its domestic economic expansion, China has significantly increased its overseas investments and acquisitions in recent years. According to the American Enterprise Institute, China's global investment stock grew from $317 billion in 2009 to over $2.7 trillion by the end of 2021.[2] This surge in outbound investment has been driven by factors such as securing access to natural resources, seeking new markets for Chinese products and services, and acquiring advanced technologies and expertise (e.g., Buckley et al. 2007; Morck et al. 2008).

Alongside China's economic rise, there has been growing anxiety and scrutiny in the Western world about China's new role in the global economy, giving rise to the so-called "China threat" narrative. This narrative encompasses concerns surrounding China's economic expansion, geopolitical ambitions, and growing global influence. Critics argue that China's economic expansion abroad is intertwined with broader geopolitical objectives, fueling apprehensions that the acquisition of strategic assets like critical infrastructure, cutting-edge technologies, and natural resources is aimed at bolstering China's economic and political leverage over other countries.

Are Chinese overseas investments a source of opportunity and growth, or a potential threat to the host countries' economic interests and security? Do China's investments abroad aim at acquiring advanced technologies and intellectual property by investing in R&D? Do these investments hurt firm profitability and employment? Does Chinese ownership increase the dependence of local firms on Chinese supply chains? Does Chinese overseas investment crowd

[2] https://www.aei.org/china-global-investment-tracker/

out innovation of local firms? Does Chinese overseas investment spill back to China in the form of knowledge transfers?

These pivotal questions surrounding Chinese overseas investment have become increasingly prevalent in political, academic, and media discourse. However, most analyses have been limited by relying on aggregate foreign direct investment (FDI) data (e.g., Buckley et al. 2007; Morck et al. 2008). These data come with major caveats and limitations. They are often processed with significant delays and inaccuracies, with inconsistent reported totals in home and host countries. Moreover, China's existing capital controls encourage firms to underreport foreign investments to evade capital controls (e.g., Biswas et al., 2022). Consequently, official data may not fully capture the extent of foreign investment activities. Perhaps most importantly, aggregate data do not allow to investigate compositional effects that can only be analysed with micro-level data (e.g., the role of state versus private ownership), and are more limited in identifying the underlying channels and real consequences.

In this paper, we address these important questions through a micro-level analysis by examining corporate ownership by Chinese entities across a total of 195,447 firms in 162 countries during the period 2012 to 2019. Leveraging a novel dataset on global ownership, we focus on the world's largest companies, defined as those with more than 1,000 employees, a total asset value exceeding $260 million, or an operating revenue greater than $130 million. These companies represent about 80 percent of the total assets of all companies in the world. For each firm and year, we identify whether any shareholders originate directly from China or are subsidiaries of Chinese entities. Among the 195,447 companies, we identify 3,928 firms that were owned by at least one Chinese entity or Chinese subsidiary during our sample period and have valid balance sheet information. We then calculate the firm-level assets owned by Chinese entities by multiplying the

aggregated share of a firm owned by Chinese entities or their subsidiaries by the firm's total assets. This firm-level metric of Chinese ownership forms the foundation of our analysis.

By exploiting this extensive micro-level dataset, we make three contributions to the literature on foreign investment, and that of China in particular. First, we distinguish between the role of state ownership and private ownership when assessing the impact of Chinese foreign investment on the behavior of foreign companies. Second, we consider the spillover effects of such investments on similar companies that are not targeted. Third, we consider the spillback effects of such investments on companies in China.

We first present stylized facts on China's global corporate ownership. Aggregating the firm-level assets owned by Chinese entities at the global level, we find that in 2012, China held approximately $240 billion in assets among the world's largest firms outside China, accounting for a 0.34% share. These figures increased substantially to $1.62 trillion and a 1.20% share in 2019, reflecting an average annual growth rate of 30% in China's global ownership over this period. In contrast, while the United States' global corporate ownership outside the US also expanded from $6.17 trillion to $12.84 trillion in assets between 2012 and 2019, its share changed modestly from 7.58% to 8.61%, with a lower annual growth rate of 11%. Despite China's rapid expansion, in terms of the absolute value of assets owned globally, it still significantly lags behind the US and other advanced economies such as Japan ($2.85 trillion), Germany ($2.14 trillion), and the United Kingdom ($1.97 trillion) as of 2019. This seems incongruous given that China has been the world's second-largest economy since 2010 and the largest exporting nation since 2013.

When we aggregate the firm-level assets owned by China at the industry level, we find that the sectors showing a significant increase in Chinese direct investment are mining and quarrying, manufacturing, real estate activities, wholesale and retail trade, financial and insurance activities, and information and communications.. By the end of our sample in 2019, approximately 2.8% of

the total assets of large real estate companies outside China are held by Chinese entities and their subsidiaries. The number is 1.07% for financial and insurance businesses, 1.87% for information and communication firms, 1.68% for wholesale and retail trades, 1.80% for the mining and quarrying sector, and 1.29% for manufacturing industries.

In terms of geographic distribution, Europe has the largest concentration of Chinese equity investment, accounting for approximately 42% of all China's overseas investment as of the end of 2019. Asia, excluding China, accounts for 28%, and Africa for 17% of the total Chinese overseas investment. The numbers for North America and Oceania are much smaller, at only 9% and 4% respectively.[3]

Next, we delve into the relationship between Chinese ownership and various firm characteristics at the industry-country level. Our analysis reveals a noteworthy correlation: Chinese-owned firms exhibit a positive and substantial inclination towards investing in research and development (R&D), indicating a prioritization of innovation within these entities. Furthermore, our findings highlight a significant association between Chinese ownership and the level of supply chain integration within firms, as gauged by input-output tables. This suggests that firms under Chinese ownership tend to foster robust connections with suppliers and customers based in China, underscoring the strategic significance of supply chain networks in Chinese investment strategies.

Moreover, our investigation underscores a distinct interest of Chinese State-Owned Enterprises (SOEs) in the natural resources sector, indicating a deliberate focus by Chinese SOEs on industries abundant in natural resources. These nuanced insights shed light on Chinese investors' preferences and strategic orientations, emphasizing their emphasis on fostering innovation, enhancing supply chain integration, and capitalizing on natural resource-rich sectors.

[3] For the North American sample, Orbis covers only listed firms.

The exploration of factors driving China's corporate ownership is further substantiated through formal regression analyses that compare firms with Chinese ownership to matching firms without such ownership across multiple dimensions. The matching firms are identified within the same industry, country, and year, exhibiting similar propensity scores in key firm characteristics such as size, leverage, and performance. Our analyses yield four salient findings.

Firstly, we find that firms increase their R&D investments by 16.4% on average after being acquired by Chinese shareholders. This impact is particularly pronounced when the Chinese shareholders are affiliated with the Chinese government and state-owned entities (i.e., 26.4% increase in R&D), indicating a strategic emphasis on R&D by Chinese state-owned enterprises (SOEs). However, the matching firms in the same industry and country exhibit a significant reduction in their R&D investments. This negative spillover effect suggests a crowding-out phenomenon.

Secondly, we find that a firm's market share increases after being owned by Chinese shareholders. In contrast, the average market shares of firms never owned by a Chinese entity or a Chinese entity's subsidiary in the same industry and country decreases when the share of assets owned by China increases in the industry. This finding suggests that China's domination of the market increases with its ownership.

Thirdly, using supply chain information from the FactSet Revere dataset, we find that firms outside China are more likely to be the customers (but not the suppliers) of Chinese firms after being owned by Chinese shareholders. This implies that Chinese ownership increases customer ties with mainland China, intensifying trade relationships. We also find that after Chinese shareholders acquire a stake in the firm, the firm's profitability and cash holdings decrease, which reflects the "dark side" of Chinese ownership. The decreased profitability is mainly associated with private Chinese shareholders, not Chinese SOE shareholders.

Lastly, we uncover a noteworthy spillback effect: Chinese firms significantly boost their domestic R&D investments after investing in R&D-intensive firms abroad, a clear sign of knowledge transfer. Specifically, when Chinese shareholders acquire firms in G7 countries, their corresponding shareholder firms back in China ramp up their R&D spending in the same industry by 62.7%. Even more striking is the behavior of SOEs as shareholders. These entities increase their R&D investments by a substantial 204.6%, demonstrating a more pronounced response compared to their non-SOE counterparts. This insight highlights the differential impact of corporate ownership structures on R&D spillbacks, with SOEs showing a particularly strong inclination to leverage international acquisitions for enhancing domestic innovation capabilities.

Our work provides the first systematic study of China's global ownership, which contributes to several strands of the existing literature. Firstly, we contribute to the extensive body of research on FDI spillovers, as comprehensively reviewed by Harrison and Rodriguez-Clare (2009). Diverging from many studies that rely on aggregate data (e.g., Fosfuri, Motta, and Rønde (2001); Javorcik (2004)), our research utilizes a detailed firm-level dataset, uniquely enabling us to track firm ownership structure changes over time. This approach allows us to uncover novel evidence by distinguishing between state-owned enterprises (SOEs) and private shareholders, and analyzing economic impacts via spillovers (to other firms in the same industry and country) and spillbacks (to domestic firms in China).

Moreover, our findings of the crowding-out and crowding-in effects of China's ownership on technology innovations add to the recent discussion of the knowledge spillovers and decoupling across countries (e.g., Blalock and Gertler (2008); Akcigit et al. (2020); Han, Jiang, and Mei (2024)).[4] In particular, Bai et al. (2022) document that Chinese domestic automakers learn from their foreign joint venture partners to achieve quality upgrades. Our paper shows that ownership

[4] Several recent studies focus on the economic consequences of investments from China to US (e.g., Brown and Singh (2018); Hanemann et al., (2021)). There is also related evidence that the merger of corporate entities can generate synergies for innovation (e.g., Bena and Li 2014).

channels constitute another way for Chinese firms to learn and adopt foreign technologies, with potential adverse consequences on foreign markets. This also adds to ongoing discussions among policymakers regarding the geopolitical tensions between China and other countries (e.g., Amiti et al. (2019), Ru and Yang (2024)).

Relatedly, our evidence on the determinants of Chinese corporate ownership adds to the growing literature on international mergers and acquisitions. This literature has identified various drivers of foreign acquisitions, including access to larger product markets (e.g., Yeaple 2003; Di Giovanni 2005), access to deeper financial markets (e.g., Alquist et al. 2014; Aguiar and Gopinath 2005), access to stronger 'investor protection rights (e.g., Bris and Cabolis 2008; Rossi and Volpin 2004; Chari et al. 2010), access to more favorable tax regimes or regulations (e.g., Huizinga and Voget 2009; , and exploiting differentials in corporate valuations (e.g., Aguiar and Gopinath 2005; Baker et al. 2009). We complement these findings by showing that the motivation for Chinese entities, particularly those tied to the Chinese central or local governments, to invest abroad is not fully oriented toward profit maximization but rather driven by strategic reasons, such as seeking natural resources or gaining technology transfer. Consequently, the target firms tend to exhibit poor performance after having Chinese stockholders.

Our paper proceeds as follows. Section 2 provides background on the evolution of China's foreign investment and the "China threat" narrative. Section 3 describes the data sources and presents stylized facts of China's global ownership. Sections 4, 5, and 6 present the empirical results. Section 7 concludes.

2. The Evolution of China's Overseas Investment

Over the past four decades, China has transformed from an inward-looking economy to a global economic powerhouse, largely through strategic reforms and international engagement. The opening-up policy initiated under Deng Xiaoping in 1978 marked the beginning of China's

integration into the global economy, a process significantly accelerated by its accession to the World Trade Organization in 2001. This era was characterized by the establishment of special economic zones to attract foreign capital and the launch of the "Going Out" policy in the early 2000s, aimed at encouraging Chinese enterprises to invest overseas. Such initiatives were foundational in securing technology, resources, and market access, contributing to China's economic ascent (Song, Storesletten, and Zilibotti, 2011).

In recent years, China's foreign investment strategy has become more nuanced and ambitious, exemplified by the launch of the Belt and Road Initiative (BRI) in 2013. This mammoth project seeks to enhance global connectivity through infrastructure development, trade facilitation, and cultural exchange across Asia, Africa, and Europe, spanning over 70 countries and encompassing more than 60% of the world's population. The BRI has catalyzed China's overseas investment in key sectors such as energy, telecommunications, and manufacturing. Chinese enterprises have leveraged the BRI framework to pursue strategic acquisitions, joint ventures, and greenfield investments in countries participating in the initiative. By investing in sectors aligned with BRI priorities, Chinese companies aim to secure access to vital resources, markets, and technology, while also enhancing their global competitiveness and market diversification.

Another policy, China's "Made in China 2025" initiative, launched in 2015, also has a profound influence on China's overseas investment. The initiative aims to elevate China's industrial capabilities by prioritizing strategic sectors. Chinese companies, backed by government support and financial incentives, have been encouraged to invest abroad in sectors that complement China's industrial upgrading goals, such as high-tech manufacturing, automotive, biotechnology, and information technology. This strategic approach not only facilitates technology transfer but also enables Chinese firms to gain access to new markets, resources, and strengthen their global presence and supply chain resilience. However, Chinese companies' rapid expansion has also led

to increased international scrutiny and calls for regulatory oversight, signaling a complex interplay between China's global economic ambitions and the international community's response to its rise (Huang, 2016).

3. Stylized Facts of China's Global Ownership

3.1. Data Sources and Sample Construction

The main dataset used in this paper is from the Orbis database by Bureau van Dijk (BvD), the largest cross-country firm-level database of harmonized financial information and ownership information, covering over 400 million public and private firms in more than 100 countries. Orbis only keeps historical data for a limited number of years, and the online version of Orbis does not maintain data for firms that exit from the sample (Kalemli-Ozcan et al., 2024). To reduce survivorship bias, we follow Kalemli-Ozcan et al. (2024) and use annual downloads of the Orbis database to build a panel data set. Our sample period is 2012-2019, which is the period over which China's global ownership stake increased dramatically. In practice, we obtain information on about 255 million firm-year observations for 94 million firms over this sample period, with 44 million companies among them having non-missing balance sheet information.[5]

Orbis has two distinct sub-databases. The ownership information is maintained under Orbis Ownership, while the financial information is maintained under Orbis Financials. Orbis Ownership contains information on the names, the countries of incorporation, the layers of the ownership (i.e., direct or indirect), and directly owned shares or indirectly owned shares of firms' blockholders and institutional investors. Specifically, each entity in Orbis is assigned a BvD identifier (BVDID). The first two digits of BVDID are the ISO code of the country where the firm is incorporated. In rare cases, country codes WW, YY, and ZZ are assigned to entities with unknown countries. The rest of the BVDID is either the entity's fiscal identification number or the internal identification

[5] We mainly check whether firms have non-missing total assets (TOAS) because total assets, in general, have better coverage than other financial items and would be used in most of our research designs.

number by the information provider (Wildmer et al., 2019). Hence, our first step is to exclude all firms with a BVDID that starts with "CN," as our focus is non-China-incorporated firms. To measure China's ownership, we start with the direct shareholders and the direct ownership percentage to avoid double counting. That is, we focus on all direct shareholders whose BVDID starts with "CN." However, one concern of only looking at first-level shareholders is that China may blur its ownership using its subsidiaries incorporated in tax havens (Coppola et al., 2021; Clayton et al., 2023). Therefore, we utilize a variable in Orbis called Global Ultimate Owner 50 (GUO50). Suppose all the shareholders located in the hierarchy between a subsidiary and a foreign ultimate owner own at least 50% of their corresponding subsidiaries at that layer of the hierarchy; the foreign ultimate owner is recorded as the GUO50 of that subsidiary. Hence, we also identify all direct shareholders who themselves are ultimately owned by a GUO50 incorporated in China. Altogether, the Chinese entities and the Chinese entities' subsidiaries within non-China-incorporated firms' shareholder bases are referred to as "Chinese shareholders." [6]

We take the following three approaches to measure Chinese ownership at the firm and country-industry levels. Firstly, at the firm level, we define a dummy variable, CN_Owned, which equals one if one of the firm's direct shareholders is an entity incorporated in China (i.e., BVDID starts with "CN") or an entity ultimately owned by one (i.e., GUO50's BVDID starts with "CN"). The underlying assumption is that the existence of a Chinese entity or a Chinese entity's subsidiary within the firm's shareholder base could change the firm-level outcomes. As discussed before, the direct shareholders recorded in Orbis are mostly either blockholders or financial institutions, both of which could have a non-trivial impact on the firm. Secondly, to measure what drives Chinese ownership at the country-industry level, we measure the actual dollar values of assets that are

[6] We use the terms "owned by China," "owned by Chinese shareholders," and "owned by Chinese entities and Chinese entities' subsidiaries" interchangeably.

owned by China in each industry in each country each year. [7] Specifically, we first calculate how many assets are owned by Chinese shareholders at the firm level in that year by multiplying a firm's total assets by the aggregated shares owned by Chinese entities or Chinese entities' subsidiaries. [8] Then, we aggregate these China-owned assets by each country and each industry to get the country-industry measure, $\sum$CN_Owned_Assets. Thirdly, we would like to see the consequences of high Chinese ownership in the targeting industry on other firms within the industries that have never been owned by a Chinese entity or a Chinese subsidiary. To achieve this, we divide $\sum$CN_Owned_Assets by the aggregation of total assets of all firms in that industry to obtain %CN_Owned_Assets, which is a measure of the concentration of Chinese ownership at the country-industry level. A priori, we also expect that Chinese state-owned enterprises (SOEs) would play an important role in China's global ownership, given their key position in China's economy. To measure whether an entity in our data is an SOE or a government agency, we utilize a variable called TYPE OF ENTITY (_40025) in Orbis. Every entity that is labeled as a "Public authority/State/Government" by Orbis is regarded as a government agency, and we identify all entities ultimately owned by a government agency as either other government agencies or SOEs. Any entity incorporated in China not identified as an SOE or a government agency is treated as a private Chinese firm. Then, we repeat the above three approaches for SOEs and private firms, respectively, to obtain the firm-level and country-industry-level measures for China's SOE ownership and private ownership. Eventually, we will keep one observation for one firm or one observation for one country and industry each year.

[7] Our definition of industries is based on the ISIC Rev. 4 code (which is consistent with the NACE Rev. 2 code at the 2-digit level). The detailed classification is in the manner of the OECD Input-Output Tables, which will be matched with our main dataset to measure the Chinese supply chains. Please refer to the Appendix for details.

[8] In rare cases, a firm's shareholders' (Chinese) ownership stakes may add up to over 100% because of data issues. In these cases, we count the (Chinese) ownership stakes as 100%.

Orbis financials may report duplicate accounts for one firm in one year. [9] [10] One reason is that Orbis Financials records both consolidated and unconsolidated accounting numbers. In this situation, we give priority to unconsolidated accounts because (i) Most firms in Orbis report unconsolidated accounts (Kalemli-Ozcan et al., 2024). (ii) An entity and its subsidiary may both be included in our sample. For example, if a Chinese company directly owns an entity in Bermuda and ultimately owns a subsidiary in Germany through the Bermuda entity, both the Bermuda firm and the German firm would have $\texttt{CN\_Owned} = 1$. Using consolidated accounts may cause double counting. Another reason is that Orbis accounts may have different filing types, namely, "local registry filing" and "annual report." We give priority to the former one if the firm has both in one year because most of the accounts are reported in "local registry filing". In addition, Orbis may record both quarterly and annual reports. We only keep accounts covering at least 12 months and give priority to the accounts covering exactly 12 months if a firm has accounts covering different time periods. Moreover, firms may switch the account closing date in a year, as mentioned by Kalemli-Ozcan et al. (2024), which causes duplicates. To address this type of duplicate, we keep the accounts with the latest closing date if a firm has multiple accounts ending on different dates in a year. If duplicates still exist, we keep the accounts with the best coverage of the following nine Orbis items: total assets (TOAS), tangible fixed assets (TFAS), long-term debts (LTDB), loans (LOAN), operating revenue (turnover) (OPRE), sales (TURN), cash flows (CF), EBITDA (EBTA), and number of employees (EMPL). Eventually, we keep one observation for one firm each year.

Merging the Ownership data and the Financials data in the Orbis database is straightforward. Now that both the ownership data and financial data only have one observation for one firm

[9] We only download accounts in USD instead of local currencies to do cross-country analyses.

[10] The year part in the Account Closing Date (CLOSEDATE) in Orbis does not necessarily reflect the calendar year. Following the convention, we assign the year part of CLOSEDATE as the true calendar year if the closing date is on or after June 1st. Otherwise, we assign the year before the year part of CLOSEDATE as the true calendar year.

(identified with its unique BVDID) in one year, we do one-to-one matching based on BVDID and year. The merging leaves us with 98 million firm-year observations, which corresponds to 23 million entities in 171 countries. Nevertheless, the financial items in Orbis data still have very different coverage. To generate a final sample with reasonable coverage for each of our variables without losing too many observations, we take the following two steps. Firstly, we require a firm to have total assets information in Orbis to be included in our sample. This is because the coverage of total assets is much better than most of the accounting items in Orbis, and total assets would be included in most of our research designs. Secondly, we only focus on entities that are labeled as "Very Large Company" by Orbis. The total assets of these entities comprise almost 90% of the aggregation of total assets across all firms with non-missing ownership information and non-missing total assets information in the Orbis universe, as shown in nontabulated summary statistics, although their number is only about 1%. Therefore, the "Very Large Company" sample is representative enough compared with the full sample. Besides, the "Very Large Company" criteria vary by country, so it is also unlikely that a country is overweight or underweight in the "Very Large Company" sample. Besides, in some countries, Orbis only provides non-missing financial information of listed firms, including the US and Canada. Focusing on the "Very Large Company" sample can reduce the underrepresentation of these countries. Most importantly, many variables we use have much better coverage in the "Very Large Company" sample than in the full sample. For example, in the full sample, 97.06% of firm-year observations with non-missing total assets and non-missing ownership information have missing R&D expenses, while in the "Very Large Company" sample, the percentage reduces to 82.76%. Eventually, our sample size is narrowed down to 1,129,228 firm-year observations, which corresponds to 195,447 firms located in 162 countries.

At the firm level, we are interested in whether Chinese ownership affects a firm's R&D expenses, ROA, cash-to-assets ratio, and sales (expressed in market shares). We further control for the firm's total assets, tangible fixed assets, firm age, leverage (long-term debt over total assets), and the Herfindahl index based on sales in the firm's industry. These variables are constructed with financial items from Orbis Financials and winsorized at the 1st and 99th percentiles. Variables not in the ratio form, like R&D expenses, total assets, tangible fixed assets, and firm age, are log-transformed after winsorization. At the country-industry level, we are interested in what drives Chinese ownership. Therefore, we aggregate R&D expenses, number of employees, EBITDA, operating costs, and cash across all firms in each country and each industry each year, respectively, to measure the country-industry characteristics. [11] Total assets, tangible fixed assets, and long-term debts are also aggregated across all firms within the country industry, respectively, to be included as control variables. We are also interested in the consequences of Chinese ownership concentration in the targeting industries on other firms that have never been owned by a Chinese shareholder. To measure the spillover effects, we first remove all firms that have ever been owned by a Chinese entity or a Chinese entity's subsidiary in our sample period. For the rest of the firms, we average their R&D expenses, market shares, total assets, tangible fixed assets, leverages, firm age, ROA, and cash within the country industry. [12] Eventually, we only keep one observation for one industry in one country in one year. The detailed description of the variable construction is in the Appendix.

To measure China's supply chains, we utilize two more datasets. At the firm level, we leverage the FactSet Revere dataset. If a local entity is recorded in FactSet Revere as an entity to which a source company in China sells products or services, it is labeled as a customer of China. On the contrary, if a local entity is recorded in FactSet Revere as an entity from which a source company

[11] All the variables are winsorized at the 1st and 99th percentiles before aggregation.
[12] The variables are winsorized at the 1st and 99th percentiles before taking averages.

in China purchases goods or services, an entity that provides paid manufacturing services to a source company in China, an entity that provides paid marketing and/or branding/advertising services to a source company in China, or an entity whom a source company in China pays to distribute its products/services, it is labeled as a China's supplier. Then, FactSet data are matched with our main dataset via ISIN. About 10% of our firm-year observations can be matched with supply chain information from FactSet Revere.

At the country-industry level, we use the OECD Input-Output Tables, which cover 45 ISIC Rev. 4 industries in 76 countries (OECD, 2023). We calculate the intermediate inputs from China to each country's industry (intermediate outputs from each country's industry to China) as a percentage of its total intermediate inputs (intermediate outputs). As mentioned before, our industries in the main dataset are also defined in the OECD's manner. So, we one-to-one merge our main dataset with the OECD Input-Output Tables by country code, ISIC Rev. 4 code, and year.

[Insert Table 1 about here]

The summary statistics of the intersection between the Orbis ownership data and the Orbis financial data are shown in Table 1. We classify our non-China-incorporated firm-year-level observations by whether the Chinese ownership for that firm in that year equals one or not. Panel A reports the summary statistics for firm-year observations with $\texttt{CN\_Owned} = 1$, while Panel B for $\texttt{CN\_Owned} = 0$. Comparing Panels A and B, we find that, unconditionally, China-owned firms have higher R&D expenses, lower likelihood of reporting blank R&D expenses, lower profitability, larger market shares, more assets, and larger firm ages. Besides, China-owned firms are more likely to be part of the Chinese supply chains. In Panel C, the observations are either aggregated or averaged at the country-industry-year level for all sample countries excluding China. In Panels D and E, we report the summary statistics of China-incorporated firms conditioning on whether the firm has foreign subsidiaries in that year or not. Panel D reports the summary statistics

for firm-year observations with $\texttt{CN\_foreign} = 1$, while Panel E for $\texttt{CN\_foreign} = 0$. Comparing Panels D and E, we find that, unconditionally, China-incorporated firms with foreign subsidiaries have higher R&D expenses, lower likelihood of reporting blank R&D expenses, larger market shares, more assets, higher leverage, and larger firm ages than their peers. Nevertheless, the profitability is similar across the two groups.

3.2. Stylized Facts

This Section summarizes some of the stylized facts of China's global ownership. China's global ownership is calculated by aggregating the firm-level assets outside China directly owned by Chinese entities and Chinese subsidiaries by country or by industry. Table 2 reports the top countries and industries in terms of the dollar values of China-owned assets, the shares of China-owned assets, and the growth of China-owned assets. For comparability, industries are now clustered at the sectional level of ISIC Rev. 4 (identical to NACE Rev. 2 at the sectional level). From Panel A, we can see that China's global ownership covers a large share of the total assets of firms in the "Very Large Company" sample in tax havens, including Hong Kong, Antigua and Barbuda, Cayman Islands, Bermuda, British Virgin Islands, and Singapore. In Hong Kong, the share of assets owned by China can be as high as 31.76%. [13] In Antigua and Barbuda, the percentage is slightly lower, at 30.49%. Panel B shows that besides tax havens, China ownership is also very high in many developed European, Oceania, and American countries in terms of dollar values. From Panels C and D, we find that China's global ownership mainly grows in small developing countries but also grows a lot in highly developed countries like Switzerland. [14] Panels E and F show that China's ownership concentrates on industries like real estate activities, mining and quarrying, information and communication, construction, and wholesale and retail trade, either in terms of dollar values or in terms of percentages. As China is notably in short of

[13] This is not too surprising because Hong Kong is also a Special Administrative Region (SAR) under China's realm.
[14] We should deal with the numbers of the US in Canada with caution, as Orbis only reports non-missing financial information of listed firms in these two countries.

natural resources, its ownership percentage in the mining and quarrying firms outside China could be as high as 2.22%. Panel G indicates that China's ownership has also grown a lot in various industries. Especially in industries like financial and insurance activities, accommodation and food service activities, and water supply, sewerage, waste management and remediation activities, China's ownership has grown by more than eight times.

[Insert Table 2 about here]

Figure 1 shows the evolution of China's global ownership worldwide. In 2012, only less than 0.4% of the total assets of our sample firms were owned by China, while until 2019, the number increased to 1.25%. The dollar values also quadrupled in the eight-year period. In 2012, the aggregated total assets owned by China in our sample firms were less than 400 billion USD, while in 2019, the number reached over 1.6 trillion. In comparison, the share of assets owned by a US entity or a US entity's subsidiary was about 8% in 2012 and was still no more than 9% in 2019, even though the dollar values of US ownership also doubled in this period. [15]

[Insert Figure 1 about here]

Figure 2 shows the evolution of China's ownership in selected industries, and Figure 3 shows the evolution of China's ownership in different regions. Panel A of Figure 2 indicates that in traditional industries like mining and quarrying, China's ownership is high but stable. In comparison, China's global ownership has increased significantly in industries like finance, IT, and construction. Specifically, Panel B of Figure 2 shows that in the financial industry, China-owned assets in the "Very Large Company" sample were merely below 50 billion USD in 2012 and spiked to almost 500 billion USD in 2019, a more than ten times increase. The number is extremely surprising given that China's ownership in the financial industry was not low in terms of dollar values in 2012. The increase in China's ownership in the information and communication

[15] Note that we exclude all Chinese firms (BVDID starts with "CN") when calculating China's global ownership. Similarly, we exclude all US firms (BVDID starts with "US") when calculating the US's global ownership.

industry is also alarming. Panel D shows that, in 2012, assets owned by China in this industry were only slightly larger than 0.2%, while until 2019, the number reached over 1.8%. Figure 3 shows that China's ownership is relatively stable in regions like Northern America and Oceania, slightly expands in Asia (excluding China itself), and expands a lot in Europe. Figure 4 compares China's SOE ownership and private ownership. Surprisingly, although SOE only contributes to less than 10% of China's economy, it comprises about 50% of China's global ownership. To be specific, in years like 2013, 2014, and 2015, there are even more assets outside China in the "Very Large Company" sample of China are owned by Chinese SOEs than private firms, though in other years the share owned by Chinese SOEs are slightly lower, but the difference is small.

[Insert Figures 2, 3 and 4 about here]

4. Factors Affecting China's Ownership

Our analysis commences with an exploration of the relationship between Chinese ownership and the characteristics of firms at the industry-country level. In particular, we run the regressions for the total dollar value of assets owned by China at the industry-country-year level on the industry and country characteristics such as innovation investments and efficiency. Formally, we run the following regressions:

$$\begin{aligned}\text{Log}(\sum\text{CN\_Owned\_Assets})_{c,j,t+1} = \alpha + \beta_1 \times \text{Log}(\sum\text{R\&D})_{c,j,t} + \beta_2 \times \text{Log}(\sum\text{Empl})_{c,j,t} + \\ \beta_3 \times \sum\text{EBITDA}/\sum\text{Assets}_{c,j,t} + \beta_4 \times \sum\text{OpCost}/\sum\text{EBITDA}_{c,j,t} + \beta_5 \times \sum\text{Cash}/\sum\text{Assets}_{c,j,t} + \\ \beta_6 \times \text{IO\_China}/\text{IO}_{c,j,t} + \beta_7 \times \text{II\_China}/\text{II}_{c,j,t} + \beta_8 \times \text{Nature\_Resources\_Country}_{c,t} + \\ \gamma' \times \text{Nature\_Resources\_Industry}_{c,t} + \text{All\_Blank\_R\&D} + \text{Partial\_Blank\_R\&D} + \text{Control} + \\ \text{CountryFE} + \text{IndustryFE} + \text{YearFE} + \varepsilon_{i,t} \quad (1)\end{aligned}$$

where $\text{Log}(\sum\text{CN\_Owned\_Assets})_{c,j,t+1}$ is the logarithm of the assets owned by Chinese entities or Chinese entities' subsidiaries within industry j in country c in year $t+1$. It is calculated by aggregating the firm-level assets owned by Chinese entities and Chinese entities' subsidiaries in

each country and industry in each year. At the firm level, we multiply the firm's total assets by its shares owned by Chinese entities and Chinese entities' subsidiaries to determine how many assets are under China's ownership. Similarly, $\text{Log}(\sum \text{R\&D})_{c,j,t}$ is the logarithm of the R&D expenses of all firms within industry j in country c in year t.[16]

In addition, we measure the country industry's employment and profitability by including different country-industry level characteristics in the regressions. Specifically, the numbers of employees of all firms within industry j in country c in year t are aggregated and log-transformed to get $\text{Log}(\sum \text{Empl})_{c,j,t}$. The EBITDA of all firms within industry j in country c in year t are aggregated and scaled by the summation of all firms' total assets to get $\sum \text{EBITDA}/\sum \text{Assets}_{c,j,t}$. Similarly, the operating costs of all firms within industry j in country c in year t are aggregated and scaled by the summation of all firms' EBITDA to get $\sum \text{OpCost}/\sum \text{EBITDA}_{c,j,t}$, and the summation of all firms' cash is scaled by the summation of all firms' total assets to get $\sum \text{Cash}/\sum \text{Assets}_{c,j,t}$.

We also would like to see whether Chinese ownership concentrates on industries relying on the Chinese supply chain. To achieve this, we utilize the OECD Input-Output Tables, which cover 45 ISIC industries in 76 countries (OECD, 2023). To be specific, we extract the intermediate inputs from (or intermediate outputs to) all Chinese industries for industry j in country c in year t and then divide them by the country industry's total intermediate inputs (intermediate outputs) to determine its dependence on the suppliers from China (customers from China), $\text{II\_China}/\text{II}_{c,j,t}$ ($\text{IO\_China}/\text{IO}_{c,j,t}$). The sample size shrinks a little when these variables are included because not

[16] The issue of missing R&D expense data, which we will detail in Section 4.2.1, prompts us to adopt two strategies to mitigate its impact. Initially, we impute missing R&D expenses as zero at the country-industry level and introduce two dummy variables—*All_Blank_R&D* and *Partial_Blank_R&D*—to signify the absence of R&D data across all or some firms, respectively, within a specific country-industry-year. Alternatively, we exclude any firm-year observations lacking R&D data before aggregating. We then conduct separate regressions for each method to test the robustness of our findings.

all countries are covered. However, the results are consistent when we remove these variables and use all the countries in our sample to run the regressions (untabulated).

To measure whether Chinese owners prefer countries/industries with high natural resources, we use the following two approaches. Firstly, we download the total natural resources rents for each country c in year t from the World Bank's website.[17] Secondly, we use a set of indicators for natural resource-intensive ISIC industries, including agriculture, hunting, forestry (ISIC 01,02), mining and quarrying – energy (ISIC 05,06), and mining and quarrying – non-energy (ISIC 07,08). Both sets of variables are included in equation (1) simultaneously.

We also include a set of control variables besides country and year fixed effects in the regressions, including the aggregated total assets, aggregated tangible fixed assets, and aggregated long-term debt across all firms as well as the Herfindahl index and the square of the Herfindahl index based on sales in industry j in country c in year t. The detailed descriptions of the control variables are in the Appendix. Besides, we include industry fixed effects when the indicators for natural resource-intensive industries are not included.

The regression results are shown in Table 3. In particular, we find a positive and substantial correlation between Chinese ownership and the level of R&D investment within firms, indicating that firms under Chinese ownership tend to prioritize and invest more in research and development. Additionally, our analysis demonstrates a significant relationship between Chinese ownership and the firm's integration within supply chains, as measured by input-output tables. This suggests that firms with Chinese ownership are more likely to have robust connections with suppliers and customers, highlighting the strategic importance of supply chain networks in Chinese investment decisions. Furthermore, the results underscore a specific interest of State-Owned Enterprises (SOEs) in the natural resources sector, pointing to a targeted approach by Chinese SOEs to invest

[17] https://data.worldbank.org/indicator/NY.GDP.TOTL.RT.ZS

in industries rich in natural resources. These findings collectively provide a nuanced understanding of the preferences and strategies of Chinese investors, reflecting their emphasis on innovation, supply chain integration, and natural resources.

[Insert Table 3 about here]

5. The Real Impact of China's Ownership

5.1. Research and Innovation

In the previous section, we document the correlation between China's ownership and firms characteristics at the industry-country level. In this section, we take a step forward and use firm level data to study the changes in R&D investments when the firm has Chinese shareholders. As shown in Section 4.1, at the country-industry level, Chinese firms prefer to buy firms in natural resource countries, natural resource industries (e.g., energy and mining), and firms with high R&D investments. We use the 1,129,228 firm-year-level data of "Very Large Companies" with non-missing ownership information and non-missing total assets information from Orbis that are not incorporated in China to conduct the OLS regressions for firm R&D activities on China ownership. As mentioned before, the coverage of R&D expenses in Orbis is much better for the "Very Large Company" sample than for the full sample. The regression equation is as follows:

$$\text{Log(R\&D)}_{i,t} = \alpha + \beta_1 \times \text{CN\_Owned}_{i,t} + \text{Blank\_R\&D} + \text{Control} + \text{FirmFE} + \text{YearFE} + \varepsilon_{i,t} (2)$$

where $\text{Log(R\&D)}_{i,t}$ is the logarithm of R&D expenses for firm i in year t.[18]

[18] Koh and Reeb (2015) and subsequent studies emphasize that the absence of reported R&D does not necessarily equate to a lack of innovation activities, highlighting the role of variables such as managerial traits (Koh, Reeb, and Zhao, 2017) in influencing R&D reporting. To mitigate potential biases from treating missing R&D as zero or excluding firms with unreported innovation, our approach incorporates a specific indicator for missing R&D data (Blank_R&D) alongside analysis excluding these cases. This dual method aims to enhance the accuracy of our findings, ensuring they reflect genuine trends rather than artifacts of data handling (Koh and Reeb, 2015; Koh et al., 2021).

Our variable of interest, $\text{CN\_Owned}_{i,t}$, is a dummy variable that equals one if firm i is owned by at least one Chinese entity or one Chinese entity's subsidiary in year t. We control for total assets, tangible fixed assets, firm age, leverage, cash, and ROA of firm i in year t, as well as the Herfindahl index and the square of the Herfindahl index in the same country and the same ISIC industry of the firm based on sales. The detailed definitions of the variables are in the Appendix. Moreover, we further control for the firm fixed effects and year fixed effects. This allows us to use the within-firm variations, which essentially estimate the R&D changes within the firm before and after the China shareholders come.

[Insert Table 4 about here]

Table 4 shows the regression results. In Panel A, R&D expenses are treated as zeros if missing, while an additional indicator for blank R&D information is controlled. In column (1) of Panel A, we regress R&D expenses only on the key variable of interest, CN_Owned, and firm and year fixed effects. The estimated coefficient of CN_Owned is 0.152 at the 1% significance level, suggesting that China's ownership is associated with approximately 16.4% (EXP(0.152)-1) higher level of R&D inputs in the non-China-incorporated firms. In column (2), we stratify the China owners into private ones vs. SOE ones and use CN_SOEOwned and CN_PrivateOwned as the independent variables. We find that the estimated coefficient of CN_SOEOwned is 0.234 at the 1% significance level. This suggests that, on average, SOE shareholders from China are associated with approximately 26.4% increase in R&D activities of target firms, which is much larger than the effects for non-SOE China shareholders.

To control for the time-varying firm characteristics that also affect a firm's R&D activities, we add a set of controls in column (3). The coefficient of CN_Owned becomes slightly smaller but still significantly positive, i.e., 0.140 at the 1% significance level. This suggests that when a Chinese shareholder comes in, the firm increases its R&D investments by approximately 15.0%

(i.e., Exp(0.140)-1). In column (4), we again find that the estimated coefficient of CN_SOEOwned is much larger than the coefficient of CN_PrivateOwned. In columns (5) and (6), we further include a firm's cash and ROA. Both the magnitude and significance of the estimated coefficients of CN_Owned, CN_PrivateOwned, and CN_SOEOwned decrease. The coefficient of CN_Owned becomes 0.089, which is still significant at the 10% significance level. CN_PrivateOwned loses its significance, while CN_SOEOwned remains significantly positive at the 10% level.

To alleviate the concern that our results are spurious because of the change in the manager's discretionary disclosure of R&D information before and after being owned by Chinese entities and Chinese entities' subsidiaries, in Panel B, we repeat the regressions in Panel A after dropping observations with missing R&D information to see whether the results are robust. The patterns observed in Panel A remain largely unchanged in Panel B, i.e., China's ownership is associated with higher R&D expenses, and the association is mainly driven by Chinese SOE's ownership instead of private Chinese shareholders' ownership. The coefficients of CN_Owned and CN_PrivateOwned lose some significance across the research designs, but the coefficients of CN_SOEOwned become larger both economically and statistically. For example, in column (4) of Panel B, the coefficient of CN_SOEOwned is 0.420, which is significant at the 5% level. It suggests that when a Chinese SOE shareholder comes in, the firm increases its R&D investments by approximately 52.2% (i.e., Exp(0.420)-1).

In summary, the analysis in Table 4 illustrates a clear positive correlation between Chinese ownership and R&D spending within non-China-incorporated firms, distinguishing between the impacts of state-owned enterprises (SOEs) and private entities. Chinese SOEs are identified as having a significantly stronger influence on increasing R&D investments compared to their private counterparts. Given that we control for the firm fixed effects, we use the within-firm variation,

which suggests that firms increase their R&D investments after owned by Chinese shareholders. In particular, the impact of SOE ownership is robust and substantial, indicating a strategic emphasis on R&D by Chinese SOEs. The consistency of these results across different model specifications underscores the significant role of Chinese state ownership in fostering innovation through increased R&D expenditures.

5.2. Profitability

We are also interested in how the profitability changes when the firm has Chinese shareholders. The regression equation is as follows:

$$\mathrm{ROA}_{i,t} = \alpha + \beta_1 \times \mathrm{CN\_Owned}_{i,t} + \mathrm{Control} + \mathrm{FirmFE} + \mathrm{YearFE} + \varepsilon_{i,t} \quad (3)$$

where $\mathrm{ROA}_{i,t}$ is firm i's ROA in year t. ROA is measured using either net income or P/L before tax and represented in percentage points. Our variable of interest is still $\mathrm{CN\_Owned}_{i,t}$, while our control variables and fixed effects are largely unchanged from equation (1), except that ROA itself is no longer included as a control variable.

[Insert Table 5 about here]

Table 5 shows the regression results. In Panel A, ROA is measured using net income and expressed in percentage points. In column (1) of Panel A, we regress ROA only on the key variable of interest, CN_Owned, and firm and year fixed effects. The estimated coefficient of CN_Owned is negative and significant, suggesting that China's ownership is associated with a lower ROA in the non-China-incorporated firms. Specifically, the coefficient is -0.565, which is significant at the 5% level, suggesting that when a Chinese shareholder comes in, the firm's ROA decreases by 0.565 percentage point. In comparison, the mean and median ROA for firm years without China ownership in our sample are 2.54% and 2.29%, respectively, according to Table 1. In column (2), when dividing China owners into SOE and private firms, we find that the estimated coefficient of CN_PrivateOwned is -0.638 at the 5% significance level, while the coefficient of

CN_SOEOwned is only -0.330 and not significant. This suggests that the decreased ROA is mainly associated with private Chinese shareholders instead of Chinese SOE shareholders.

In columns (3)-(4), we add the same set of controls as in columns (3)-(4) of Table 4. The coefficient of CN_Owned is still significant and becomes more negative, i.e., -0.630 at the 1% significance level. The coefficient of CN_PrivateOwned is also significant and becomes more negative, i.e., -0.726 at the 1% significance level. The change in the coefficient of CN_SOEOwned is trivial, and the estimated coefficient still lacks significance. In columns (5)-(6), we further include cash as a control variable, and the statistical and economic significance of our results are mostly the same. In Panel B, we replace our dependent variable with ROA measured using P/L before tax, and the results are robust.

5.3. Market Share

We then explore how Chinese ownership affects a firm's market share. Market share is measured as a firm's sales over the summation of the sales of all firms within the same country industry year. Specifically, we run the following regressions:

$$\text{MktShr}_{i,t} = \alpha + \beta_1 \times \text{CN\_Owned}_{i,t} + \text{Control} + \text{FirmFE} + \text{YearFE} + \varepsilon_{i,t} \quad (3)$$

where $\text{MktShr}_{i,t}$ is firm i's market share in year t. $\text{CN\_Owned}_{i,t}$ is defined as before, while our control variables and fixed effects are unchanged from equation (1).

[Insert Table 6 about here]

Table 6 shows the regression results. In column (1), we regress market share only on the key variable of interest, CN_Owned, and firm and year fixed effects. The estimated coefficient of CN_Owned is positive and significant, suggesting that China's ownership is associated with a larger market share of non-China-incorporated firms. Specifically, the coefficient is 0.003, which is significant at the 5% level, suggesting that when a Chinese shareholder comes in, a non-China-incorporated firm's market share increases by 0.3 percentage point. In comparison, the mean and

median market share for firm years without China ownership in our sample are 3% and 0.2%, respectively, according to Table 1. In column (2), when dividing China owners into SOE and private firms, we find that the estimated coefficient of CN_PrivateOwned is 0.002 at the 10% significance level, while the coefficient of CN_SOEOwned is 0.005 at the 5% significant level. This suggests that the increased market share is mainly associated with Chinese SOE shareholders instead of private Chinese shareholders.

In columns (3)-(4), we add the same set of controls as in columns (3)-(4) of Table 4. In column (3), the coefficient of CN_Owned reduces in terms of both the magnitude and the significance. To be specific, the coefficient reduces to 0.002, which is significant at the 10% level. After dividing China's ownership into SOE ownership and private firms' ownership, the coefficients of CN_PrivateOwned and CN_SOEOwned lose their significance. It suggests that the estimated magnitude of the associations observed in columns (1)-(2) may be biased upwards by other time-varying firm characteristics. Nevertheless, the decrease in the point estimate of the coefficients is not large. The coefficient is still 0.002 for CN_PrivateOwned and 0.004 for CN_SOEOwned. In columns (5)-(6), we further include cash and ROA as control variables. The coefficient of CN_Owned is still significant at the 10% level, while the coefficient of CN_SOEOwned becomes significant at the 10% level again. It indicates that the missing of cash and ROA as control variables in columns (3)-(4) may bias the coefficients downwards, and it further supports that the increased market share is mainly driven by Chinese SOEs instead of private Chinese firms.

5.4. Supply Chain

Next, we explore whether opening up to Chinese ownership increases the dependence of local firms on Chinese supply chains. As discussed in Section 3, we utilize the FactSet Revere data to measure a firm's position on the supply chain. Because of the low matching rate with FactSet Revere, our number of observations reduces to 116,397. Then, we run the following regressions:

$$\text{CNSupplier}_{i,t}\left(\text{CNCustomer}_{i,t}\right) = \alpha + \beta_1 \times \text{CN\_Owned}_{i,t} + \text{Control} + \text{FirmFE} + \text{YearFE} + \varepsilon_{i,t} \quad (4)$$

where $\text{CNSupplier}_{i,t}$ ($\text{CNCustomer}_{i,t}$) is a dummy variable indicating whether the non-China-incorporated firm is a supplier (customer) of a Chinese company. Our key variable of interest, $\text{CN\_Owned}_{i,t}$, and other control variables are defined as in equation (1).

[Insert Table 7 about here]

Table 7 shows the regression results. In Panel A, CNCustomer is the dependent variable. In column (1) of Panel A, we regress CNCustomer only on the key variable of interest, CN_Owned, and firm and year fixed effects. The estimated coefficient of CN_Owned is positive and significant, suggesting that China's ownership is associated with a higher likelihood that the non-China-incorporated firm is a customer of a Chinese entity. Specifically, the coefficient is 0.029, which is significant at the 1% level, suggesting that when a Chinese shareholder comes in, the firm's likelihood of becoming a customer of a Chinese firm increases by 2.90 percentage points. In comparison, on average, approximately 4% of the firm-year observations without China's ownership in our sample have $\text{CNCustomer} = 1$, according to Table 1. In column (2), when dividing China owners into SOE and private firms, we find that the estimated coefficient of CN_PrivateOwned is 0.029 at the 5% significance level, while the coefficient of CN_SOEOwned is also 0.029 but not significant. This suggests that the inclusion into China's supply chains as a customer is mainly associated with private Chinese shareholders instead of Chinese SOE shareholders.

In columns (3)-(4), we add the same set of controls as in columns (3)-(4) of Table 4. The coefficient of CN_Owned is still significant but becomes larger, i.e., 0.036 at the 1% significance level. The coefficient of CN_PrivateOwned is also significant and becomes larger, which is also 0.036 at the 1% significance level. The coefficient of CN_SOEOwned increases to 0.037, but the

estimated coefficient still lacks significance. In columns (5)-(6), we further include cash as a control variable, and the statistical and economic significance of our results are mostly the same.

In Panel B, we replace our dependent variable with CNSupplier, but we fail to find consistent results. The coefficients on CN_Owned are still positive, ranging from 0.006 to 0.008, which means that being owned by at least one Chinese entity or one Chinese entity's subsidiary increases the likelihood of being the supplier of a company in China by about 0.6% to 0.8%. However, the coefficients are not significant. The coefficients on CN_PrivateOwned are also positive, and when we include our full set of control variables, the coefficient becomes 0.015 and is significant at the 10% level. This indicates that when private Chinese shareholders come in, the probability of being a supplier to a Chinese company slightly increases by 1.5%. The coefficients of CN_SOEOwned all turn negative but are still insignificant.

5.5. Cash Holding

Lastly, we examine how China's ownership affects local firms' cash holdings. Specifically, we run the following regressions:

$$\text{Cash/Assets}_{i,t} = \alpha + \beta_1 \times \text{CN\_Owned}_{i,t} + \text{Control} + \text{FirmFE} + \text{YearFE} + \varepsilon_{i,t} \quad (5)$$

where $\text{Cash/Assets}_{i,t}$ is cash or cash equivalent over total assets for firm i in year t. Our key variable of interest, $\text{CN\_Owned}_{i,t}$, and other control variables are largely the same as in equation (1), except that cash itself is no longer included as a control variable.

[Insert Table 8 about here]

Table 8 shows the regression results. In column (1), we regress Cash/Assets only on the key variable of interest, CN_Owned, and firm and year fixed effects. The estimated coefficient of CN_Owned is negative and significant, suggesting that China's ownership is associated with less cash holding in the non-China-incorporated firms (i.e., -0.022 at the 1% significance level). In column (2), we differentiate the China owners into private ones vs. SOE ones. We find that the

estimated coefficient of CN_SOEOwned is -0.023 at the 1% significance level, while the coefficient of CN_PrivateOwned is -0.022 at the 1% significance level.

Then, we add a set of time-varying firm characteristics in column (3). The coefficient of CN_Owned becomes much less negative but still significant, i.e., -0.012 at the 1% significance level. This suggests that when a Chinese shareholder comes in, the firm's cash-to-assets ratio decreases by 1.2 percentage points. In comparison, according to Table 1, the mean and median cash-to-assets ratios for the firm-year observations without China's ownership in our sample are 11% and 4%, respectively. In column (4), we find that the estimated coefficient of CN_PrivateOwned is also -0.012, while the coefficient of CN_SOEOwned is -0.014, both of which are significant at the 1% level. This suggests that when a private Chinese shareholder comes in, the firm's cash-to-assets ratio decreases by 1.2 percentage points, while when a Chinese SOE shareholder comes in, the firm's cash-to-assets ratio decreases by a slightly larger magnitude, 1.4 percentage points. In columns (5) and (6), we further include a firm's ROA as a control variable. Both the magnitude and significance of the estimated coefficients of CN_Owned , CN_PrivateOwned, and CN_SOEOwned drop. The coefficient of CN_Owned becomes -0.007, which is still significant at the 1% significance level. The coefficient of CN_SOEOwned becomes -0.003 and loses its significance, while the coefficient CN_PrivateOwned remains significantly negative at the 1% level, but its magnitude also reduces to -0.008.

6. The Spillover Impact of China's Ownership on Targeting Firms' Industries

What are the implications of China's global ownership on firms that are within the same industry in the same country as the China-owned firms but are not owned by China? We firstly examine whether their R&D activities are crowded out.

We aggregate the 1,129,228 firm-year observations to 27,115 country-industry-year observations. The regression equation is as follows:

$$\text{Log}(\overline{\text{R\&D}})_{c,j,t} = \alpha + \beta_1 \times \%\text{CN\_Owned\_Assets}_{c,j,t} + \text{First\_CN\_Owned} + \text{All\_Blank\_R\&D} + \text{Partial\_Blank\_R\&D} + \text{Control} + \text{Country} \times \text{IndustryFE} + \text{Country} \times \text{YearFE} + \text{Industry} \times \text{YearFE} + \varepsilon_{i,t} \quad (6)$$

where $\text{Log}(\overline{\text{R\&D}})_{c,j,t}$ is the logarithm of the average R&D expenses for all firms in country c, industry j, and year t that have never been owned by Chinese shareholders in our sample. We require that the firms have never been owned by Chinese shareholders to avoid capturing a change in sample size after the change in China's ownership instead of the spillover effects. Like in Section 4.1, we include two indicators to denote whether all firms or whether only part of the firms within country c industry j and year t have missing R&D expenses, All_Blank_R&D and Partial_Blank_R&D. $\%\text{CN\_Owned\_Assets}_{c,j,t}$ is the summation of firm-level assets owned by China scaled by the summation of firm-level total assets for all firms in country c, industry j, and year t. First_CN_Owned is a dummy variable taking a value of one starting in the year that a Chinese shareholder owns the first firm in the industry.

We also control for a set of average firm characteristics for all firms in country c, industry j, and year t that have never been owned by a Chinese entity or a Chinese entity's subsidiary, including their total assets, tangible fixed assets, leverage, firm age, ROA, and cash, as well as the Herfindahl index and the square of the Herfindahl index for industry j in country c in year t. The detailed definitions of the variables are in the Appendix. Moreover, we further control for the country × industry fixed effects, country × year fixed effects, and industry × year fixed effects. This allows us to use the within-country-industry variations, which essentially estimate the changes in R&D of the firms that have never been owned by Chinese shareholders within the country industry after China's ownership increases.

[Insert Table 9 about here]

Table 9 shows the regression results. In Panel A, R&D expenses are treated as zeros if missing, while additional indicators for country-industry-level blank R&D information are controlled. In column (1) of Panel A, we regress $\text{Log}(\overline{\text{R\&D}})$ only on the key variable of interest, %CN_Owned_Assets, and fixed effects. The estimated coefficient of %CN_Owned_Assets is negative and significant, suggesting that the increase in China's ownership in the country industry is associated with a decrease in the average R&D inputs among all non-China-incorporated and non-China-owned firms in the same industry in the same country in the same year (i.e., -1.884 at the 5% significance level). In column (2), we stratify the China owners into private ones vs. SOE ones and use %CN_SOEOwned_Assets and %CN_PrivateOwned_Assets as the independent variables. We find that the estimated coefficient of %CN_SOEOwned_Assets is -3.638 at the 5% significance level, which is much larger than the coefficient of %CN_SOEOwned_Assets, which is -1.000 and not significant. This suggests that the decrease in R&D activities among non-China-owned firms within the targeting country industries is mainly associated with SOE shareholders from China and less so with private Chinese shareholders, which is consistent with our firm-level conclusions.

To control for the time-varying country-industry features that also affect the non-China-owned firm's R&D activities, we add a set of controls in column (3). The magnitude of the coefficient of %CN_Owned_Assets becomes smaller, but it is still significantly negative, i.e., -1.593 at the 10% significance level. This suggests that when the share of assets owned by Chinese shareholders within the country industry increases by one percentage point, the average R&D investments by other firms in the same industry in the same country decreases by approximately 1.61% (i.e., Exp(0.01×1.593)-1). In column (4), we again find that the estimated coefficient of %CN_SOEOwned_Assets is much larger than the coefficient of %CN_PrivateOwned_Assets. In columns (5) and (6), we further include the firms' average cash and ROA. The magnitudes of

the estimated coefficients of %CN_Owned_Assets, %CN_PrivateOwned_Assets, and %CN_SOEOwned_Assets all increase. The coefficient of %CN_Owned_Assets becomes -2.028, which is still significant at the 10% significance level. The coefficient of %CN_PrivateOwned_Assets becomes -1.283 but is still insignificant. Meanwhile, the coefficient of %CN_SOEOwned_Assets becomes -3.590 and remains significant at the 10% level.

Similar to Section 4.1, in Panel B, we repeat the regressions in Panel A after dropping observations with missing R&D information to see whether the results are robust. The patterns observed in Panel A remain largely unchanged in Panel B, i.e., country-industry-level China's ownership is associated with lower R&D expenses of firms without Chinese shareholders within the same industry in the same country, and the association is mainly driven by Chinese SOE ownership instead of private Chinese shareholders' ownership.

Since Section 4.2.3 shows that the market share increases after a firm gets owned by at least one Chinese entity or one Chinese entity's subsidiary, a natural conjecture is that the market shares of other firms within the same industry in the same country decrease. To test this, we run the following regressions:

$$\overline{\text{MktShr}}_{c,j,t} = \alpha + \beta_1 \times \%\text{CN\_Owned\_Assets}_{c,j,t} + \text{First\_CN\_Owned} + \text{Control} + \text{Country} \times \text{IndustryFE} + \text{Country} \times \text{YearFE} + \text{Industry} \times \text{YearFE} + \varepsilon_{i,t} \quad (7)$$

where $\overline{\text{MktShr}}_{c,j,t}$ is the average market shares for all firms in country c, industry j, and year t that have never been owned by a Chinese entity or a Chinese entity's subsidiary in our sample period. Other control variables and fixed effects are defined in the same manner as in equation (6).

[Insert Table 10 about here]

Table 10 shows the regression results. In column (1), we regress $\overline{\text{MktShr}}_{c,j,t}$ only on the key variable of interest, %CN_Owned_Assets, and fixed effects. The estimated coefficient of %CN_Owned_Assets is negative though insignificant. In column (2), we stratify the China

owners into private ones vs. SOE ones and use %CN_SOEOwned_Assets and %CN_PrivateOwned_Assets as the independent variables. We find that both the estimated coefficients of %CN_SOEOwned_Assets and %CN_SOEOwned_Assets are negative, though not significant.

In column (3), we add the same set of controls as in Table 9. The magnitude of the coefficient of %CN_Owned_Assets becomes more negative and more significant, i.e., -0.075 at the 10% significance level. This suggests that when the share of assets owned by Chinese shareholders within the country industry increases by one percentage point, the average market shares of other firms in the same industry in the same country decrease by 0.075 percentage points. In column (4), the coefficient of %CN_PrivateOwned_Assets becomes -0.097 and also becomes significant at 10%, while the estimated coefficient of %CN_SOEOwned_Assets is still negative but insignificant. Consistent with the conclusions in Section 4.2.3 that the positive association between Chinese ownership and the local firms' market shares is mainly driven by private firms, the negative association between Chinese ownership and lower market shares of firms without Chinese shareholders within the targeting industries is also driven by private firms. In columns (5) and (6), we further include the firms' average cash and ROA. The magnitudes of the estimated coefficients of %CN_Owned_Assets , %CN_PrivateOwned_Assets , and %CN_SOEOwned_Assets all increase. Again, we find that %CN_Owned_Assets and %CN_PrivateOwned_Assets are significant at the 10% level, while %CN_SOEOwned_Assets is insignificant. The patterns suggest that the omissions of the time-variant country-industry characteristics may bias our results upwards.

7. The Spillback Effects of China's Ownership

Lastly, we examine the dynamics of R&D investment among Chinese shareholder firms following their acquisitions of foreign companies, with a particular focus on the impact of owning shares in

firms located within the G7 countries. [19] Utilizing data from Orbis, we categorize Chinese firms based on their ownership of shares in foreign entities, identified through the dummy variable CN_foreign, which indicates whether a Chinese firm holds shares in companies based in the G7. This focus on the G7 is strategic, given the advanced technological landscape of these nations, from which Chinese shareholders are eager to glean insights.

Our findings, as detailed in Table 11, are compelling. In column (1), the coefficient for CN_foreign stands at 0.487, significant at the 1% level, indicating a 62.7% increase in R&D investment by Chinese shareholder firms in the same industry following acquisitions in G7 countries (EXP(0.487)-1). A deeper dive into the data, separating SOEs from private shareholders, reveals even more striking insights. Column (2) shows the coefficients for CN_foreign_private and CN_foreign_SOE at 0.462 and 1.114, respectively, both significant at the 1% level. This translates to a 204.6% increase in R&D investment for SOEs (EXP(1.114)-1), underscoring a pronounced disparity in the response to foreign acquisitions between SOEs and private firms.

These findings not only highlight the magnitude of R&D investment changes in the wake of international acquisitions but also underscore the economic implications of such investments, especially within the G7 context. The significant boost in R&D investment by Chinese firms, particularly SOEs, following acquisitions in technologically advanced G7 countries, signals a strategic move to bridge the innovation gap. This spillback effect facilitates the transfer of

[19] The Group of Seven (G7) comprises Canada, France, Germany, Italy, Japan, the UK, and the US. The European Union (EU) is also designated as a "non-enumerated member" of the G7, benefiting from the rights and responsibilities of membership and actively participating in all G7 working sessions since 1981 (European Commission, "Role of the G7," accessed from: https://agriculture.ec.europa.eu/international/international-cooperation/international-organisations/g7_en). In this context, our delineation encompasses the aforementioned seven nations along with the twenty-four non-G7 member states of the EU: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

knowledge and technology from the G7 to China, enhancing the domestic innovation landscape. Moreover, the more substantial increase in R&D investments by SOEs suggests a government-backed push towards acquiring and integrating global innovations, which could reshape competitive dynamics in key industries.

Economically, this trend may lead to accelerated technological advancement and increased competitiveness of Chinese firms on the global stage. For the G7 countries, the implications are twofold. While their firms benefit from capital inflows and potential strategic partnerships, there is also the possibility of intensified competition as Chinese firms leverage acquired technologies to enhance their market position. Thus, these dynamics underscore a complex interplay between international investment, technological transfer, and global economic competitiveness.

[Insert Table 11 about here]

8. Conclusions

This paper studies the strategic role of Chinese investment in research and development (R&D) across non-China-incorporated firms, particularly emphasizing the influence of state-owned enterprises (SOEs). In the context of escalating global geopolitical tensions, this paper uncovers a significant positive correlation between Chinese ownership and increased R&D activities and distinguishes the heightened impact stemming from SOEs compared to private entities. Amidst the complexities of international relations, economic strategies, and trade policies, these insights provide a nuanced understanding of how Chinese investments are navigating and shaping the innovation landscape abroad.

The robust association between Chinese SOEs and enhanced R&D investments underscores China's commitment to fostering innovation as a cornerstone of its global economic engagement.

This strategic emphasis on R&D by Chinese investors, especially within the framework of SOEs, signals a deliberate effort to cultivate technological advancement and competitive edge in a variety of sectors. Such findings are particularly relevant in the current climate of geopolitical frictions, where technological supremacy and economic influence are increasingly intertwined.

Understanding the dynamics of Chinese investment in R&D can offer valuable perspectives for policymakers, business leaders, and researchers grappling with the implications of global economic interdependence and competition. Our research suggests that despite the challenges and controversies surrounding international investments, there exists a potential for positive spillovers in technological innovation and development. Recognizing the nuanced impacts of Chinese ownership on R&D can therefore contribute to more informed discussions on international trade, investment policies, and the global innovation ecosystem in an era marked by significant geopolitical uncertainties.

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Table 1. Summary Statistics of Key Variables

Notes: This table presents the summary statistics of the variables in our main analyses for the mean, median, standard deviation (STD), 25% percentile (Q1), and 75% percentile (Q3) distributions. Panel A and Panel B report firm-level characteristics for non-China-incorporated firms. The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis between 2012 and 2019. Panel A reports the summary statistics for firm years owned by at least one Chinese entity or at least one Chinese entity's subsidiary ($\texttt{CN\_Owned} = 1$), while Panel B reports the summary statistics for the rest of the firm years ($\texttt{CN\_Owned} = 0$). Panel C reports country-industry-level characteristics. Firm characteristics are either aggregated across all firms for each country each industry in that year or averaged across all non-China-owned firms within the country industry. Panel D and Panel E report firm-level characteristics for China-incorporated firms. The sample consists of all China-incorporated "Very Large" firms with non-missing consolidated accounting information and ownership information from Orbis between 2012 and 2019. Panel D reports the summary statistics for firm years with at least one subsidiary in one of the G7 or the EU countries ($\texttt{CN\_foreign} = 1$), while Panel E reports the summary statistics for the rest of the firm years ($\texttt{CN\_foreign} = 0$). Variable definitions are detailed in the Appendix.

Panel A: Firm Characteristics (Excl. Chinese Firms), CN_Owned = 1						
Variables	N	Mean	Median	STD	Q1	Q3
Log(R&D), R&D Expenses Dropped if Missing	5,167	5.90	0.00	7.62	0.00	14.77
Log(R&D), R&D Expenses = 0 if Missing	12,386	2.46	0.00	5.72	0.00	0.00
Blank_R&D	12,386	0.58	1.00	0.49	0.00	1.00
EBITDA/Assets	8,283	0.00	0.04	0.25	-0.01	0.10
ROA (Net Income (%))	10,557	-1.14	1.30	14.92	-2.90	5.17
ROA (P/L before Tax (%))	10,579	-0.10	1.85	15.54	-2.70	6.72
OpCosts/EBITDA	6,879	10.33	3.00	52.22	-1.05	10.13
MktShr	8,307	0.06	0.00	0.17	0.00	0.02
CNCustomer	3,027	0.20	0.00	0.40	0.00	0.00
CNSupplier	3,027	0.10	0.00	0.29	0.00	0.00
Cash/Assets	11,758	0.16	0.08	0.20	0.02	0.22
Log(Assets)	12,381	19.15	19.29	2.26	17.94	20.56
Log(Tangible)	12,031	13.18	15.32	6.71	10.98	18.00
Log(FAge)	12,386	2.44	2.48	0.90	1.79	3.04
Leverage	10,257	0.13	0.01	0.22	0.00	0.18

Table 1. Summary Statistics of Key Variables (cont'd)

Panel B: Firm Characteristics (Excl. Chinese Firms), CN_Owned = 0						
Variables	N	Mean	Median	STD	Q1	Q3
Log(R&D), R&D Expenses Dropped if Missing	189,559	5.18	0.00	7.16	0.00	13.43
Log(R&D), R&D Expenses = 0 if Missing	1,116,842	0.88	0.00	3.53	0.00	0.00
Blank_R&D	1,116,842	0.83	1.00	0.38	1.00	1.00
EBITDA/Assets	738,378	0.05	0.06	0.20	0.00	0.12
ROA (Net Income (%))	1,011,490	2.54	2.29	12.77	-0.03	6.86
ROA (P/L before Tax (%))	1,021,190	3.80	3.05	13.73	-0.01	8.70
OpCosts/EBITDA	439,108	14.54	5.91	49.75	0.66	16.68
MktShr	734,941	0.03	0.00	0.12	0.00	0.01
CNCustomer	113,370	0.04	0.00	0.20	0.00	0.00
CNSupplier	113,370	0.02	0.00	0.14	0.00	0.00
Cash/Assets	1,006,228	0.11	0.04	0.18	0.01	0.13
Log(Assets)	1,116,093	18.52	18.69	2.26	17.41	19.90
Log(Tangible)	1,065,842	12.75	15.24	6.80	10.84	17.45
Log(FAge)	1,114,469	2.88	3.00	0.95	2.30	3.53
Leverage	956,914	0.14	0.01	0.23	0.00	0.18

Table 1. Summary Statistics of Key Variables (cont'd)

Panel C: Country-Industry Characteristics (Excl. China)						
Variables	N	Mean	Median	STD	Q1	Q3
Log(∑CN_Owned_Assets)	27,115	2.55	0.00	6.52	0.00	0.00
Log(∑CN_PrivateOwned_Assets)	27,115	2.09	0.00	5.88	0.00	0.00
Log(∑CN_SOEOwned_Assets)	27,115	1.09	0.00	4.55	0.00	0.00
%CN_Owned_Assets	27,106	0.01	0.00	0.06	0.00	0.00
%CN_PrivateOwned_Assets	27,106	0.01	0.00	0.04	0.00	0.00
%CN_SOEOwned_Assets	27,106	0.00	0.00	0.04	0.00	0.00
First_CN_Owned	27,115	0.16	0.00	0.37	0.00	0.00
Log(∑Assets)	27,115	21.33	21.50	2.80	19.54	23.45
Log($\overline{\text{Assets}}$)	26,860	19.26	19.38	1.78	18.33	20.41
Log(∑Tangible)	27,115	19.26	19.98	4.18	17.83	21.92
Log($\overline{\text{Tangible}}$)	26,595	17.39	17.82	3.00	16.56	19.01
Log(∑LTDebt)	27,115	16.91	18.98	7.04	15.86	21.44
$\overline{\text{Leverage}}$	25,973	0.13	0.09	0.13	0.04	0.18
Log($\overline{\text{FAge}}$)	26,818	3.21	3.24	0.60	2.89	3.58
HHI	27,115	0.47	0.39	0.37	0.14	0.90
HHI Squared	27,115	0.36	0.15	0.40	0.02	0.82
Log(∑R&D)	27,115	3.38	0.00	6.75	0.00	0.00
Log($\overline{\text{R\&D}}$), R&D Expenses Dropped if Missing	15,432	4.94	0.00	6.93	0.00	12.72
Log($\overline{\text{R\&D}}$), R&D Expenses = 0 if Missing	26,870	2.61	0.00	5.35	0.00	0.00
All_Blank_R&D	27,115	0.42	0.00	0.49	0.00	1.00
Partial_Blank_R&D	27,115	0.33	0.00	0.47	0.00	1.00
All_Blank_R&D (for Non-China-Owned Firms)	27,115	0.42	0.00	0.49	0.00	1.00
Partial_Blank_R&D (for Non-China-Owned Firms)	27,115	0.32	0.00	0.47	0.00	1.00
Log(∑Empl)	27,115	6.46	7.65	4.08	3.18	9.60
∑EBITDA/∑Assets	27,106	0.06	0.05	0.35	0.01	0.09
∑OpCosts/∑EBITDA	23,767	-390.6	4.72	29674.28	0.03	10.55
$\overline{\text{ROA}}$ (Net Income (%))	26,371	2.72	3.12	7.98	0.16	6.00
$\overline{\text{ROA}}$ (P/L before Tax (%))	26,354	4.08	4.24	8.76	0.76	7.62
∑Cash/∑Assets	27,106	0.08	0.05	0.09	0.02	0.10
Log($\overline{\text{Cash}}$)	26,351	16.21	16.51	2.23	15.16	17.68
$\overline{\text{MktShr}}$	24,999	0.33	0.18	0.33	0.05	0.50
IO_CN/IO	20,121	0.02	0.00	0.05	0.00	0.02
II_CN/II	20,121	0.02	0.01	0.03	0.01	0.03
Nature_Resources_Country	26,436	3.92	1.02	7.76	0.16	3.71
Agriculture, hunting, forestry (indicator)	27,115	0.03	0.00	0.16	0.00	0.00
Mining and quarrying - energy (indicator)	27,115	0.02	0.00	0.14	0.00	0.00
Mining and quarrying - non-energy (indicator)	27,115	0.02	0.00	0.15	0.00	0.00

Table 1. Summary Statistics of Key Variables (cont'd)

Panel D: Firm Characteristics (Chinese Firms), CN_foreign = 1						
Variables	N	Mean	Median	STD	Q1	Q3
Log(R&D), R&D Expenses Dropped if Missing	3,256	14.12	16.09	5.72	14.76	17.16
Log(R&D), R&D Expenses = 0 if Missing	3,728	12.33	15.78	7.12	12.29	17.02
Blank_R&D	3,728	0.13	0.00	0.33	0.00	0.00
EBITDA/Assets	3,219	0.08	0.07	0.06	0.05	0.11
ROA (using Net Income (%))	3,716	3.09	3.14	8.02	1.16	6.47
ROA (using P/L before Tax (%))	3,692	4.29	4.26	8.32	1.61	7.93
OpCosts/EBITDA	3,219	8.15	6.09	18.67	3.70	10.51
MktShr	3,728	0.02	0.00	0.04	0.00	0.02
Cash/Assets	3,722	0.17	0.14	0.12	0.09	0.22
Log(Assets)	3,728	20.76	20.62	1.55	19.77	21.73
Log(Tangible)	3,717	18.95	18.96	1.84	17.85	20.13
Log(FAge)	3,727	2.93	2.94	0.32	2.77	3.14
Leverage	3,502	0.07	0.04	0.09	0.00	0.12
Panel E: Firm Characteristics (Chinese Firms), CN_foreign = 0						
Variables	N	Mean	Median	STD	P25	P75
Log(R&D), R&D Expenses Dropped if Missing	28,080	11.70	14.01	5.89	12.19	15.37
Log(R&D), R&D Expenses = 0 if Missing	39,766	8.26	12.72	7.28	0.00	14.78
Blank_R&D	39,766	0.29	0.00	0.46	0.00	1.00
EBITDA/Assets	27,289	0.08	0.08	0.09	0.04	0.12
ROA (using Net Income (%))	39,566	3.67	3.63	9.52	0.90	7.86
ROA (using P/L before Tax (%))	37,508	4.92	4.65	10.28	1.06	9.64
OpCosts/EBITDA	27,288	8.14	6.01	21.58	3.19	11.10
MktShr	39,675	0.01	0.00	0.02	0.00	0.00
Cash/Assets	39,633	0.16	0.12	0.14	0.06	0.22
Log(Assets)	39,761	18.55	18.64	2.24	16.70	20.21
Log(Tangible)	39,460	16.27	16.61	2.76	14.45	18.28
Log(FAge)	39,709	2.68	2.77	0.43	2.40	3.00
Leverage	27,987	0.05	0.00	0.09	0.00	0.07

Table 2. China's Global Ownership

Notes: The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis between 2012 and 2019. At the firm level, we calculate the total assets directly owned by Chinese entities or Chinese entities' subsidiaries each year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. For example, if 50% of a firm with 100 million USD total assets is directly owned by Chinese entities or Chinese entities' subsidiaries, 50% × 100 million = 50 million would be used in the calculation. In Panels A-D, firm-level assets owned by Chinese shareholders are aggregated at the country level. In Panels E-G, firm-level assets owned by Chinese shareholders are aggregated at the industry level. In Panel A (E), country-level (industry-level) assets owned by Chinese shareholders are scaled by the aggregation of total assets of firms within the country (industry) to get the share of assets owned by Chinese shareholders. Then, the average, standard deviation, minimum value, and maximum value of the shares owned by Chinese shareholders across 2012-2019 are reported. In Panels B-D, F, and G, country-level or industry-level assets owned by Chinese shareholders are averaged across the first three years of (2012-2014), the last three years of (2017-2019), and the entire eight years of (2012-2019) our sample period, and the growth rates from the first-three-year average to the last-three-year average are calculated. In Panel D, the first three years' average assets owned by Chinese shareholders in the respective countries are zeros, so the growth rates are missing. The numbers of the US and Canada should be dealt with cautiously, as Orbis only provides non-missing information on listed firms in these two countries.

Panel A. Top 10 Countries in terms of % Assets Owned by CN

ISO	Name	Mean	STD	Min	Max
HK	Hong Kong	22.84%	7.58%	11.33%	31.76%
AG	Antigua and Barbuda	12.97%	11.80%	0.00%	30.49%
KY	Cayman Islands	11.66%	3.70%	7.05%	16.65%
BM	Bermuda	8.18%	1.96%	5.75%	11.05%
VG	British Virgin Islands	6.55%	2.25%	1.91%	8.82%
SG	Singapore	3.19%	0.91%	1.20%	4.40%
PT	Portugal	2.83%	2.48%	0.01%	5.42%
LA	Laos	2.55%	3.77%	0.00%	9.82%
KZ	Kazakhstan	1.70%	1.28%	0.00%	3.25%
AU	Australia	1.61%	0.54%	0.92%	2.43%
All Countries		0.82%	0.32%	0.37%	1.25%

Table 2. China's Global Ownership (cont'd)

Panel B. Top 10 Countries in terms of Assets Owned by CN					
ISO	Name	Average for 2012-2014 ($M USD)	Average for 2017-2019 ($M USD)	Growth Rate	Average for 2012-2019 ($M USD)
KY	Cayman Islands	87,538.94	298,585.60	241.09%	186,953.60
HK	Hong Kong	121,947.10	229,923.40	88.54%	182,560.40
SG	Singapore	41,498.62	112,745.90	171.69%	77,087.75
AU	Australia	40,600.51	88,160.23	117.14%	72,779.15
GB	United Kingdom	34,789.20	113,484.20	226.21%	71,443.43
BM	Bermuda	54,134.91	62,573.27	15.59%	63,501.55
LU	Luxembourg	1,098.70	124,256.70	11209.45%	57,165.38
NL	Netherlands	21,442.75	71,595.28	233.89%	45,444.34
SE	Sweden	12,569.82	34,193.27	172.03%	20,495.86
US	United States	10,402.09	28,647.19	175.40%	17,944.41
All Countries		486,387.80	1,447,955.00	197.70%	953,520.10
Panel C. Top 10 Countries in terms of Growth in Assets Owned by CN					
ISO	Name	Average for 2012-2014 ($M USD)	Average for 2017-2019 ($M USD)	Growth Rate	Average for 2012-2019 ($M USD)
CH	Switzerland	3.86	14,443.31	374230.90%	5,665.25
TR	Turkey	4.39	3,312.82	75282.51%	1,779.95
DK	Denmark	4.25	2,664.42	62587.49%	1,000.75
BG	Bulgaria	1.18	717.29	60834.76%	359.08
LK	Sri Lanka	0.29	38.88	13389.89%	14.76
LU	Luxembourg	1,098.70	124,256.70	11209.45%	57,165.38
BR	Brazil	463.3	31,519.01	6703.09%	14,110.99
KR	South Korea	723.86	20,837.97	2778.74%	11,458.51
CY	Cyprus	8.41	234.31	2685.01%	130.11
PT	Portugal	1,563.97	33,934.78	2069.79%	17,700.92

Table 2. China's Global Ownership (cont'd)

Panel D. Top 10 Countries in terms of Growth in Assets Owned by CN "from noting"					
ISO	Name	Average for 2012-2014 ($M USD)	Average for 2017-2019 ($M USD)	Growth Rate	Average for 2012-2019 ($M USD)
MT	Malta	0	3,882.92	.	1,470.97
CL	Chile	0	968.11	.	363.04
RS	Serbia	0	826.4	.	312.34
II	*Supranational entities	0	644.78	.	241.79
UA	Ukraine	0	445.92	.	180.95
SI	Slovenia	0	415.05	.	155.65
SK	Slovakia	0	200.95	.	94.32
MH	Marshall Islands	0	130.76	.	49.04
ZW	Zimbabwe	0	68.69	.	25.76
UY	Uruguay	0	19.11	.	7.17

Table 2. China's Global Ownership (cont'd)

Panel E. Top 10 Industries in terms of % Assets Owned by CN					
ISIC	Name	Average for 2012-2019	STD for 2012-2019	Min	Max
L	Real estate activities	2.09%	0.73%	0.95%	2.80%
B	Mining and Quarrying	1.77%	0.41%	0.92%	2.22%
I	Accommodation and food service activities	1.50%	1.56%	0.25%	3.96%
P	Education	1.48%	1.30%	0.57%	4.39%
J	Information and communication	1.29%	0.51%	0.38%	1.87%
F	Construction	1.10%	0.51%	0.51%	1.84%
R	Arts, entertainment, and recreation	1.07%	0.72%	0.04%	2.25%
G	Wholesale and retail trade; repair of motor vehicles	1.01%	0.44%	0.35%	1.68%
N	Administrative and support service activities	0.95%	0.44%	0.13%	1.55%
C	Manufacturing	0.87%	0.25%	0.53%	1.29%

Panel F. Top 10 Industries in terms of Assets Owned by CN					
ISIC	Name	Average for 2012-2014 ($M USD)	Average for 2017-2019 ($M USD)	Growth Rate	Average for 2012-2019 ($M USD)
K	Financial and insurance activities	32,522.88	419,277.90	1189.18%	215,776.80
C	Manufacturing	128,886.20	248,290.70	92.64%	181,245.80
L	Real estate activities	49,476.64	141,719.40	186.44%	97,499.53
B	Mining and Quarrying	68,943.10	87,372.04	26.73%	81,894.77
G	Wholesale and retail trade; repair of motor vehicles	42,719.00	111,927.80	162.01%	76,335.95
J	Information and communication	38,575.55	105,349.50	173.10%	73,167.88
D	Electricity, gas, steam and air conditioning supply	24,558.64	51,987.39	111.69%	39,856.35
N	Administrative and support services	20,200.93	41,999.37	107.91%	35,953.66
F	Construction	17,366.55	52,592.91	202.84%	32,508.49
M	Professional, scientific and technical activities	14,301.80	53,121.61	271.43%	31,665.48

Table 2. China's Global Ownership (cont'd)

Panel G. Top 10 Industries in terms of Growth in Assets Owned by CN					
ISIC	Name	Average for 2012-2014 ($M USD)	Average for 2017-2019 ($M USD)	Growth Rate	Average for 2012-2019 ($M USD)
K	Financial and insurance activities	32,522.88	419,277.90	1189.18%	215,776.80
I	Accommodation and food service activities	2,857.56	29,026.46	915.78%	15,322.88
E	Water supply; sewerage, waste management and remediation activities	423.07	3,978.16	840.30%	2,165.07
P	Education	744.25	5,291.03	610.92%	2,802.69
S	Other service activities	1,125.91	7,272.79	545.95%	3,701.29
Q	Human health and social work activities	1,400.23	8,630.29	516.35%	4,568.42
M	Professional, scientific and technical activities	14,301.80	53,121.61	271.43%	31,665.48
F	Construction	17,366.55	52,592.91	202.84%	32,508.49
L	Real estate activities	49,476.64	141,719.40	186.44%	97,499.53
J	Information and communication	38,575.55	105,349.50	173.10%	73,167.88

Table 3. Determinants of China's Global Ownership

Notes: This table reports the results of the regressions designed to test the determinants of Chinese ownership. The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis and located in countries with non-missing input-output tables from OECD between 2012 and 2019. Firm-level assets owned by China and accounting items are aggregated at the country-industry level. The detailed variable definitions are reported in the Appendix. Country fixed effects and year fixed effects are included in all regressions. Industry fixed effects are included when the indicators for resource-intensive industries are not included. Country-industry-year level OLS regressions are conducted for the regressions. Robust standard errors in parentheses are clustered at the country-industry level. *** p<0.01, ** p<0.05, * p<0.1.

Panel A. R&D Expenses = 0 if Missing						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Log(∑CN_Owned_Assets)		Log(∑CN_PrivateOwned_Assets)		Log(∑CN_SOEOwned_Assets)	
Log(∑Assets)	1.173***	0.776***	0.950***	0.583***	0.753***	0.510***
	(0.096)	(0.082)	(0.092)	(0.075)	(0.081)	(0.069)
Log(∑Tangible)	-0.162***	0.020	-0.168***	0.036	-0.074**	0.000
	(0.055)	(0.044)	(0.052)	(0.041)	(0.036)	(0.032)
Log(∑LTDebt)	-0.043***	-0.043***	-0.036***	-0.037***	-0.039***	-0.037***
	(0.013)	(0.013)	(0.012)	(0.012)	(0.010)	(0.010)
HHI	-8.873***	-6.935***	-8.618***	-6.768***	-2.728***	-1.789*
	(1.289)	(1.258)	(1.188)	(1.147)	(0.933)	(0.950)
HHI Squared	8.091***	6.763***	7.622***	6.399***	2.916***	2.148***
	(1.091)	(1.043)	(1.009)	(0.956)	(0.795)	(0.782)
Log(∑R&D)	0.076***	0.060***	0.075***	0.061***	0.022	0.027*
	(0.019)	(0.018)	(0.018)	(0.017)	(0.015)	(0.015)
All_Blank_R&D	-0.764**	-0.808**	-0.634*	-0.634*	-0.159	-0.268
	(0.371)	(0.364)	(0.348)	(0.338)	(0.297)	(0.301)
Partial_Blank_R&D	-0.048	-0.377	0.039	-0.256	-0.016	-0.219
	(0.283)	(0.284)	(0.274)	(0.271)	(0.241)	(0.245)
Log(∑Empl)	0.040	-0.001	0.052*	0.005	-0.015	-0.021
	(0.034)	(0.034)	(0.031)	(0.030)	(0.026)	(0.025)
∑EBITDA/∑Assets	-0.194	-0.190	-0.186	-0.179	-0.091	-0.046
	(0.163)	(0.164)	(0.121)	(0.128)	(0.133)	(0.105)
∑OpCost/∑EBITDA	0.000	0.000	-0.000	0.000	0.000	0.000

	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
∑Cash/∑Assets	0.915	0.053	1.101	0.194	-0.731	-1.219**
	(0.826)	(0.849)	(0.714)	(0.740)	(0.568)	(0.593)
IO_CN/IO	7.468***	7.840***	5.511**	5.894*	4.006*	4.664*
	(2.535)	(2.888)	(2.709)	(3.025)	(2.421)	(2.829)
II_CN/II	14.657***	12.992**	18.750***	16.021***	-3.040	0.014
	(4.530)	(5.864)	(4.567)	(5.750)	(2.499)	(3.939)
Nature_Resources_Country	0.123***	0.120***	0.095***	0.093***	0.058***	0.058***
	(0.020)	(0.020)	(0.017)	(0.017)	(0.015)	(0.015)
Agriculture, hunting, forestry (indicator)	-0.250		-0.687		0.459	
	(0.420)		(0.443)		(0.294)	
Mining and quarrying - energy (indicator)	1.034		-0.478		2.083***	
	(0.756)		(0.530)		(0.799)	
Mining and quarrying - non-energy (indicator)	-0.027		0.001		0.387	
	(0.677)		(0.566)		(0.608)	
Constant	-18.594***	-13.311***	-14.405***	-10.209***	-12.914***	-9.112***
	(1.523)	(1.485)	(1.383)	(1.320)	(1.308)	(1.263)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,451	15,451	15,451	15,451	15,451	15,451
R-squared	0.328	0.367	0.275	0.320	0.243	0.270

Table 3. Determinants of China's Global Ownership (cont'd)

Panel B. R&D Expenses Dropped if Missing						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Log(∑CN_Owned_Assets)		Log(∑CN_PrivateOwned_Assets)		Log(∑CN_SOEOwned_Assets)	
Log(∑Assets)	0.502***	0.438***	0.389***	0.333***	0.220***	0.191***
	(0.075)	(0.080)	(0.066)	(0.070)	(0.040)	(0.045)
Log(∑Tangible)	-0.076*	-0.020	-0.072*	-0.012	-0.008	-0.002
	(0.039)	(0.043)	(0.037)	(0.039)	(0.022)	(0.025)
Log(∑LTDebt)	-0.002	-0.005	-0.001	-0.006	-0.004	-0.003
	(0.012)	(0.013)	(0.012)	(0.012)	(0.008)	(0.008)
HHI	-7.702***	-7.272***	-7.442***	-6.841***	-2.462***	-2.550***
	(1.299)	(1.311)	(1.220)	(1.208)	(0.829)	(0.861)
HHI Squared	5.970***	5.759***	5.749***	5.391***	1.824***	1.926***
	(1.056)	(1.062)	(0.980)	(0.975)	(0.679)	(0.691)
Log(∑R&D)	0.039***	0.014	0.035***	0.011	0.011	0.013
	(0.015)	(0.015)	(0.013)	(0.013)	(0.011)	(0.011)
Log(∑Empl)	0.019	0.010	0.016	0.002	-0.008	-0.002
	(0.032)	(0.031)	(0.029)	(0.028)	(0.022)	(0.022)
∑EBITDA/∑Assets	0.000***	0.000***	0.000**	0.000**	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
∑OpCost/∑EBITDA	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
∑Cash/∑Assets	0.219	-0.244	0.403	-0.015	-0.275	-0.347
	(0.694)	(0.669)	(0.602)	(0.584)	(0.422)	(0.415)
IO_CN/IO	5.790**	6.709**	3.230	3.422	2.315	2.851
	(2.727)	(3.058)	(2.793)	(3.189)	(1.839)	(2.071)
II_CN/II	15.243***	13.625**	16.591***	13.092**	1.238	4.564
	(4.861)	(6.035)	(4.858)	(5.905)	(2.124)	(3.565)
Nature_Resources_Country	0.070***	0.067***	0.057***	0.055***	0.012	0.012
	(0.017)	(0.017)	(0.015)	(0.015)	(0.011)	(0.011)

Agriculture, hunting, forestry (indicator)	-0.233		-0.496		0.298	
	(0.414)		(0.400)		(0.365)	
Mining and quarrying - energy (indicator)	1.236		-0.085		1.739*	
	(0.883)		(0.478)		(0.945)	
Mining and quarrying - non-energy (indicator)	2.200*		1.514*		1.345	
	(1.150)		(0.894)		(1.040)	
Constant	-7.081***	-6.487***	-5.038***	-4.658***	-3.567***	-3.154***
	(1.207)	(1.274)	(1.049)	(1.107)	(0.696)	(0.737)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,984	8,984	8,984	8,984	8,984	8,984
R-squared	0.269	0.284	0.212	0.231	0.203	0.210

Table 4. China's Ownership and Innovation

Notes: This table reports the results of the regressions designed to test the relationship between Chinese ownership and R&D expenses. The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis between 2012 and 2019. R&D expenses are winsorized at the 1st and 99th percentiles, then treated as zeros if missing in Panel A and dropped if missing in Panel B. Other variable definitions are reported in the Appendix. Firm fixed effects and year fixed effects are included in all regressions. Firm-year level OLS regressions are conducted for the regressions. Robust standard errors in parentheses are clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

Panel A. R&D Expenses = 0 if Missing						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Log(R&D)					
CN_Owned	0.152***		0.140***		0.089*	
	(0.046)		(0.047)		(0.046)	
CN_PrivateOwned		0.126**		0.104**		0.075
		(0.050)		(0.052)		(0.050)
CN_SOEOwned		0.234***		0.254***		0.136*
		(0.084)		(0.090)		(0.081)
Blank_R&D	-4.225***	-4.225***	-4.468***	-4.469***	-4.719***	-4.719***
	(0.052)	(0.052)	(0.059)	(0.059)	(0.064)	(0.064)
Log(Assets)			0.026***	0.026***	0.026***	0.026***
			(0.004)	(0.004)	(0.005)	(0.005)
Log(Tangible)			-0.000	-0.000	0.007***	0.007***
			(0.002)	(0.002)	(0.002)	(0.002)
Log(FAge)			0.105***	0.105***	0.101***	0.101***
			(0.015)	(0.015)	(0.016)	(0.016)
Leverage			-0.070***	-0.071***	-0.101***	-0.101***
			(0.016)	(0.016)	(0.017)	(0.017)
HHI			-0.272***	-0.271***	-0.217***	-0.217***
			(0.066)	(0.066)	(0.063)	(0.063)
HHI Squared			0.383***	0.383***	0.282***	0.282***
			(0.067)	(0.067)	(0.064)	(0.064)
Cash/Assets					-0.068**	-0.068**
					(0.030)	(0.030)
ROA (Net Income (%))					-0.002***	-0.002***
					(0.000)	(0.000)
Constant	4.395***	4.395***	3.900***	3.900***	4.009***	4.009***
	(0.043)	(0.043)	(0.093)	(0.093)	(0.106)	(0.106)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,113,712	1,113,712	934,411	934,411	829,780	829,780
R-squared	0.913	0.913	0.923	0.923	0.929	0.929

Table 4. China's Ownership and Innovation (cont'd)

Panel B. R&D Expenses Dropped if Missing						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Log(R&D)					
CN_Owned	0.201***		0.117		0.128	
	(0.076)		(0.078)		(0.079)	
CN_PrivateOwned		0.139*		0.057		0.072
		(0.077)		(0.079)		(0.079)
CN_SOEOwned		0.531***		0.420**		0.412**
		(0.179)		(0.179)		(0.179)
Log(Assets)			0.180***	0.180***	0.280***	0.279***
			(0.020)	(0.020)	(0.024)	(0.024)
Log(Tangible)			0.078***	0.078***	0.068***	0.068***
			(0.009)	(0.009)	(0.010)	(0.010)
Log(FAge)			0.234***	0.235***	0.156***	0.157***
			(0.053)	(0.053)	(0.054)	(0.054)
Leverage			-0.017	-0.017	-0.190***	-0.191***
			(0.067)	(0.067)	(0.072)	(0.072)
HHI			0.126	0.126	0.252	0.252
			(0.263)	(0.263)	(0.251)	(0.251)
HHI Squared			0.089	0.088	-0.069	-0.069
			(0.248)	(0.248)	(0.236)	(0.236)
Cash/Assets					0.163*	0.162*
					(0.084)	(0.084)
ROA (Net Income (%))					-0.005***	-0.005***
					(0.001)	(0.001)
Constant	5.266***	5.266***	0.279	0.279	-1.305***	-1.304***
	(0.002)	(0.002)	(0.361)	(0.361)	(0.439)	(0.439)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	187,211	187,211	168,832	168,832	159,052	159,052
R-squared	0.955	0.955	0.960	0.960	0.963	0.963

Table 5. China's Ownership and Profitability

Notes: This table reports the results of the regressions designed to test the relationship between Chinese ownership and ROA. The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis between 2012 and 2019. ROA is the ROA for each firm each year, winsorized at the 1st and 99th percentiles. ROA is measured using net income in Panel A and P/L before tax in Panel B. Other variable definitions are reported in the Appendix. Firm fixed effects and year fixed effects are included in all regressions. Firm-year level OLS regressions are conducted for the regressions. Robust standard errors in parentheses are clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

Panel A: ROA Using Net Income (%)						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ROA					
CN_Owned	-0.565**		-0.630***		-0.628**	
	(0.241)		(0.240)		(0.245)	
CN_PrivateOwned		-0.638**		-0.726***		-0.722**
		(0.281)		(0.281)		(0.285)
CN_SOEOwned		-0.330		-0.328		-0.328
		(0.338)		(0.339)		(0.347)
Log(Assets)			1.888***	1.888***	2.128***	2.128***
			(0.046)	(0.046)	(0.050)	(0.050)
Log(Tangible)			-0.112***	-0.112***	-0.106***	-0.106***
			(0.010)	(0.010)	(0.011)	(0.011)
Log(FAge)			-0.388***	-0.387***	-0.352***	-0.351***
			(0.101)	(0.101)	(0.105)	(0.105)
Leverage			-7.826***	-7.826***	-7.759***	-7.760***
			(0.162)	(0.162)	(0.168)	(0.168)
HHI			1.215***	1.215***	1.150***	1.150***
			(0.398)	(0.398)	(0.408)	(0.408)
HHI Squared			-1.243***	-1.243***	-1.133***	-1.133***
			(0.396)	(0.396)	(0.405)	(0.405)
Cash/Assets					7.840***	7.839***
					(0.246)	(0.246)
Constant	2.553***	2.553***	-29.056***	-29.057***	-34.400***	-34.401***
	(0.002)	(0.002)	(0.833)	(0.833)	(0.897)	(0.897)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,006,636	1,006,636	875,612	875,612	829,780	829,780
R-squared	0.581	0.581	0.596	0.596	0.606	0.606

Table 5. China's Ownership and Profitability (cont'd)

Panel B: ROA Using P/L before Tax (%)						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	ROA					
CN_Owned	-0.704***		-0.847***		-0.866***	
	(0.250)		(0.251)		(0.256)	
CN_PrivateOwned		-0.798***		-0.956***		-0.965***
		(0.290)		(0.292)		(0.296)
CN_SOEOwned		-0.404		-0.510		-0.554
		(0.357)		(0.368)		(0.377)
Log(Assets)			1.641***	1.641***	1.864***	1.864***
			(0.047)	(0.047)	(0.051)	(0.051)
Log(Tangible)			-0.077***	-0.077***	-0.067***	-0.067***
			(0.010)	(0.010)	(0.011)	(0.011)
Log(FAge)			-0.056	-0.056	-0.048	-0.048
			(0.106)	(0.106)	(0.111)	(0.111)
Leverage			-7.934***	-7.934***	-7.861***	-7.861***
			(0.160)	(0.160)	(0.165)	(0.165)
HHI			1.014**	1.014**	0.974**	0.974**
			(0.400)	(0.400)	(0.409)	(0.409)
HHI Squared			-1.106***	-1.106***	-1.038**	-1.038**
			(0.395)	(0.395)	(0.405)	(0.405)
Cash/Assets					8.101***	8.100***
					(0.253)	(0.253)
Constant	3.817***	3.817***	-24.567***	-24.567***	-29.595***	-29.596***
	(0.003)	(0.003)	(0.858)	(0.858)	(0.925)	(0.925)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,016,618	1,016,618	886,329	886,329	838,819	838,819
R-squared	0.624	0.624	0.642	0.642	0.650	0.650

Table 6. China's Ownership and Market Share

Notes: This table reports the results of the regressions designed to test the relationship between Chinese ownership and market share. The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis between 2012 and 2019. The detailed variable definitions are reported in the Appendix. Firm fixed effects and year fixed effects are included in all regressions. Firm-year level OLS regressions are conducted for the regressions. Robust standard errors in parentheses are clustered at the firm level.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES				MktShr		
CN_Owned	0.003**		0.002*		0.003*	
	(0.001)		(0.001)		(0.001)	
CN_PrivateOwned		0.002*		0.002		0.002
		(0.001)		(0.001)		(0.002)
CN_SOEOwned		0.005**		0.004		0.004*
		(0.002)		(0.002)		(0.002)
Log(Assets)			0.005***	0.005***	0.006***	0.006***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(Tangible)			0.001***	0.001***	0.001***	0.001***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(FAge)			0.002***	0.002***	0.001**	0.001**
			(0.001)	(0.001)	(0.001)	(0.001)
Leverage			-0.001	-0.001	-0.001	-0.001
			(0.001)	(0.001)	(0.001)	(0.001)
HHI			-0.135***	-0.135***	-0.139***	-0.139***
			(0.009)	(0.009)	(0.009)	(0.009)
HHI Squared			0.306***	0.306***	0.310***	0.310***
			(0.015)	(0.015)	(0.015)	(0.015)
Cash/Assets					0.006***	0.006***
					(0.001)	(0.001)
ROA (Net Income (%))					0.000***	0.000***
					(0.000)	(0.000)
Constant	0.033***	0.033***	-0.072***	-0.072***	-0.092***	-0.092***
	(0.000)	(0.000)	(0.004)	(0.004)	(0.006)	(0.006)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	733,113	733,113	686,948	686,948	639,934	639,934
R-squared	0.930	0.930	0.938	0.938	0.941	0.941

Table 7. China's Ownership and Supply Chain

Notes: This table reports the results of the regressions designed to test the relationship between Chinese ownership and the dependence on Chinese supply chains. The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis and non-missing supply chain information from FactSet Revere between 2012 and 2019. CNCustomer (CNSupplier) equals one if the firm is recorded in FactSet Revere as an entity to which a source company in China sells products or services (an entity from which a source company in China purchases goods or services, an entity that provides paid manufacturing services to a source company in China, an entity that provides paid marketing and/or branding/advertising services to a source company in China, or an entity whom a source company in China pays to distribute its products/services). CNCustomer is the dependent variable in Panel A, while CNSupplier is the dependent variable in Panel B. Other variable definitions are reported in the Appendix. Firm fixed effects and year fixed effects are included in all regressions. Firm-year level OLS regressions are conducted for the regressions. Robust standard errors in parentheses are clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

Panel A: China's Customer (OLS)						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	CNCustomer					
CN_Owned	0.029***		0.036***		0.032**	
	(0.011)		(0.012)		(0.013)	
CN_PrivateOwned		0.029**		0.036***		0.029**
		(0.012)		(0.013)		(0.014)
CN_SOEOwned		0.029		0.037		0.040
		(0.022)		(0.025)		(0.024)
Log(Assets)			0.001	0.001	-0.001	-0.001
			(0.002)	(0.002)	(0.002)	(0.002)
Log(Tangible)			-0.001*	-0.001*	0.001	0.001
			(0.001)	(0.001)	(0.000)	(0.000)
Log(FAge)			-0.001	-0.001	0.001	0.001
			(0.009)	(0.009)	(0.009)	(0.009)
Leverage			0.016**	0.016**	0.020**	0.020**
			(0.008)	(0.008)	(0.009)	(0.009)
HHI			0.009	0.009	0.068***	0.068***
			(0.026)	(0.026)	(0.025)	(0.025)
HHI Squared			-0.018	-0.018	-0.071***	-0.071***
			(0.025)	(0.025)	(0.024)	(0.024)
Cash/Assets					0.009	0.009
					(0.008)	(0.008)
ROA (Net Income (%))					-0.000	-0.000
					(0.000)	(0.000)
Constant	0.046***	0.046***	0.056	0.056	0.039	0.038
	(0.000)	(0.000)	(0.040)	(0.040)	(0.045)	(0.045)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	113,804	113,804	106,805	106,805	102,664	102,664
R-squared	0.577	0.577	0.577	0.577	0.575	0.575

Table 7. China's Ownership and Supply Chain (cont'd)

Panel B: China's Supplier (OLS)						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	CNSupplier					
CN_Owned	0.006		0.005		0.008	
	(0.007)		(0.007)		(0.008)	
CN_PrivateOwned		0.008		0.010		0.015*
		(0.007)		(0.008)		(0.009)
CN_SOEOwned		-0.001		-0.010		-0.015
		(0.015)		(0.016)		(0.018)
Log(Assets)			0.003**	0.003**	0.004***	0.004***
			(0.001)	(0.001)	(0.001)	(0.001)
Log(Tangible)			-0.001*	-0.001*	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)
Log(FAge)			0.007	0.007	0.009	0.009
			(0.007)	(0.007)	(0.007)	(0.007)
Leverage			0.002	0.002	0.000	0.000
			(0.005)	(0.005)	(0.005)	(0.005)
HHI			0.040**	0.040**	0.057***	0.057***
			(0.016)	(0.016)	(0.015)	(0.015)
HHI Squared			-0.041***	-0.042***	-0.056***	-0.056***
			(0.014)	(0.014)	(0.014)	(0.014)
Cash/Assets					-0.012*	-0.012*
					(0.007)	(0.007)
ROA (Net Income (%))					-0.000	-0.000
					(0.000)	(0.000)
Constant	0.023***	0.023***	-0.053*	-0.052	-0.090***	-0.090***
	(0.000)	(0.000)	(0.032)	(0.032)	(0.035)	(0.035)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	113,804	113,804	106,805	106,805	102,664	102,664
R-squared	0.546	0.546	0.543	0.543	0.543	0.544

Table 8. China's Ownership and Cash Holding

Notes: This table reports the results of the regressions designed to test the relationship between Chinese ownership and cash holding. The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis between 2012 and 2019. The detailed variable definitions are reported in the Appendix. Firm fixed effects and year fixed effects are included in all regressions. Firm-year level OLS regressions are conducted for the regressions. Robust standard errors in parentheses are clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Cash/Assets					
CN_Owned	-0.022***		-0.012***		-0.007***	
	(0.003)		(0.003)		(0.002)	
CN_PrivateOwned		-0.022***		-0.012***		-0.008***
		(0.003)		(0.003)		(0.003)
CN_SOEOwned		-0.023***		-0.014***		-0.003
		(0.004)		(0.004)		(0.004)
Log(Assets)			-0.023***	-0.023***	-0.022***	-0.022***
			(0.001)	(0.001)	(0.001)	(0.001)
Log(Tangible)			-0.002***	-0.002***	-0.002***	-0.002***
			(0.000)	(0.000)	(0.000)	(0.000)
Log(FAge)			-0.012***	-0.012***	-0.013***	-0.013***
			(0.001)	(0.001)	(0.001)	(0.001)
Leverage			-0.030***	-0.030***	-0.024***	-0.024***
			(0.001)	(0.001)	(0.001)	(0.001)
HHI			0.001	0.001	-0.002	-0.002
			(0.004)	(0.004)	(0.004)	(0.004)
HHI Squared			-0.008*	-0.008*	-0.002	-0.002
			(0.004)	(0.004)	(0.004)	(0.004)
ROA (Net Income (%))					0.001***	0.001***
					(0.000)	(0.000)
Constant	0.110***	0.110***	0.582***	0.582***	0.569***	0.569***
	(0.000)	(0.000)	(0.012)	(0.012)	(0.014)	(0.014)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,002,379	1,002,379	881,031	881,031	829,780	829,780
R-squared	0.752	0.752	0.776	0.776	0.789	0.789

Table 9. The Spillover Impact of China's Ownership on R&D Activities in the Targeting Firms' Industries

Notes: This table reports the results of the regressions designed to test the spillover effects of China's ownership on the R&D activities of firms that have never been owned by Chinese entities or Chinese entities' subsidiaries in our sample period within the same country industry year. The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis between 2012 and 2019. Firm-level assets owned by China are aggregated at the country-industry level and scaled by the aggregation of total assets of all firms within the country and industry. Firm-level accounting items are averaged at the country-industry level across all firms that have never been owned by a Chinese entity or a Chinese entity's subsidiary. Log($\overline{\text{R\&D}}$) is the logarithm of the average R&D expenses of all firms that have never been owned by a Chinese entity or a Chinese entity's subsidiary for each country and each industry each year. R&D expenses are winsorized at the 1st and 99th percentiles, then treated as zeros if missing in Panel A and dropped if missing in Panel B. Other variable definitions are reported in the Appendix. Country×Industry, Country×Year, and Industry×Year fixed effects are included in all regressions. Country-industry-year level OLS regressions are conducted for the regressions. Robust standard errors in parentheses are clustered at the country-industry level. *** p<0.01, ** p<0.05, * p<0.1.

Panel A. R&D Expenses = 0 if Missing

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES			Log($\overline{\text{R\&D}}$)			
%CN_Owned_Assets	-1.884**		-1.593*		-2.028*	
	(0.929)		(0.925)		(1.040)	
%CN_PrivateOwned_Assets		-1.000		-0.576		-1.283
		(1.053)		(1.068)		(1.124)
%CN_SOEOwned_Assets		-3.638**		-3.543**		-3.590*
		(1.610)		(1.626)		(1.942)
All_Blank_R&D	-2.156***	-2.160***	-2.290***	-2.294***	-2.320***	-2.322***
	(0.196)	(0.196)	(0.201)	(0.201)	(0.208)	(0.208)
Partial_Blank_R&D	-0.040	-0.043	-0.106	-0.109	-0.138	-0.139
	(0.152)	(0.152)	(0.152)	(0.152)	(0.152)	(0.152)
Log($\overline{\text{Assets}}$)			0.125**	0.127**	0.057	0.058
			(0.058)	(0.058)	(0.067)	(0.067)
Log($\overline{\text{Tangible}}$)			0.024	0.023	0.016	0.016
			(0.024)	(0.024)	(0.025)	(0.025)
$\overline{\text{Leverage}}$			0.065	0.068	0.008	0.009
			(0.292)	(0.292)	(0.298)	(0.298)
Log($\overline{\text{FAge}}$)			-0.256*	-0.258*	-0.190	-0.191
			(0.154)	(0.154)	(0.157)	(0.157)
HHI			-0.840	-0.851	-0.923	-0.925
			(0.722)	(0.720)	(0.730)	(0.730)
HHI Squared			0.466	0.469	0.478	0.477
			(0.637)	(0.636)	(0.645)	(0.645)
$\overline{\text{ROA}}$ (Net Income (%))					-0.002	-0.003
					(0.004)	(0.004)
Log($\overline{\text{Cash}}$)					0.088***	0.088***
					(0.027)	(0.027)
Constant	3.579***	3.582***	1.928*	1.914*	1.837	1.815
	(0.118)	(0.118)	(1.101)	(1.099)	(1.225)	(1.223)

Country*Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	26,258	26,258	25,309	25,309	24,787	24,787
R-squared	0.863	0.863	0.866	0.866	0.869	0.869

Table 9. The Spillover Impact of China's Ownership on R&D Activities in the Targeting Firms' Industries (cont'd)

Panel B. R&D Expenses Dropped if Missing						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES			Log(R&D)			
%CN_Owned_Assets	-2.616*		-2.241		-2.209	
	(1.372)		(1.376)		(1.386)	
%CN_PrivateOwned_Assets		-1.848		-1.367		-1.268
		(1.715)		(1.756)		(1.744)
%CN_SOEOwned_Assets		-3.799**		-3.577**		-3.660**
		(1.565)		(1.528)		(1.589)
Log(Assets)			0.485***	0.484***	0.312***	0.310***
			(0.095)	(0.095)	(0.113)	(0.113)
Log(Tangible)			0.065	0.066	0.079*	0.079*
			(0.040)	(0.040)	(0.048)	(0.047)
Leverage			-0.470	-0.465	-0.537	-0.531
			(0.558)	(0.557)	(0.581)	(0.581)
Log(FAge)			-0.058	-0.061	-0.012	-0.015
			(0.198)	(0.198)	(0.199)	(0.200)
HHI			-1.142	-1.159	-1.108	-1.126
			(1.150)	(1.150)	(1.158)	(1.158)
HHI Squared			0.643	0.659	0.635	0.651
			(0.997)	(0.997)	(1.000)	(1.000)
ROA (Net Income (%))					-0.014***	-0.014***
					(0.005)	(0.005)
Log(Cash)					0.206***	0.207***
					(0.052)	(0.052)
Constant	5.031***	5.031***	-4.885***	-4.859***	-5.320***	-5.286***
	(0.010)	(0.010)	(1.725)	(1.726)	(1.782)	(1.783)
Country*Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,916	14,916	14,352	14,352	14,244	14,244
R-squared	0.870	0.870	0.875	0.875	0.875	0.875

Table 10. The Spillover Impact of China's Ownership on Market Shares in the Targeting Firms' Industries

Notes: This table reports the results of the regressions designed to test the spillover effects of China's ownership on the market shares of firms that have never been owned by Chinese entities or Chinese entities' subsidiaries in our sample period within the same country industry year. The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis between 2012 and 2019. Firm-level assets owned by China are aggregated at the country-industry level and scaled by the aggregation of total assets of all firms within the country and industry. Firm-level accounting items are averaged at the country-industry level across all firms that have never been owned by a Chinese entity or a Chinese entity's subsidiary. The detailed variable definitions are reported in the Appendix. Country×Industry, Country×Year, and Industry×Year fixed effects are included in all regressions. Country-industry-year level OLS regressions are conducted for the regressions. Robust standard errors in parentheses are clustered at the country-industry level. *** p<0.01, ** p<0.05, * p<0.1.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES			$\overline{\text{MktShr}}$			
%CN_Owned_Assets	-0.042		-0.075*		-0.081*	
	(0.037)		(0.044)		(0.045)	
%CN_PrivateOwned_Assets		-0.035		-0.097*		-0.099*
		(0.046)		(0.053)		(0.054)
%CN_SOEOwned_Assets		-0.057		-0.034		-0.048
		(0.067)		(0.070)		(0.072)
Log($\overline{\text{Assets}}$)			-0.015***	-0.015***	-0.010***	-0.010***
			(0.003)	(0.003)	(0.004)	(0.004)
Log($\overline{\text{Tangible}}$)			-0.006***	-0.006***	-0.006***	-0.006***
			(0.001)	(0.001)	(0.001)	(0.001)
$\overline{\text{Leverage}}$			0.019	0.019	0.022	0.022
			(0.014)	(0.014)	(0.015)	(0.015)
Log($\overline{\text{FAge}}$)			0.032***	0.032***	0.032***	0.032***
			(0.009)	(0.009)	(0.009)	(0.009)
HHI			-0.523***	-0.523***	-0.519***	-0.519***
			(0.033)	(0.033)	(0.033)	(0.033)
HHI Squared			0.797***	0.797***	0.794***	0.794***
			(0.028)	(0.028)	(0.028)	(0.028)
$\overline{\text{ROA}}$ (Net Income (%))					0.001***	0.001***
					(0.000)	(0.000)
Log($\overline{\text{Cash}}$)					-0.006***	-0.006***
					(0.001)	(0.001)
Constant	0.323***	0.323***	0.573***	0.574***	0.578***	0.579***
	(0.000)	(0.000)	(0.066)	(0.066)	(0.068)	(0.068)
Country*Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	24,461	24,461	23,931	23,931	23,612	23,612
R-squared	0.941	0.941	0.966	0.966	0.966	0.966

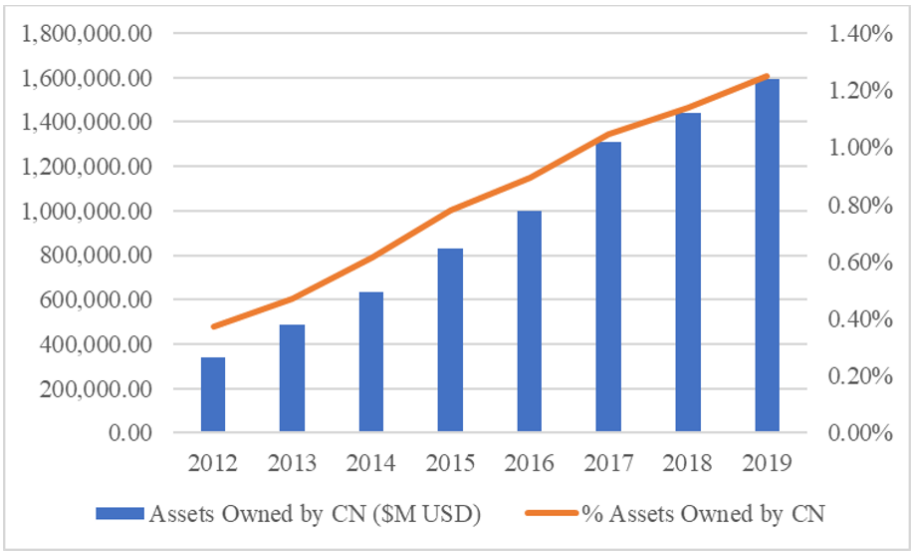
Table 11. The Spillback Impact of China's Ownership on R&D Activities at Home

Notes: This table reports the results of the regressions designed to test the spillback effects of China's global ownership on the R&D activities of Chinese firms. The sample consists of all China-incorporated "Very Large" firms with non-missing consolidated accounting information and ownership information from Orbis between 2012 and 2019 that have no more than 50% owned by a single domestic bank/financial/insurance/industrial company. R&D expenses are winsorized at the 1st and 99th percentiles, then treated as zeros if missing in Panel A and dropped if missing in Panel B. Other variable definitions are reported in the Appendix. Firm fixed effects and industry*year two-way fixed effects are included in all regressions. Firm-year level OLS regressions are conducted for the regressions. Robust standard errors in parentheses are clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

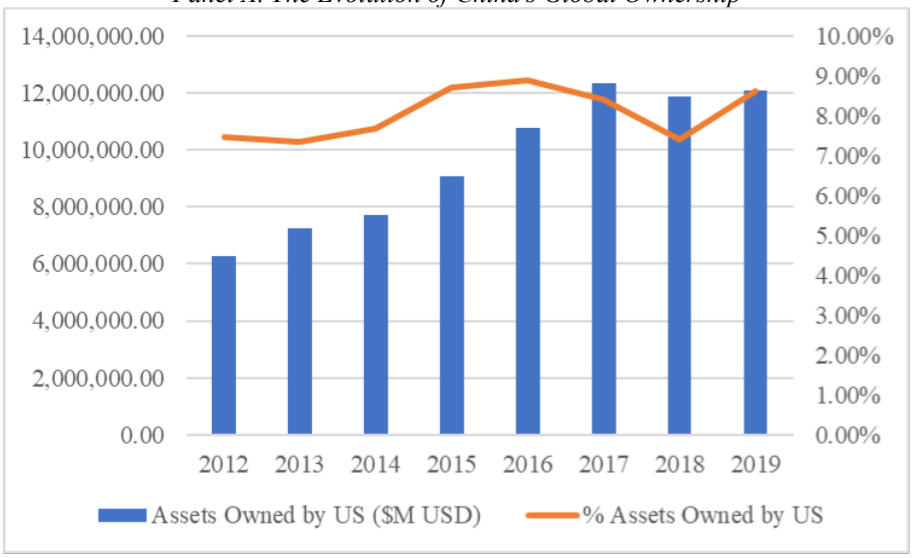
Panel A. R&D Expenses = 0 if Missing						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Log(R&D)					
CN_foreign	0.487***		0.322*		0.329*	
	(0.174)		(0.180)		(0.180)	
CN_foreign_private		0.462**		0.287		0.294
		(0.187)		(0.194)		(0.193)
CN_foreign_SOE		1.114*		1.108*		1.120*
		(0.579)		(0.637)		(0.638)
Blank_R&D	-9.506***	-9.267***	-8.490***	-8.221***	-8.526***	-8.229***
	(0.258)	(0.309)	(0.404)	(0.451)	(0.406)	(0.452)
Log(Assets)			0.573***	0.556***	0.535***	0.517***
			(0.119)	(0.126)	(0.124)	(0.132)
Log(Tangible)			0.174**	0.188**	0.188**	0.203**
			(0.073)	(0.078)	(0.079)	(0.084)
Log(FAge)			-2.466***	-3.058***	-2.392***	-3.036***
			(0.737)	(0.838)	(0.746)	(0.844)
Leverage			-2.058***	-2.209***	-1.919***	-2.063***
			(0.584)	(0.631)	(0.587)	(0.634)
Cash/Assets					0.337	0.493
					(0.319)	(0.359)
ROA (Net Income(%))					0.005	0.004
					(0.004)	(0.004)
Constant	11.258***	11.194***	4.546*	6.192**	4.763*	6.520**
	(0.069)	(0.083)	(2.666)	(2.994)	(2.702)	(3.021)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	41,323	34,984	29,656	25,850	29,541	25,766
R-squared	0.880	0.882	0.857	0.857	0.857	0.857

Table 11. The Spillback Impact of China's Ownership on R&D Activities at Home (cont'd)

Panel B. R&D Expenses Dropped if Missing						
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Log(R&D)					
CN_foreign	0.424**		0.300		0.309	
	(0.192)		(0.193)		(0.192)	
CN_foreign_private		0.428**		0.290		0.300
		(0.208)		(0.207)		(0.207)
CN_foreign_SOE		1.629**		1.393**		1.411**
		(0.702)		(0.654)		(0.655)
Log(Assets)			0.753***	0.735***	0.711***	0.689***
			(0.144)	(0.151)	(0.148)	(0.155)
Log(Tangible)			0.249***	0.271***	0.254***	0.280***
			(0.094)	(0.100)	(0.097)	(0.104)
Log(FAge)			-2.651***	-3.585***	-2.585***	-3.511***
			(0.880)	(0.980)	(0.882)	(0.982)
Leverage			-2.512***	-2.652***	-2.311***	-2.447***
			(0.701)	(0.760)	(0.702)	(0.761)
Cash/Assets					0.469	0.693*
					(0.374)	(0.413)
ROA (Net Income(%))					0.007	0.006
					(0.005)	(0.005)
Constant	11.948***	11.931***	0.961	3.422	1.365	3.799
	(0.021)	(0.026)	(3.156)	(3.512)	(3.173)	(3.524)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	29,819	25,437	24,718	21,765	24,669	21,723
R-squared	0.776	0.786	0.777	0.785	0.777	0.785



Panel A. The Evolution of China's Global Ownership



Panel B. The Evolution of the US's Global Ownership

Figure 1. The Evolution of Global Ownership

Notes: This figure plots the evolution of China's (the US's) global ownership. The sample consists of all non-China-incorporated (non-US-incorporated) "Very Large" firms with non-missing financial and ownership information from Orbis between 2012 and 2019. Firm-level assets owned by China (the US) are aggregated at the global level. The absolute values of global ownership are represented by the left Y axis. Global-level assets owned by Chinese shareholders (assets owned by US shareholders) are scaled by the aggregation of total assets of all firms to get the share of assets owned by Chinese shareholders (share of assets owned by US shareholders). The percentages of global ownership are represented by the right Y axis.

Figure 2. The Evolution of China's Global Ownership in Selected Industries

Notes: This figure plots the evolution of China's global ownership in six selected industries. The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis between 2012 and 2019 in the following six industries: "mining and quarrying, energy producing products (ISIC Rev 4. B)," "financial and insurance activities (ISIC Rev4. K)," "wholesale and retail trade; repair of motor vehicles (ISIC Rev 4. G)," "information and communication (ISIC Rev 4. J)," "IT and other information services (ISIC Rev 4. J62,63)," and "real estate activities (ISIC Rev 4. L)." Firm-level assets owned by China are aggregated within the respective industry. The absolute values of industry-level assets owned by Chinese shareholders are represented by the left Y axis. Industry-level assets owned by Chinese shareholders are scaled by the aggregation of total assets of all firms in that industry to get the share of assets owned by Chinese shareholders. The percentages of assets owned by Chinese shareholders to aggregated total assets are represented by the right Y axis.

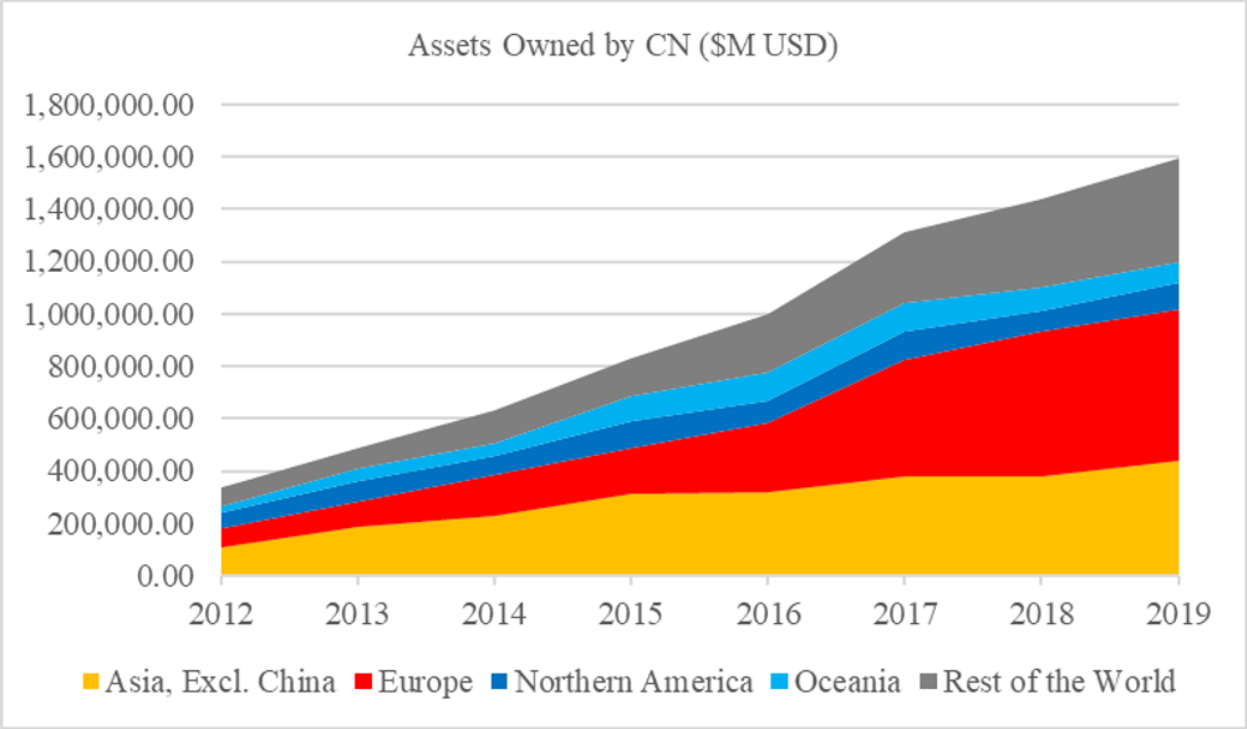


Figure 3. The Evolution of China's Global Ownership by Region

Notes: This figure plots the evolution of China's global ownership by region of the world. The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis between 2012 and 2019. Firm-level assets owned by China are aggregated at the regional level. The world is classified into six regions: Asia (excluding China), Europe, Northern America, Oceania, and the rest of the world. The classification of countries by region is in the appendix. The patterns of Northern America should be dealt with cautiously, as Orbis only provides non-missing information on listed firms in countries like the US and Canada.

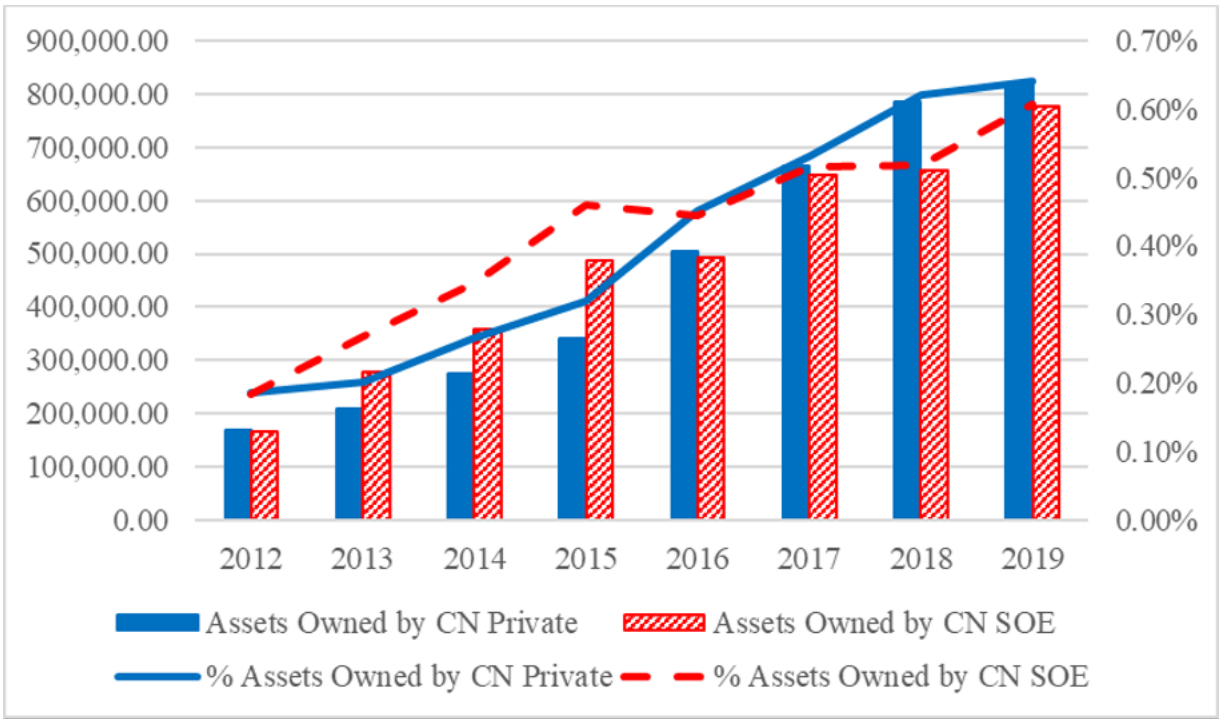


Figure 4. The Evolution of China's Global Ownership, SOE and Private Firms

Notes: This figure plots the evolution of China's global ownership by Chinese SOE ownership and Chinese private firms' ownership. The sample consists of all non-China-incorporated "Very Large" firms with non-missing financial and ownership information from Orbis between 2012 and 2019. Firm-level assets owned by Chinese SOEs and Chinese private firms are aggregated at the global level. An entity is classified as a private firm or a private firm's subsidiary if it is neither a "Public authority/State/Government" nor ultimately owned by one. An entity is classified as an SOE or a government if it is a "Public authority/State/Government" or ultimately owned by one. The absolute values of global ownership are represented by the left Y axis. Global-level assets owned by Chinese SOEs and Chinese private firms are scaled by the aggregation of total assets of all firms to get the share of assets owned by Chinese SOEs and Chinese private firms, respectively. The percentages of global ownership are represented by the right Y axis.

Appendix

Table A1. Regions of the World

Table A1. Regions of the world

Country	Region	Country	Region	Country	Region
AE	Asia	FI	Europe	CO	Rest of the World
AM	Asia	FR	Europe	CR	Rest of the World
AZ	Asia	GB	Europe	CV	Rest of the World
BD	Asia	GI	Europe	CW	Rest of the World
BH	Asia	GR	Europe	DM	Rest of the World
BT	Asia	HR	Europe	DO	Rest of the World
CY	Asia	HU	Europe	DZ	Rest of the World
GE	Asia	IE	Europe	EC	Rest of the World
HK	Asia	IS	Europe	EG	Rest of the World
ID	Asia	IT	Europe	ET	Rest of the World
IL	Asia	KV	Europe	GA	Rest of the World
IN	Asia	LI	Europe	GD	Rest of the World
IQ	Asia	LT	Europe	GH	Rest of the World
IR	Asia	LU	Europe	GT	Rest of the World
JO	Asia	LV	Europe	GY	Rest of the World
JP	Asia	MC	Europe	HN	Rest of the World
KG	Asia	MD	Europe	II	Rest of the World
KH	Asia	ME	Europe	JM	Rest of the World
KR	Asia	MK	Europe	KE	Rest of the World
KW	Asia	MT	Europe	KN	Rest of the World
KZ	Asia	NL	Europe	KY	Rest of the World
LA	Asia	NO	Europe	LC	Rest of the World
LB	Asia	PL	Europe	LR	Rest of the World
LK	Asia	PT	Europe	MA	Rest of the World
MM	Asia	RO	Europe	MG	Rest of the World
MN	Asia	RS	Europe	ML	Rest of the World
MY	Asia	RU	Europe	MR	Rest of the World
NP	Asia	SE	Europe	MU	Rest of the World
OM	Asia	SI	Europe	MW	Rest of the World
PH	Asia	SK	Europe	MX	Rest of the World
PK	Asia	UA	Europe	MZ	Rest of the World
PS	Asia	BM	Northern America	NA	Rest of the World
QA	Asia	CA	Northern America	NG	Rest of the World
SA	Asia	US	Northern America	NI	Rest of the World
SG	Asia	AU	Northern America	PA	Rest of the World
SY	Asia	FJ	Northern America	PE	Rest of the World
TH	Asia	MH	Northern America	PY	Rest of the World
TR	Asia	NZ	Northern America	RW	Rest of the World
TW	Asia	PG	Northern America	SC	Rest of the World
UZ	Asia	WS	Northern America	SD	Rest of the World
VN	Asia	AG	Rest of the World	SN	Rest of the World
YE	Asia	AI	Rest of the World	SR	Rest of the World

AL	Europe	AO	Rest of the World	SV	Rest of the World
AT	Europe	AR	Rest of the World	SZ	Rest of the World
BA	Europe	BB	Rest of the World	TN	Rest of the World
BE	Europe	BF	Rest of the World	TT	Rest of the World
BG	Europe	BO	Rest of the World	TZ	Rest of the World
BY	Europe	BR	Rest of the World	UG	Rest of the World
CH	Europe	BS	Rest of the World	UY	Rest of the World
CZ	Europe	BW	Rest of the World	VE	Rest of the World
DE	Europe	BZ	Rest of the World	VG	Rest of the World
DK	Europe	CI	Rest of the World	ZA	Rest of the World
EE	Europe	CL	Rest of the World	ZM	Rest of the World
ES	Europe	CM	Rest of the World	ZW	Rest of the World

Table A2. Variable Definitions

Variable	Definition	Data Source
Panel A: Ownership related variables		
Log(∑CN_Owned_Assets)	The logarithm of the summation of total assets directly owned by Chinese entities or Chinese entities' subsidiaries for each country each industry each year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. For example, if 50% of a firm with 100 million USD total assets is directly owned by Chinese entities or Chinese entities' subsidiaries, 50% × 100 million = 50 million would be used in the calculation. Total assets are winsorized at the 1st and 99th percentiles. ∑CN_Owned_Assets = ∑CN_PrivateOwned_Assets + ∑CN_SOEOwned_Assets.	Orbis Ownership
Log(∑CN_PrivateOwned_Assets)	The logarithm of the summation of total assets directly owned by Chinese private firms or Chinese private firms' subsidiaries for each country each industry each year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. An entity is classified as a Chinese private firm or a Chinese private firm's subsidiary if it is neither a China-incorporated "Public authority/State/Government" nor ultimately owned by one. For example, if 50% of a firm with 100 million USD total assets is directly owned by Chinese private firms or Chinese private firms' subsidiaries, 50% × 100 million = 50 million would be used in the calculation. Total assets are winsorized at the 1st and 99th percentiles.	Orbis Ownership
Log(∑CN_SOEOwned_Assets)	The logarithm of the summation of total assets directly owned by Chinese SOEs or the government of China for each country each industry each year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. An entity is classified as a Chinese SOE or the government of China if it is a Chinese-incorporated "Public authority/State/Government" or ultimately owned by one. For example, if 50% of a firm with 100 million USD total assets is directly owned by Chinese SOEs or the government of China, 50% × 100 million = 50 million would be used in the calculation. Total assets are winsorized at the 1st and 99th percentiles.	Orbis Ownership

%CN_Owned_Assets	∑CN_Owned_Assets over ∑Assets for each country each industry each year, ranging from 0 to 1. Total assets are winsorized at the 1st and 99th percentiles. %CN_Owned_Assets = %CN_PrivateOwned_Assets + %CN_SOEOwned_Assets.	Orbis Ownership
%CN_PrivateOwned_Assets	∑CN_PrivateOwned_Assets over ∑Assets for each country each industry each year, ranging from 0 to 1. Total assets are winsorized at the 1st and 99th percentiles.	Orbis Ownership
%CN_SOEOwned_Assets	∑CN_SOEOwned_Assets over ∑Assets for each country each industry each year, ranging from 0 to 1. Total assets are winsorized at the 1st and 99th percentiles.	Orbis Ownership
CN_Owned	A binary variable that equals one if the non-China-incorporated firm is owned by at least one Chinese entity or one Chinese entity's subsidiary in that year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. CN_Owned = CN_PrivateOwned + CN_SOEOwned.	Orbis Ownership
CN_PrivateOwned	A binary variable that equals one if the non-China-incorporated firm is owned by at least one Chinese private firm or one Chinese private firm's subsidiary and not by a Chinese SOE or the government of China in that year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. An entity is classified as a Chinese private firm or a Chinese private firm's subsidiary if it is neither a China-incorporated "Public authority/State/Government" nor ultimately owned by one.	Orbis Ownership
CN_SOEOwned	A binary variable that equals one if the non-China-incorporated firm is owned by at least one Chinese SOE or the government of China in that year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. An entity is classified as a Chinese SOE or the government of China if it is a Chinese-incorporated "Public authority/State/Government" or ultimately owned by one.	Orbis Ownership

CN_foreign	A binary variable that equals one if the China-incorporated firm is the Global Ultimate Owner (GUO25, GUO25C, GUO50, or GUO50C) of at least one subsidiary in one of the Group of Seven (G7) or the European Union (EU) countries in that year. G7 and EU countries include Canada, France, Germany, Italy, Japan, the UK, the US, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden. CN_foreign = CN_foreign_private + CN_foreign_SOE.	Orbis Ownership
CN_foreign_private	A binary variable that equals one if the China-incorporated private firm is the Global Ultimate Owner (GUO25, GUO25C, GUO50, GUO50C) of at least one subsidiary in one of the Group of Seven (G7) or the European Union (EU) countries in that year. An entity is classified as a Chinese private firm if its BVDID starts with "CN" and it is neither a China-incorporated "Public authority/State/Government" nor ultimately owned by one in that year. G7 and EU countries include Canada, France, Germany, Italy, Japan, the UK, the US, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.	Orbis Ownership
CN_foreign_SOE	A binary variable that equals one if the China-incorporated SOE is the Global Ultimate Owner (GUO25, GUO25C, GUO50, GUO50C) of at least one subsidiary in one of the Group of Seven (G7) or the European Union (EU) countries in that year. An entity is classified as a Chinese SOE if its BVDID starts with "CN" and it is ultimately owned by a China-incorporated "Public authority/State/Government" in that year. G7 and EU countries include Canada, France, Germany, Italy, Japan, the UK, the US, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.	Orbis Ownership
Panel B: Country and industry characteristics		
Log(∑Assets)	The logarithm of the summation of total assets of all firms for each country each industry each year. Total assets are winsorized at the 1st and 99th percentiles.	Orbis Financials
Log(∑Tangible)	The logarithm of the summation of tangible fixed assets of all firms for each country each industry each year. Tangible fixed assets are winsorized at the 1st and 99th percentiles.	Orbis Financials
Log(∑LTDebt)	The logarithm of the summation of long-term debts of all firms for each country each industry each year. Long-term debts are winsorized at the 1st and 99th percentiles.	Orbis Financials

Log(∑R&D)	The logarithm of the summation of R&D expenses of all firms for each country each industry each year. R&D expenses are winsorized at the 1st and 99th percentiles, then either dropped or treated as zeros if missing.	Orbis Financials
Log(∑Empl)	The logarithm of the summation of the number of employees of all firms for each country each industry each year. The numbers of employees are winsorized at the 1st and 99th percentiles.	Orbis Financials
∑EBITDA/∑Assets	The summation of EBITDA over the summation of total assets of all firms for each country each industry each year. EBITDA and total assets are winsorized at the 1st and 99th percentiles, respectively.	Orbis Financials
∑OpCosts/∑EBITDA	The summation of operating costs over the summation of EBITDA of all firms for each country each industry each year. Operating costs and EBITDA are winsorized at the 1st and 99th percentiles, respectively.	Orbis Financials
∑Cash/∑Assets	The summation of cash & cash equivalent over the summation of total assets of all firms for each country each industry each year. Cash & cash equivalent and total assets are winsorized at the 1st and 99th percentiles, respectively.	Orbis Financials
IO_CN/IO	Intermediate outputs to Chinese industries over the summation of intermediate outputs to all countries and industries for each country each industry each year according to the OECD Input-Output Tables.	OECD Input-Output Tables
II_CN/II	Intermediate inputs from Chinese industries over the summation of intermediate inputs from all countries and industries for each country each industry each year according to the OECD Input-Output Tables.	OECD Input-Output Tables
Log($\overline{\text{Assets}}$)	The logarithm of the average total assets of all firms that have never been owned by a Chinese entity or a Chinese entity's subsidiary for each country each industry each year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. Total assets are winsorized at the 1st and 99th percentiles.	Orbis Ownership & Financials
Log($\overline{\text{Tangible}}$)	The logarithm of the average tangible fixed assets of all firms that have never been owned by a Chinese entity or a Chinese entity's subsidiary for each country each industry each year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. Tangible fixed assets are winsorized at the 1st and 99th percentiles.	Orbis Ownership & Financials

$\text{Log}(\overline{\text{R\&D}})$	The logarithm of the average R&D expenses of all firms that have never been owned by a Chinese entity or a Chinese entity's subsidiary for each country each industry each year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. R&D expenses are winsorized at the 1st and 99th percentiles, then either dropped or treated as zeros if missing.	Orbis Ownership & Financials
$\text{Log}(\overline{\text{FAge}})$	The logarithm of the average firm age (number of years elapsed since a firm's year of incorporation) of all firms that have never been owned by a Chinese entity or a Chinese entity's subsidiary for each country each industry each year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. Firm ages are winsorized at the 1st and 99th percentiles.	Orbis Ownership & Financials
$\text{Log}(\overline{\text{Cash}})$	The logarithm of the average cash & cash equivalent of all firms that have never been owned by a Chinese entity or a Chinese entity's subsidiary for each country each industry each year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. Cash & cash equivalent are winsorized at the 1st and 99th percentiles.	Orbis Ownership & Financials
$\overline{\text{MktShr}}$	The average market share (a firm's sales over the aggregated sales of all firms) of all firms that have never been owned by a Chinese entity or a Chinese entity's subsidiary for each country each industry each year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. Market shares are winsorized at the 1st and 99th percentiles.	Orbis Ownership & Financials
$\overline{\text{Leverage}}$	The average leverage (long-term debt over total assets) of all firms that have never been owned by a Chinese entity or a Chinese entity's subsidiary for each country each industry each year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. Leverage is winsorized at the 1st and 99th percentiles.	Orbis Ownership & Financials
$\overline{\text{ROA}}$	The average ROA of all firms that have never been owned by a Chinese entity or a Chinese entity's subsidiary for each country each industry each year. An entity is classified as a Chinese entity or a Chinese entity's subsidiary if its BVDID starts with "CN" or if it is ultimately owned by an entity with such a BVDID. ROA is measured with either net income or P/L before tax and is winsorized at the 1st and 99th percentiles.	Orbis Ownership & Financials

All_Blank_R&D	A binary variable that equals one if no firm in the country industry in that year reports non-missing R&D expenses. All firms are considered for the calculation of the All Blank R&D Indicator under the "stylized facts" regressions, while only firms that have never been owned by Chinese entities or Chinese entities' subsidiaries are considered under the "spillover effects" regressions.	Orbis Ownership & Financials
Partial_Blank_R&D	A binary variable that equals one if some (but not all) firms in the country industry in that year report non-missing R&D expenses. All firms are considered for the calculation of the Partial Blank R&D Indicator under the "stylized facts" regressions, while only firms that have never been owned by Chinese entities or Chinese entities' subsidiaries are considered under the "spillover effects" regressions.	Orbis Ownership & Financials
HHI	Herfindahl index for each country each industry each year based on sales	Orbis Financials
HHI Squared	Square term of HHI	Orbis Financials
Agriculture, hunting, forestry (indicator)	A binary variable that equals one if the industry's 2-digit ISIC Rev. 4 code (equivalent to 2-digit NACE Rev. 4 code) is 01 or 02.	Orbis Financials
Mining and quarrying - energy (indicator)	A binary variable that equals one if the industry's 2-digit ISIC Rev. 4 code (equivalent to 2-digit NACE Rev. 4 code) is 05 or 06.	Orbis Financials
Mining and quarrying - non-energy (indicator)	A binary variable that equals one if the industry's 2-digit ISIC Rev. 4 code (equivalent to 2-digit NACE Rev. 4 code) is 07 or 08.	Orbis Financials
Nature_Resources_Country	Total natural resources rents (% of GDP) for each country each year according to the World Bank.	World Bank
Panel C: Firm characteristics		
Log(Assets)	The logarithm of total assets for each firm each year. Total assets are winsorized at the 1st and 99th percentiles.	Orbis Financials
Log(Tangible)	The logarithm of tangible fixed assets for each firm each year. Tangible fixed assets are winsorized at the 1st and 99th percentiles.	Orbis Financials
Log(R&D)	The logarithm of R&D expenses for each firm each year. R&D expenses are winsorized at the 1st and 99th percentiles, then either dropped or treated as zeros if missing.	Orbis Financials
Log(FAge)	The logarithm of firm age (number of years elapsed since a firm's year of incorporation) for each firm each year. Firm age is winsorized at the 1st and 99th percentiles.	Orbis Financials
Leverage	Long-term debt over total assets for each firm each year. Long-term debt over total assets is winsorized at the 1st and 99th percentiles.	Orbis Financials

EBITDA/Assets	EBITDA over total assets for each firm each year. EBITDA over total assets are winsorized at the 1st and 99th percentiles.	Orbis Financials
OpCosts/EBITDA	Operating costs over EBITDA for each firm each year. Operating costs over EBITDA are winsorized at the 1st and 99th percentiles.	Orbis Financials
ROA	ROA for each firm each year. ROA is measured with either net income or P/L before tax and is winsorized at the 1st and 99th percentiles.	Orbis Financials
Cash/Assets	Cash & cash equivalent over total assets for each firm each year. Cash & cash equivalent over total assets are winsorized at the 1st and 99th percentiles.	Orbis Financials
MktShr	Market share in the sales for each firm each year, calculated as sales over the summation of all firms' sales in the same country industry in that year and winsorized at the 1st and 99th percentiles.	Orbis Financials
CNCustomer	A binary variable that equals one if the firm is recorded in FactSet Revere as an entity to which a source company in China sells products or services in year t. Firms with missing supply chain information from FactSet Revere are dropped.	FactSet Revere
CNSupplier	A binary variable that equals one if the firm is recorded in FactSet Revere as an entity from which a source company in China purchases goods or services, an entity that provides paid manufacturing services to a source company in China, an entity that provides paid marketing and/or branding/advertising services to a source company in China, or an entity whom a source company in China pays to distribute its products/services in year t. Firms with missing supply chain information from FactSet Revere are dropped.	FactSet Revere
Blank_R&D	A binary variable that equals one if the firm does not report R&D expenses in year t.	Orbis Financials